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A 'Marshall Plan' for the Environment

By PHILIP SHABECOFF

Special to The New York Times

WASHINGTON, May 2 — Legislators from 42 countries called today for a "global Marshall plan" under which industrial nations would help less developed countries grow economically while still protecting the environment.

The conference did not specify how much such an effort might cost but urged the richer countries to help finance environmentally benign growth in the third world.

Delegates agreed on broad action to meet worldwide environment threats, including a proposal to immediately begin steps to reduce the air pollution that many scientists believe triggers the phenomenon known as global warming.

Senator Al Gore, Democrat of Tennessee, chairman and chief organizer, said that the three-day meeting, which ended today, "represents a sea change in the attitude of parliamentarians around the world about what it is possible to do to save the environment."

The legislators who took part are not

empowered to make policy for their Governments, and what, if any, concrete results emerge from the conference remains to be seen. Many of the delegates said they intend to bring the proposals adopted by the meeting to their Parliaments and seek to enact legislation on the recommendations. The delegates agreed to meet next year in Prague and in 1992 in Paris.

These were among the specific proposals for legislative action adopted by the conference:

¶Setting a worldwide target of reducing by 50 percent over the next 20 years the emission of industrial gases that are building up in the atmosphere, which many scientists believe will causing the earth to warm by trapping radiation from the sun. Reaching this goal would require lowering carbon dioxide from the burning of fossil fuels by 20 percent, reducing methane from agriculture and other sources by 10 percent, eliminating emissions of industrial chemicals called chlorofluorocarbons, and other actions.

¶Establishing national goals of

achieving economic growth in ways that can be sustained without long-term damage to the global and national environments. The conference called for the creation of a "green common market" that would permit trade in technology to help achieve sustainable development free of market barriers. It also proposed "a bank for sustainable development" to help finance growth in the developing countries without harming the environment.

¶Instituting a world strategy that links population growth with poverty and environmental degradation, and seeks to stabilize global population, now just over 5 billion, at 10 billion people. Among other things, the conference called for a doubling of funds for population programs, to \$9 billion a year.

¶Creating an "international convention for the protection of all the world's forests," temperate and tropical.

A Diverse Earth

The delegates adopted a number of other resolutions calling for the safeguarding of oceans and other water resources and preserving the biological diversity of the earth.

Several of the United States Senators who attended said they would introduce legislation to translate the recommendations of the conference into national policy. For example, Senators Tim Wirth, Democrat of Colorado, and Rudy Boschwitz, Republican of Minnesota, said they would introduce a series of measures to deal with world population control.

In an interview, the two Senators noted that they were on opposite sides of the issue of whether abortions should be legal, but agreed on the need for expanded family planning efforts on a worldwide scale. They said they would seek to separate the abortion issue from family-planning issue.

Attiya Inayatullah, a member of Pakistan's Parliament, said she would try to translate the results of this meeting into political and social reality in her country. "I am going away with a global vision," she said. "That vision tells me that in the 20th century, the issues are democracy and security, and in the 21st century, they are going to be the environment and sustainable development."

PM-Environment Conference.630<

Legislators Call for Immediate Action to Cut Pollution<

By H. JOSEF HEBERT=

Associated Press Writer=

WASHINGTON (AP) Legislators from 42 nations, disagreeing with President Bush, say the time is now for specific moves to reduce the pollution that is causing global warming.

An international conference of lawmakers on the environment concluded Wednesday with a call for specific curbs in so-called "greenhouse" gases and development of a "global Marshall Plan" to help developing countries deal with environmental problems.

"This conference has given us an agenda for action," said James Miruka Owuor, a conference co-chairman from Kenya. The three-day legislative gathering was hosted by the U.S. Congress.

The conference goals and resolutions are not binding on any country, but they are expected to be used by environmental activists in legislative bodies as a way to push for new laws to deal with international environmental problems, participants said.

Some 200 lawmakers from the 42 nations, including the Soviet Union, most European countries, Japan and many developing nations, took part in the conference.

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"We have come to a consensus agreement that the need for action is now, that the need for action is urgent," said Sen. Albert Gore, D-Tenn., the conference chairman.

Delegates to the Interparliamentary Conference on the Global Environment called for:

Nations to make a specific commitment for a 50 percent reduction in global-warming gases over the next 20 years, including elimination of the use of ozone-depleting chlorofluorocarbons, or CFCs, and a 20 percent cut in carbon dioxide emissions, largely from the burning of fossil fuels.

Development of a so-called "global Marshall Plan" by industrial nations to help developing countries deal with international environmental problems such as global warming, ozone deterioration, loss of forests and other matters.

Greater efforts to deal with population growth so that the world's population could be stabilized at 10 billion people in the next century. The link between population growth and environmental deterioration must be acknowledged, the delegates said.

The policy statements and goals provided few specifics on where the money would come to pay for the new programs.

Some delegates suggested that money from the "peace dividend" derived from improved East-West relations be used to combat

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environmental problems.

Rep. John Dingell, D-Mich., chairman of the House Energy and Commerce Committee and a conference delegate, called the conference's closing declaration "an extraordinary statement of potential legislative strategies."

But Dingell, whose committee would act on most global-warming legislation, said he doubted any such bills would be approved this year.

Nevertheless, the aggressive strategies outlined by the legislators contrasted with the more cautious approach for dealing with environmental problems favored by the Bush administration.

For example, the president told an international White House Conference on the environment two weeks ago that more research was needed before any commitments are made for specific pollution controls on global warming.

"I think this is a message to the executive branch here in the United States" and in other countries as well, Gore said of the resolutions approved by the legislators. "For any prime minister or president who says delay, we are saying ... the time is now to act."

On global warming, the conference agreed, declaring: "Delay exposes us, our children and their children to calamities which we
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will have made irrevocable by inaction in the present."

The delegates called for setting a timetable for specific cuts in global-warming pollutants by the year 2010, including a 20 percent reduction in carbon dioxide emissions, a product of burning fossil fuels; elimination of CFCs and a variety of other ozone-depleting chemicals; and a 10 percent reduction in methane emissions.

, that would amount to about a 50 percent reduction in global-warming pollutants by 2010, conference organizers said.
PLEASE ENTER A REQUEST.

DECLARATION OF ENVIRONMENTAL INTERDEPENDENCE

WE THE PEOPLES OF THE PLANET EARTH

APPALLED by the global deterioration of our common environment, the depletion of our stratospheric ozone, the pollution of our air, land and water, the destruction of our forests and soil, fatal toxification of our biological species, and the growing premonitions of permanent change in our climate; and

RECOGNIZING, First, that neither our respective national populations nor our development aspirations can be achieved or sustained unless rates of growth are consistent with our progress in resource management and replenishment;

Second, that no nation or group of nations can fully master its own environmental problems without the cooperation of others;

Third, that the prevention and reduction of global environmental damage imposes burdens of resources and restraint, requires solutions from technology and science, and cannot succeed unless both those burdens and those solutions are equitably shared among all the nations of the Earth;

DO HEREBY SOLEMNLY DECLARE, as the faithful stewards for future generations of the natural heritage upon which their food supply, health, prosperity and very survival will depend,

OUR DETERMINATION to take effective action now in our respective countries in accordance with the following fundamental principles:

1. to fund and approve new economic development activities that contribute to sustainable growth and natural resource conservation;
2. to control the emission into the atmosphere of all greenhouse gases, ozone-depleting chemicals, and other noxious substances;
3. to halt the indiscriminate and careless dumping of wastes, chemicals and other pollutants into our land, oceans and water supply;
4. to encourage the adoption of agricultural and arboricultural practices that sustain woodlands protection and soil enrichment while resisting deforestation and desertification;
5. to promote the preservation of the widest practical diversity of plant and animal species and the habitats crucial to their survival;
6. to reduce excessive population pressures by respecting the right of all couples to determine the size of their own families and by establishing conditions which would build the confidence of parents in the survival of their children; and
7. to provide in our respective nations, and to our neighbors, and through our international institutions, the financial, educational, intellectual and technological resources and rules necessary to reverse for all time the decline of the world's environment.

WITH FAITH in the capacity and courage of men and women everywhere to conserve, renew and respect their natural wealth and thereby safeguard the future of their planet, the undersigned Members of Parliament from every part of the world, assembled in the City of Washington on this 2nd day of the month of May, 1990, have solemnly pledged to personally support, and to urge their respective governments to implement this Declaration of Environmental Interdependence.



THE INTERPARLIAMENTARY CONFERENCE ON THE GLOBAL ENVIRONMENT

April 29–May 2, 1990
Washington, DC

Legislative Strategy Papers

Final

TABLE OF CONTENTS

Working Group Co-Chairs	page 1
Legislative Strategies - A Preamble	page 3
Global Climate Change	
- Resolution	page 11
- Legisslative Strategies	page 13
Ozone Depletion	
- Resolution	page 22
- Legisslative Strategies	page 24
Sustainable Development	
- Resolution	page 29
- Legisslative Strategies	page 34
Population	
- Resolution	page 39
- Legisslative Strategies	page 42
Deforestation and Desertification	
- Resolution	page 47
- Legisslative Strategies	page 51
Safeguarding Oceans and Water Resources	
- Resolution	page 56
- Legisslative Strategies	page 60
Preservation of Biological Diversity	
- Resolution	page 76
- Legisslative Strategies	page 78
Delegates to the ICGE	page 82

Working Group Co-Chairs

Global Climate Change

Al Gore
United States Senate
USA

James Miruka Owuor
National Assembly
Kenya

Ozone Depletion

John Chafee
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Sustainable Development

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Population

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United States Senate
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Attiya Inayatullah
Member of Parliament
Pakistan

Deforestation and Desertification

Rudy Boschwitz
United States Senate
USA

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House of Representatives
Republic of the Philippines

Safeguarding Oceans and Water Resources

John Kerry
United States Senate
USA

Richard Northey
Member of Parliament
New Zealand

Preservation of Biological Diversity

Max Baucus
United States Senate
USA

Alexey V. Yablokov,
Deputy Chairman, Committee on Environment and Rational Use of
Natural Resources, Supreme Soviet
USSR

LEGISLATIVE STRATEGIES—A PREAMBLE

This document represents a general consensus of the conference; it is understood, however, that signatories to the Declaration of Environmental of Interdependence do not necessarily endorse every resolution and strategy incorporated herein.

I. State of the World Environment

The earth today is in the early stages of a global ecological crisis of historic and unprecedented proportions. Citizens and governments in every nation confront environmental problems that test political leadership at all levels—grassroots, local, national and international. The survival of basic life support systems of our planet is at risk if humanity cannot muster the will and harness the effort to meet these challenges.

The environmental problems facing the world encompass every economic and social sector—business, industry, agriculture, health, education—and every discipline, from economics to biology, from ecology to engineering. Many of these problems will require the nations of the world to agree on comprehensive multilateral treaties and conventions.

However, it must be accepted that these kinds of problems result from cumulative effects of actions taken *within* national boundaries. While working urgently to formulate the needed international agreements, the world's nations must at the same time, individually and collectively, accept responsibility for the environmentally degrading activities within their own borders, and begin to take action on their own initiative. This process will be greatly facilitated by communication among nations, sharing knowledge about possible options, and mutual assistance. This process can and should begin today, even before major international agreements are in place.

One thing is transcendentally clear: the world's environment is under threat from many quarters, and the need to take action to reduce these threats is urgent. The appropriate responses will be in large part the product of deliberations in these nations' legislative bodies, and will be embodied in the laws that these bodies adopt. Parliamentarians around the world, representing citizens who are deeply concerned about these problems, are increasingly called upon to take leadership in response to these challenges.

II. Purpose of the Conference

The Interparliamentary Conference on the Global Environment provides an opportunity for parliamentarians from nations around the world to begin this process of deliberation, seeking shared concerns and common solutions.

Actions that can be taken at both the national and international levels have been discussed, with the purpose of developing as comprehensive a list as possible of environmental policy options that are appropriate for action by parliaments around the world. Steps have been taken to ensure effective continuing communications and relationships among the world's legislative bodies to encourage prompt and appropriate actions to be taken.

III. Conference Issues

Many of today's pressing global environmental problems have long been recognized by scientists and environmental professionals; the warnings were sounded 20 years ago in a landmark declaration from the 1972 United Nations Conference on the Human Environment in Stockholm, Sweden. What has changed in recent years is the increased public awareness of these problems and the increased sense of cascading crises resulting from the exponential growth of population, pollution, and resource degradation.

The Conference is organized to consider seven issue areas, chosen for their signal importance and the fact that they are global in scope, possessing enormous inertia and momentum. Although many environmental issues are international in character, these seven issues have particular significance beyond geographic and temporal immediacy: global climate change, stratospheric ozone depletion, deforestation and desertification, loss of biological diversity, degradation of oceans and water resources, population growth, and sustainable development.

Some of these issues represent the impacts or results of human activities that are proving to be unsustainable in the long-, or even in some cases, in the immediate-term. Global climate change, resulting from increasing "greenhouse gas" emissions, and depletion of stratospheric ozone, attributable to industrial and commercial chemicals, both reflect the unsustainable "affluent/overload" effects of developed economies and advanced economic activity. Many developed countries have already experienced extreme deforestation, desertification and losses of biological diversity, and many developing countries are following the same dangerous path. Oceans and losses of water resources through pollution and overuse result from overloads from human activities in both developed and developing areas. As noted, population growth, underlying the constant expansion of the human activities that cause these environmental stresses, contributes to all of these problems.

As a result of the interrelated nature of ecological systems, these problems that have been considered separately and on a fragmented basis can now be addressed through the diffuse and interconnected causes and effects of potential climate change. Consequently, policymakers who seek measures to protect the earth's atmosphere can and must deal with some of these long-standing international environmental issues in a new and urgent context.

It is important and desirable that action on these environmental problems begin without delay, and that we immediately begin discussion of measures appropriate for individual nations. Because ozone depletion, deforestation and desertification, loss of biological diversity, and degradation of oceans and water resources have largely resulted from the pressures of overpopulation and unsustainable development, and are cumulatively leading to global climate change, actions dealing with climate change can best be reviewed in the context of the population and sustainable development policies of each country. These issues must be addressed together and not in isolation. Population control and sustainable development will provide the foundation for a response to these problems, and will pose new directions for human activities that will enable economic activities with fewer unwelcome or unsustainable side-effects.

There are two faces to unsustainable development: one is the unsustainability of industrial and energy-use activity, concentrated for the most part in affluent or developed economies, in which ecological systems are overloaded by rapid consumption and waste products. The other is the unsustainability of poverty, in which rapidly growing populations put ever-increasing pressure on meager resources, overexploiting and eventually exhausting land, water, forest and other resources.

The first of these requires strategies focusing on retrofitting, replacing, and eliminating existing infrastructure and means of doing business. The second calls for the incorporation of sustainable concepts into new activities and methods.

Both are costly and difficult, and will require significant planning and forecasting. Both require a greater awareness of the ways that human activities are affecting the earth's life support systems and critical natural resources, and finding new methods of economic production that protect both the environmental and economic sustainability of human activities. Both will also provide many benefits and improvements in the quality of life on earth, beyond those directed at environmental improvement alone.

Global Climate Change

Citizens around the world have become increasingly aware that human activities have changed the earth's atmosphere in ways that may threaten human well-being and even the earth's basic life support systems. The U.N. General Assembly has recognized climate change as a common concern of mankind. Climate is an essential condition which sustains life on earth. The fact that emissions from industrial, transportation, residential and consumer activities have already resulted in measurable changes in the concentration of carbon dioxide and other greenhouse gases in the atmosphere—and could result in long-term global climate change—has produced urgent calls for international action to reduce human impacts on the earth's atmosphere. Even more frightening is the realization that climate change involves massive inertia, and that even drastic reductions in emissions today may not diminish climate change for some time.

Many nations will want to ask their citizens to change habitual and accepted ways of living and conducting business only after international agreements have been achieved on the needed actions. At the same time, however, many of the changes necessary to prevent and deal with global climate change are beneficial in their right and would be desirable in any case. For example, actions to reduce emissions through enhanced energy efficiency may also reduce dependence on foreign sources of fuel, reduce acid rain problems, improve health conditions in urban centers, protect infrastructures, and save money in the long run.

Stratospheric Ozone Depletion

Earlier warnings that a number of industrial chemicals might result in depletion of the stratospheric ozone layer were substantiated in the mid-1980s by scientific findings that a large "hole" had developed in the ozone layer above Antarctica. Later research revealed that the causes of the creation of that hole were directly linked to a group of chlorofluorocarbons (CFCs) used as refrigerants, foam agents, and aerosols. In addition, thinning of stratospheric ozone has been observed at all

latitudes. Reductions in ozone levels have now been found in the stratosphere above the North Pole.

Urgent international negotiations have already produced the Vienna Convention on Protection of the Ozone Layer (1985), and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. However, parties to these agreements have since agreed that a more rapid phase-out of harmful ozone-depleting chemicals is called for, and additional negotiations will soon be underway. Developed countries must work toward the most rapid development and deployment of CFC substitutes, while assuring the environmental safety of the substitutes, and developing countries must seek out methods of achieving development goals within the constraints posed by threats to the atmosphere from CFCs, and similar ozone-destroying compounds such as the halons, methyl chloroform, carbon tetrachloride, and hydrochlorofluorocarbons (HCFCs).

Deforestation and Desertification

Loss of the world's forests and productive agricultural land has been accelerating over the past several decades. These losses have occurred all over the world. Many developed countries have experienced drastic deforestation through the creation of agricultural lands and urban high-density communities. Large sections of the land has since been allowed to convert back into second-growth immature forests, lacking in biodiversity and resources.

Deforestation pressures are especially severe in tropical areas because of the pressures created by expanding populations and unsustainable methods of land-use. Tropical forests are of special concern for several reasons: they occur in extensive systems that are thought to play a key role in climate and regional weather patterns; they contain a rich store of biological diversity on earth; the cleared land cannot sustain agricultural activity; and in many areas they are under heavy pressure from incoming settlers who clear huge forest areas by burning, making substantial contributions to the greenhouse gases that cause global climate change.

Because of the contributions such burning makes to total human-caused emissions of greenhouse gases, because of the loss of biological diversity when large habitat areas are burned or cut, and because the resulting alternative uses of the land are usually not sustainable (soils are usually poor and do not support either long-term agriculture or grazing), global attention has been focused on stemming the loss of tropical forests and on the need for reforestation and sustainable management of timber cutting operations.

In many countries, loss of vegetative cover leads to desertification or loss of productive capacity in large areas. In savannah and agricultural land, overuse, overgrazing and poor agricultural and irrigation practices also contribute to desertification. These problems are occurring in both developed and developing countries. The cumulative effect of the loss of natural resources in many countries has an impact on the global economy as well as the global environment.

Biological Diversity

As wilderness areas around the earth are subjected to encroachment by human settlements and agriculture, native species of plants and animals in these habitats are rapidly being extinguished. Larger animals have become the victims of direct overexploitation through hunting or poaching, and are threatened with extinction. Genetic erosion in agricultural fields and in husbandry is also a major threat to the global biodiversity.

No firm figures exist on the number of species on earth today, but it is estimated that there are some 30 million species of plants, insects, animals and other life forms, of which about 1.5 million have been identified. Some experts state that within the next ten years, if tropical forests continue to be destroyed at current rates, some 15 percent of all plant species will be eliminated by the year 2000. Many species also face extinction in developed countries through the loss of habitat, exposure to toxins, and over-exploitation.

Such losses are important to humanity for many reasons. In the complex interaction of ecological systems that support life, loss of even small links in the biological chain can doom the entire system. Because of which have symbiotic interrelationships, continuation of the system depends on the presence of most of the organisms in the system. Moreover, medicines and pharmaceuticals are heavily dependent on specialized chemistry found in living organisms. Loss of these wild organisms could destroy the possibility of potential pharmaceuticals to cure human disease or form the basis of ecologically benign chemicals.

The domesticated plants that form the basis for the world's agriculture must be replenished by infusions of stock from wild plants from time to time. Some of the "raw material" of biotechnology is to be found in the genetic riches of living organisms that are being eliminated in the current wave of extinctions, described as the most rapid loss of species since the mass extinctions of eras before human life on the Earth.

Oceans and Water Resources

Pollution from human sources threatens future use and productivity of both oceans and freshwater sources. Sources of this pollution span the entire spectrum of economic activity, from agricultural runoff that silts up and pollutes rivers and marine estuaries to industrial and urban sources that produce toxic pollutants that foul not only shorelines but water resources used for human consumption, groundwater and surface waters.

Many of these oceans and water resources problems cross national boundaries or are global in scope. Pollution threatens ocean waters, as does overharvesting of marine resources that provide an essential and irreplaceable food source for many nations. Marine fisheries produced 84.5 million tons in 1987, a fourfold increase since 1951. The upper limit of fisheries yields may be around 100 million tons, according to some estimates, but pollution and loss of habitat may mean that goal will never be achieved.

Water resource scarcity afflicts growing regions of the world and threatens to increase political tensions in water-short areas. Population pressures and agricultural activities are increasing fresh-water demands, causing water tables to

be drawn down and aquifers to be depleted. Nations whose rivers receive heavy pollutant loads from upstream neighbors also feel the need for cooperative mechanisms to alleviate their water quality problems.

As pollution from oil spills and land-based sources continues to increase, concern around the globe is rising about these abuses of the global oceans "commons." Mechanisms are being sought to increase international cooperation in stemming ocean pollution.

Population Growth

Human population growth has been a leading cause of increased pressure on the global environment. Over the past 50 years, the world's population has been increasing at unprecedented speed. Current estimates project an eventual levelling off of the population in the next century at between 8 and 14 billion people. Current trends are moving towards the upper estimate.

Many of the world's environmental problems arise from practices that are insignificant if done in limited areas by modest numbers of people. However, it is the cumulative effects of these practices, increasing exponentially with the human population growth, that causes the acute ecological impacts the world is now seeing. In this way, demographic trends, together with the production and consumption patterns chosen by individuals and societies, are a critical underlying cause of many environmental dilemmas facing the world.

A necessary pre-condition for addressing the global population issue is the universal availability of education about family planning methods, education about why family planning information, counselling and services are important, and access to reproductive health care and services. Assuming that this precondition exists, efforts to address population planning should focus on two necessary factors.

First, childhood survival rates should be increased to levels which cross the threshold necessary for the demographic transition to low birth rates and low death rates. Most countries with high rates of population growth also have low childhood survival rates and this basic condition must be changed.

Secondly, the status and education level of women must be increased. Until women have some control over their destinies and the knowledge to make responsible choices for their future, family planning efforts will be ineffective.

Both of these activities must take place in the context of national economic development and the concept of environmental sustainability. Long-term economic and political stability is likely to be achieved in countries where human resource development and equitable sharing of wealth goes along with concern about the conservation and protection of natural resources. Such policies also create conditions under which family planning programs are more likely to succeed.

Sustainable Development

A common thread emerges in the search for environmentally sustainable economic activity and development. This might be defined as activity that does not involve degradation of the basic resource base on which future economic activity, health, or well-being depend; i.e., financing today's activities with tomorrow's resources. A new approach is required in which all nations aim at a type of development that integrates production with resource conservation and enhancement. An adequate basis for livelihood and equitable access to resources are essential. Because economic and social systems and ecological conditions

differ widely among countries, each nation must work out its own policy implications.

The discussion of sustainable development involves crosscutting issues, such as national economic, development, and population policies, international cooperation on global funding options, development of mechanisms for technology transfer, and other related concerns. Each of these topics should incorporate criteria of sustainability, and each nation should reexamine its own policies and activities to ensure that this is the case. It is important that this philosophy be reflected in each nation's approach to planning.

Although the idea of sustainable development involves unique concepts, all the other issues contain sustainable development concepts, as well. As specific options are developed for addressing the issues, each should also be based on sustainability concepts.

IV. Products of Conference

What follows are lists of legislative goals and strategy options developed for each of the seven issues of this Conference, along with short background papers attached as appendices. The items identified could be enacted by an individual parliament, and are categorized into goals directed at national activities and goals directed at international activities and relations with other nations.

Not all strategies will be appropriate for all nations; not all delegates will even agree with each option. What remains is the need to develop specific mechanisms, model laws, and examples for implementing these goals: the tools to fill these tool boxes.

One means for doing this is through the International Network for Environmental Policy (INEP). INEP is a computer network for individuals and organizations interested and involved in environmental policy issues. Initially developed for this Conference, INEP will continue to provide policy makers from around the world a means for communicating and sharing ideas on means of dealing with environmental issues.

Initial legislative participants of INEP will be found in the countries attending the ICGE. Additional participants in the network will include parliamentarians from other nations, managers, policymakers, scientists, and others. INEP will enable its participants to discuss approaches, strategies, and philosophies of legislative environmental actions and to develop consistent, effective environmental legislation.

Global Climate Change

GLOBAL CLIMATE CHANGE

Whereas:

- Global climate change, which disrupts basic agricultural cycles, imposes heavy economic costs, disturbs the ecological balance, and causes the oceans to encroach upon coastal regions, threatens the well-being of peoples in all nations;
- More severe forms of global climate change threaten the survival of nations and the entire international order, both directly as a consequence of environmental effects, and indirectly as a consequence of political conflict and war induced by desperate social stress;
- The weight of scientific evidence supports the conclusion that greenhouse gas emissions caused by the radical increase in human economic activity during this century will, if they continue, cause serious global climatic disruption;
- The Intergovernmental Panel on Climate Change, under the auspices of the United Nations Environment Programme and the World Meteorological Organization, will present reports on the science, impacts, and response strategies regarding global climate change at the November 1990 Second World Climate Conference in Geneva;
- The emissions of gases responsible for global climate change are projected to increase sharply during the remainder of this century and in the early decades of the next, absent concerted effort to reverse existing patterns;
- The choices made now about strategies to deal with greenhouse gases will determine whether the globe will experience climate change in its lesser dimensions, which will impose serious but more controllable stress upon nations and the international system, or be committed to change on a scale which could threaten calamity;

NOW, therefore, be it resolved that:

- The time to act is now; delay exposes us, our children and their children to calamities which we will have made irrevocable by inaction in the present;
- Nations should commit themselves to negotiating a global agreement on climate change, whose basic feature will be a specific overall global target for reducing greenhouse gas emissions by 50% from 1990 levels by the year 2010, with the responsibility of individual nations proportionately related to factors such as per capita emissions and levels of economic development; and that the 50% goal be reached with, for example, a combination of a complete phase-out of CFCs and related compounds, reductions of at least 50% in levels of annual deforestation as well as increases in reforestation, reductions of approximately 10% in methane emissions and 20% in carbon dioxide emissions from the burning of fossil fuels, and other actions;
- The developed nations should together initiate a global Marshall Plan for sustainable development and the environment to share the burdens in proportion to their abilities and actively assist the developing nations so that all nations may reach this goal;
- The developed nations should launch a Strategic Environment Initiative to stimulate the development of industrial technologies, agricultural techniques and renewable energy sources with the potential for radically diminishing greenhouse gas emissions, including the establishment of an international agency to promote the development and application of all forms of solar energy on an urgent basis;
- The level of greenhouse gas emissions established as a global target should be

- lowered regularly in light of new developments in such technologies, and national plans and international arrangements for sharing the costs of rapidly applying such technologies should also be adjusted as appropriate. All nations of the world should unite in global goals of immediately stabilizing and reversing current declining trends in worldwide forest coverage; and, by 2000, to increase worldwide forest coverage at a rate of 30 million acres annually;
- Nations should begin now to identify, plan for, and make preparations to deal with the most likely early consequences of global climate change;
 - As we act to prevent global climate change, national and international programs of global climate research must be pursued as top priorities to sharpen our ability to understand these processes, to measure them, and to gauge the implications of our policies for them.
 - Industrialized nations should ensure that trade or export development or development aid programs do not subsidize the export or sale to developing nations of technologies, products or substances that add to the problem of global climate change and redirect resources to the transfer of safer technologies.
 - Development aid support the production of manufactured products in the developing country where the raw resources originate to help reverse capital flow out of developing countries and to reduce transportation requirements.

GLOBAL CLIMATE CHANGE

Legislative Strategies

A number of gases produced by human activity have been measured at increasing concentrations, adding to the greenhouse effect in which the atmosphere traps heat from the sun. An increased greenhouse effect is expected to warm the planet and alter climate systems. Increases in the level of man-made emissions of carbon dioxide, methane, chlorofluorocarbons (CFCs), and nitrous oxide, all greenhouse gases, are a direct result of increases in population and economic activity.

Different economic sectors produce different levels of greenhouse gas emissions. In the industrialized nations, energy-related emissions predominate, while in developing nations, land-use and energy-related emissions both comprise significant portions of total emissions.

National Actions

Listed below are legislative goals that could potentially contribute to the reducing emissions of greenhouse gases. Not all of these goals will be appropriate, effective, or efficient in all countries and regions of the world. Economic conditions and political culture, as well as the level of emissions from each economic sector, will be important considerations in choosing a package of goals.

General Emissions-Reduction

Goal: Accelerate development and dissemination of new technologies to promote sustainable growth while minimizing degradation of the environment.

Strategy: In industrialized nations, establish the national government as a model and thereby a stable market for technologies that minimize or eliminate greenhouse gas emissions.

Strategy: Fund necessary research and development of alternative sources of energy and fuel, with mechanisms to provide for demonstration and commercialization.

Goal: Set national standards, guidelines, or goals to limit emissions of carbon dioxide, CFCs, methane, and nitrous oxide.

Goal: Identify and eliminate existing national policies that work against reductions in greenhouse gases.

Strategy: Reexamine national economic, development, tax, and research policies in order to minimize or remove incentives for increased use of fossil fuels.

Strategy: Redefine long-term energy strategies to achieve higher efficiency and limit future requirements for carbon-emitting technologies.

Goal: Establish training centers at the national level to acquaint the nation's professionals with the technologies and strategies available to reduce greenhouse gas emissions from all sectors of the economy.

Manufacturing Sector

The manufacturing sector contributes substantially to greenhouse gas emissions, particularly carbon dioxide and CFCs. The principal relevant manufacturing activities are energy-intensive, heavy-industrial processes which consume fossil fuels for process heat, electricity for process heat, and electricity for motive force. In addition, some of these industries generate greenhouse gases in non-combustion processes, either directly or as a by-product of their manufacturing processes. The sector's potential for assisting with prevention and mitigation of the greenhouse effect is relatively large.

Goal: Encourage industrial research and development with the aim of redesigning manufacturing processes or equipment to improve energy efficiency and/or reduce fossil fuel use.

Goal: Promote use of energy-efficient equipment and processes in manufacturing.

Strategy: Establish subsidies, tax credits, and other incentives to encourage industry to replace low-efficiency equipment with high-efficiency equipment and appliances.

Goal: Promote building operation and maintenance improvements to reduce emissions of greenhouse gases.

Goal: Promote switching industrial energy inputs to fossil fuels with less greenhouse gas impact, such as natural gas.

Goal: Reduce demand for fossil fuel-intensive manufactured goods by encouraging development, production, and marketing of alternative goods.

Goal: Encourage process changes in industries that are energy-intensive and release carbon dioxide.

Goal: Encourage co-generation by manufacturers.

Goal: Encourage recovery and recycling of fossil fuel-intensive manufactured materials, particularly scrap steel, aluminum, plastics, paper, and glass; and encourage incorporation of recycled materials in manufactured products.

Goal: Encourage manufacturers to produce products which are more durable or repairable, or which generate fewer residuals when discarded.

Goal: Promote the use of sustainably harvested wood for products made from petroleum resources, where appropriate.

Goal: Promote the use of natural products as fillers and/or substitutes for petroleum-based products, where appropriate.

Goal: Discourage incorporation of CFCs in manufactured products.

Goal: Encourage substitution and process changes to minimize CFC use in manufacturing, and/or encourage or require the use of closed processes and recovery technologies to eliminate the release of CFCs to the atmosphere.

Goal: Restrict or discourage the release of CFCs to the atmosphere from products which incorporate CFCs.

Strategy: Ban the improper disposal of products containing CFCs, or use a deposit-refund system on those products to encourage proper disposal and CFC reclamation.

Strategy: Use advertising, labeling, or government statements and signals to communicate the hazards of CFC release, and promote consumer demand for substitute products.

Agricultural and Forestry Sectors

In no other sector is climate a more determining factor than in agriculture and forestry. The use of energy, production of agricultural inputs, processing of food, and not least the metabolism of all living things, release a variety of greenhouse gases. The sector includes important sources of methane, carbon dioxide, and nitrous oxide.

Goal: Promote sustainable agricultural and land-use practices that require less land, conserve energy, and reduce greenhouse gas emissions.

Strategy: Encourage more efficient use of agrochemicals, fossil fuels, and irrigation water, including the development of new crop varieties that require less water and fewer chemical inputs.

Strategy: Encourage the conversion of unneeded cropland to woodland vegetation.

Strategy: Develop and promote alternatives to burning for land management and clearing, and control burning practices.

Strategy: Promote research in rice production to minimize methane emissions.

Strategy: Encourage more efficient manufacture of commercial fertilizers.

Goal: Promote activities in agronomy, agriculture, and biology which will allow plant and animal species to be better suited to changing climate conditions.

Goal: Minimize food losses and wastes in the food distribution system.

Goal: Promote investment in sustainable forests and their harvest.

Strategy: Encourage the use of non-wood forest products, such as nuts, fruits, and medicines.

Goal: Encourage accelerated and sustained tree-growing in the public and private sectors.

Strategy: Promote research into fast-growing tree species.

Strategy: Encourage utilities to offset carbon dioxide emissions through urban tree planting and rural afforestation.

Electric Power Sector

The electric power sector is a significant source of carbon dioxide and nitrous oxide emissions, and emissions sources are highly concentrated relative to other economic sectors. In addition to attempts to reduce its share of greenhouse gas emissions, the electric power sector may need to adapt to any future climate change due, for example, to changes in weather-sensitive demand, changes in streamflow.

Goal: Accelerate research, development, and demonstration of non-fossil electricity supply technologies, such as wind power, geothermal power, solar thermal power, solar electric power, ocean energy, and biomass energy.

Strategy: Fund necessary research and development of renewable sources of energy and fuel, with mechanisms to provide for demonstration and commercialization.

Goal: Increase public and commercial awareness of high-efficiency and renewable-fuel appliances and equipment.

Strategy: Fund locally-developed education programs for individuals on how to evaluate and maximize efficient use of energy consumption in their everyday lives.

Goal: Eliminate fiscal incentives that encourage use of fossil fuels.

Goal: Promote high-efficiency co-generation.

Goal: Encourage anticipation of possible effects of climate change on fuel supply and infrastructure for electricity generation.

Goal: Promote efficiency through utility operating and maintenance procedures.

Goal: Promote the use of generating technologies and fuel combinations that minimize greenhouse gas emissions and environmental damage overall, when investments are made to increase or replace generating capacity.

Strategy: Impose greenhouse gas emission fees, or carbon-based fuel user fees, on utilities using fossil fuels.

Strategy: Establish tax credits for investments in selected, low- or non-emitting technologies.

Strategy: Set technology standards or emission limits for new investments in generating capacity.

Goal: Increase capital turnover rates to accelerate retirement of polluting or inefficient equipment.

Goal: Promote consideration of end-use efficiency improvements and co-generation, as low-cost alternatives to generating capacity expansion.

Goal: Encourage investment in new, more efficient transmission and distribution technologies.

Strategy: Support research and development of superconducting technology and power system automation.

Strategy: Establish standards for replacing transmission and distribution equipment.

Goal: Promote efforts to offset new sources of carbon emissions, with measures such as tree planting or investments in energy efficiency.

Goal: Promote development and implementation of technologies with low or no greenhouse gas emissions.

Strategy: Establish design standards requiring the use of the best available or best practical technology for efficient use of fuel in new generating capacity.

Strategy: Research, develop, demonstrate, and introduce technologies that utilize clean fuels, such as hydrogen.

Goal: Improve the end-use efficiency with which electricity is used by all consumers.

Strategy: Establish efficiency standards.

Strategy: Develop subsidies and incentives to encourage use of efficient technologies, materials, and procedures.

Goal: Encourage least-cost utility planning, which analyzes all demand-side conservation and efficiency measures in the same framework as supply-side measures, for providing electrical services.

Goal: Reduce methane emissions from hydro facilities and other water impoundments.

Strategy: Require full environmental impact assessments prior to developing water containments, in order to determine potential methane emissions levels from such facilities prior to project approval.

Transportation Sector

Vehicle operations are the most obvious source of greenhouse gases from transportation, but the sector also emits greenhouse gases from the construction of infrastructure, the manufacture of operating equipment, and the production of fuels. The greenhouse gases emitted by the sector are carbon dioxide, CFCs, and methane. The sector also emits oxides of nitrogen (a possible precursor of nitrous oxide), as well as other pollutants that contribute to urban air quality problems.

Goal: Promote research and development aimed at improving vehicle fuel economy, and developing vehicles that can use alternative fuels with low or no greenhouse gas emissions.

Goal: Promote design, production, marketing, and purchase of fuel-efficient vehicles, and vehicles that operate on fuels with low carbon dioxide emissions.

Goal: Promote vehicle operation and maintenance improvements to reduce emissions of greenhouse gases.

Goal: Slow the growth in the number of vehicle-kilometers travelled, and increase vehicle occupancy.

Goal: Promote efficiency in urban, suburban, and rural transportation infrastructure designs, including location of residences, businesses, and services, as well as layout of roads and highways, that minimizes the need for private vehicle use and otherwise minimizes overall energy demand for personal transport.

Strategy: Promote and facilitate use of relatively fuel-efficient modes of travel, such as walking, bicycling, urban mass transit, or high-speed rail, where appropriate.

Goal: Promote development and utilization of telecommunications to reduce the need for travel to exchange information or obtain services.

Goal: Promote transportation infrastructure designs, and strategies for extending their useful life, that reduce requirements for materials whose production releases large amounts of greenhouse gases.

Goal: Promote maximal use of the least energy-intensive modes of freight transport.

Residential and Commercial Sectors

The residential and commercial sectors consume energy for applications in areas such as cooking, space heating, lighting, and air conditioning. The most obvious opportunities for reducing greenhouse gas emissions are in improving the efficiency with which these services are provided. Community design and weatherproofing of structures also play a role in determining how much energy is consumed to regulate the indoor environment. In addition to their direct and indirect contribution to carbon dioxide emissions, the commercial and residential sectors account for a substantial portion of CFC emissions.

Goal: Encourage energy efficiency and conservation, and overall resource efficiency, in new and existing buildings, through building design, siting and landscaping, construction, energy-use management, and retrofitting older buildings.

Strategy: Encourage urban tree planting for shade, as a means to reduce building cooling loads.

Goal: Demonstrate and promote increased efficiency of fuelwood use; provide incentives for substitution of more efficient fuels.

Goal: Promote efficiency in urban transportation infrastructure designs, including location of residences and services, street layout, and landscaping, that minimizes the need for private vehicle use and otherwise minimizes overall energy demand from communities.

Strategy: Promote use of relatively fuel-efficient modes of travel, such as walking, bicycling, urban mass transit, or high-speed rail, where appropriate.

Goal: Encourage the adoption of updated building codes that require highly efficient equipment and practices.

Goal: Promote the use of non-fossil energy, such as passive and active solar, wind,

and biomass, for space heating, water heating, and other applications.

Goal: Promote research and development aimed at improving energy efficiency and developing alternative fuels for residential and commercial applications.

Goal: Encourage proper operation and maintenance of building equipment, to ensure optimal efficiency.

Goal: Promote the manufacture and purchase of high-efficiency equipment and appliances.

Goal: Encourage methane recovery from landfills.

Goal: Stimulate research, development, and marketing of chemical and/or technological substitutes for CFCs, in appliances, building materials, and commercial equipment.

Goal: Promote retrieval of CFCs from appliances prior to disposal.

Goal: Control use of CFCs in construction materials and appliances for residences and businesses.

Goal: Encourage co-generation in commercial and institutional settings.

International Strategies

Climate change is an international problem, whose solution will require international cooperation. The following list offers some strategies that may help to promote the common overall goal of protecting the global environment.

Goal: Promote, support, and become involved in international cooperative activities aimed at mitigating greenhouse gas emissions.

Strategy: Participate in negotiations for a global climate convention.

Strategy: Promote the establishment of international financial mechanisms to assist developing countries in their compliance with a possible climate protection treaty, and existing treaties for protecting the stratospheric ozone layer.

Strategy: Sign and ratify the Montreal Protocol.

Strategy: Support negotiations to strengthen the Montreal Protocol.

Goal: Promote information dissemination on technologies and techniques available to reduce greenhouse gas emissions.

Goal: Promote technology-transfer and joint technology development programs, particularly for energy-intensive activities such as manufacturing and electricity generation, and for CFC-replacement technologies.

Goal: Facilitate financing for implementing projects to reduce greenhouse gas

emissions, including energy efficiency, alternatives to fossil fuels, and reforestation.

Goal: Establish environmental criteria for economic assistance programs and institutions; for example, such criteria might promote development of more effective environmental guidelines, and financing of environmentally sound projects.

Ozone Depletion

OZONE DEPLETION

Whereas:

- The best available scientific evidence shows that certain manufactured substances, including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), methyl chloroform, carbon tetrachloride, and halons, are causing destruction of the stratospheric ozone layer;
- Destruction of the stratospheric ozone layer will lead to increased rates of disease in humans, including skin cancers and cataracts, threaten food crops and marine resources, and otherwise damage the natural environment;
- No level of stratospheric ozone depletion caused by human activities can be deemed safe;
- The Montreal Protocol on Substances that Deplete the Ozone Layer provides a framework for all nations of the world to protect the Earth's ozone shield;
- The control measures that are currently set forth in the Montreal Protocol are far too weak to protect the stratospheric ozone layer;
- Ozone-destroying CFCs and related compounds are also powerful greenhouse gases projected to be responsible for 20 to 25 percent of global warming;
- Stratospheric ozone depletion from continued emissions of CFCs and other ozone-destroying compounds imperil human health and the environment worldwide;
- In order to protect adequately the stratospheric ozone layer, avoidable emissions of all ozone-destroying compounds should be terminated rapidly;
- Industrialized nations should encourage industries to develop and convert to safe, alternative products and technologies that do not rely on ozone-destroying compounds;
- There will be substantial development and transition costs which will be more difficult to bear in developing than in developed economies;
- The effort to protect the Earth's stratospheric ozone layer by phasing out ozone-destroying compounds cannot succeed if it is not universal;

NOW, therefore, be it resolved that:

- National laws, regulations, agreements and similar enforceable standards must be reviewed and improved to minimize the release of all ozone-destroying compounds to the atmosphere, through use of improved emissions controls, recapturing and recycling, and safe disposal systems;
- National laws, regulations, agreements and similar enforceable mechanisms should encourage the transition from all ozone-destroying compounds to environmentally benign substitutes, through the application of measures such as taxes or fees, incentives, and the implementation of national safety and licensing standards;
- National laws, regulations, agreements and similar enforceable standards should be used to encourage the rapid development of new technologies, processes and/or manufactured compounds so that the costs of transition will be minimized;
- National laws, regulations, agreements and similar enforceable standards must be applied to prevent the transfer or exchange of ozone destructive technologies among nations;
- The Montreal Protocol must be strengthened at the June, 1990 Second Meeting of the Parties in London by
 - (1) expanding coverage to include all ozone destroying compounds, such as methyl chloroform, hydrochlorofluorocarbons (HCFCs), and carbon tetrachloride;
 - (2) accelerating the reduction schedule for production and use of all ozone

- destroying compounds;
- (3) limiting growth in production and use of HCFCs, with more stringent limits applicable to compounds that either have an atmospheric lifetime greater than two years or that contribute significantly to other environmental threats, including but not limited to global climate change;
 - (4) providing for elimination of the production of CFCs, the halons, carbon tetrachloride, and methyl chloroform as early as possible, but in no event later than January 1, 2000, with special consideration to the needs of developing countries; and
 - (5) providing for elimination of the production of HCFCs as early as possible, but in no event later than January 1, 2030, with earlier elimination dates applicable to compounds that either have an atmospheric lifetime greater than two years or that contribute significantly to other environmental threats, including but not limited to global climate change.
- To encourage global participation in and compliance with the Montreal Protocol, equitable mechanisms must be developed to share the responsibilities and the costs of transition to ozone-safe processes, technologies, and/or manufactured compounds, including but not limited to bilateral and multilateral funding assistance from industrialized nations to developing countries and creation of an international fund to assist developing countries seeking to comply with the Montreal Protocol.
 - Those countries capable of reducing and eliminating production or use of ozone-destroying compounds faster than required by the Protocol, especially compounds with atmospheric lifetimes greater than two years, should do so.

DEPLETION OF THE STRATOSPHERIC OZONE LAYER

Legislative Strategies

National Actions

Goal: Establish disincentives to discourage the use of ozone-destroying chemicals. Increasing the cost of production, sale and use of ozone-destroying chemicals through taxes or fees provides disincentives for the use of those chemicals and increases demand for substitutes, technologies and processes that do not rely on ozone-destroying chemicals. Fees could be imposed through the requirement for licenses to produce these chemicals. Taxes could be imposed on both their sale and on equipment, appliances or processes which use them.

Strategy: Impose excise taxes on ozone-destroying compounds, both domestic and imported, to discourage their use. However, exemptions should be allowed for exports to developing countries.

Strategy: Impose excise taxes on appliances, processes, and equipment, both domestic and imported, based on their potential to contribute to ozone destruction, to discourage their use.

Strategy: License production of all ozone-destroying compounds and attach fees to obtaining the licenses.

Goal: Encourage the use of safe substitute technologies, processes and/or manufactured compounds. Prior to the eventual abolition of ozone-destroying compounds, systems can be developed to encourage switching to safe substitutes earlier than required. Incentives can also be provided to industry and researchers to develop effective and efficient substitutes. Incentives for the recycling and reuse of ozone-destroying compounds should be developed as well. These programs will be expensive, and should be supported in developing countries through assistance from developed countries.

Strategy: Production and purchase of safe substitutes is subsidized and supported so as to encourage broad use.

Strategy: Subsidies and supports are provided for the manufacture and purchase of equipment, processes, and appliances which do not rely on ozone-destroying compounds.

Strategy: Manufacturers and research firms receive tax deductions, credits, and other subsidies for the research and development of substitute technologies, processes, and/or manufactured compounds.

Goal: Regulate the production, use, and disposition of ozone-destroying compounds. National regulations should be developed to control production and use of ozone-destroying compounds and to lead to reductions which are consistent with or more stringent than international agreements such as the Montreal Protocol.

Strategy: Develop accelerated reduction schedules for allowable production prior to elimination of ozone-destroying compounds, including CFCs, halons,

methyl chloroform, hydrochlorofluorocarbons, and carbon tetrachloride.

Strategy: Mandate elimination of all ozone-depleting compounds. Selection of a date for elimination for HCFCs should consider the degree of environmental threat presented by the specific HCFC compound, the effect of early dates on the willingness of producers to make necessary investments and the ability of developing countries to avoid a growing dependence on CFCs.

Strategy: Develop strictly controlled venting practices and emissions control programs.

Strategy: Require and enforce appropriate recycling and disposal methods.

Strategy: Ban equipment, processes, and appliances which use ozone-destroying compounds.

Strategy: Prohibit non-essential consumer items which use ozone-destroying compounds.

Goal: Develop funding mechanisms for ozone-protection programs. Initially, the revenues gained from taxes and fees, together with fines imposed through enforcement activities and tariffs imposed on importation of ozone-destroying chemicals and appliances which use them, will provide some funding for research, enforcement, and other activities. However, these resources are limited and short-lived. Long-term funding mechanisms must be developed.

Strategy: Support the development of international trust funds or other sources.

Goal: Develop and fund research programs designed to reduce and ultimately eliminate production and use of all ozone-destroying chemicals and to retrieve, recycle, and safely dispose of them. It is not necessary for all countries to conduct research on all aspects of ozone protection, but programs should be established to obtain and apply the results of research from those countries that are conducting research activities.

Strategy: For those countries which have the resources, research programs, both national, private, and local, should be funded on ozone issues. Research efforts should focus on:

- a. Atmospheric effects
- b. Substitutes for CFCs, halons, carbon tetrachloride, methyl chloroform, and HCFCs and the energy efficiencies of each
- c. Emission controls for those uses that cannot be eliminated quickly
- d. Recycling, containment and disposal methods
- e. Economic effects
- f. Policy impact research

Strategy: Establish national clearinghouse to disseminate information on ozone-destroying substitutes, the disposal and handling of undesirable chemicals, and ozone depletion to industry, businesses, and citizens.

International Actions

Goal: Strengthen the Montreal Protocol.

Strategy: Expand coverage of Protocol to include methyl chloroform, carbon tetrachloride, and hydrochlorofluorocarbons; accelerate reduction schedules in the current protocol; add provisions providing for elimination of all ozone-destroying compounds as rapidly as possible.

Goal: Broaden worldwide participation in and compliance with the Montreal Protocol.

Strategy: Use bilateral and multilateral assistance to promote participation and compliance with Protocol.

Strategy: Prompt development and demonstrated availability of safe, substitute technologies and processes that do not rely on ozone-destroying compounds will promote willingness of all nations to comply with terms of the Protocol.

Goal: Explore and support international cooperative activities. It is important that countries establish mechanisms for sharing of information and means for reducing use of ozone-destroying compounds. One way of doing this is through UNEP and WHO clearinghouses of information.

Strategy: Develop programs for sharing appropriate technologies which reduce use of ozone-destroying compounds.

Strategy: Support cooperative research programs to develop safe substitute technologies and processes that do not rely on ozone-destroying compounds.

Strategy: Ratify international treaties like the Montreal Protocol and the Vienna Convention.

Goal: Encourage use of environmental criteria by economic assistance programs and institutions.

Strategy: Increase pressure on national overseas development agencies and multilateral development banks to develop more effective environmental guidelines and to support ecologically sound projects, and, conversely, to end those projects which directly or indirectly promote the use of ozone-destroying substances.

Strategy: Provide effective technical assistance and other bilateral assistance to research and other programs which encourage the use of safe substitute technologies and processes that do not rely on ozone-destroying compounds.

Strategy: Negotiate provision and acceptance of bilateral assistance to include

environmental criteria.

Goal: Develop economic pressures and sanctions.

Strategy: Develop mechanisms to encourage countries that are not reducing or limiting production and use of ozone-destroying compounds to do so. These mechanisms should at least be consistent with the Montreal Protocol.

Strategy: Plan for prohibiting importation of all ozone-destroying compounds.

Strategy: Develop financial aid to needy countries for substituting, recycling, capturing, and disposing of all ozone-destroying compounds.

Strategy: Prohibit importation of equipment and appliances that require the use of ozone-destroying compounds.

Strategy: Prohibit exportation of specified products to countries that are not signatories to and in compliance with the Montreal Protocol and the Vienna Convention or successors.

Strategy: Enforce economic sanctions against countries that produce ozone-destroying compounds beyond the limits of the Montreal Protocol or successors.

Strategy: Prohibit export of technologies to produce or expand use of any ozone-destroying compounds to countries that are not signatories to and in compliance with the Montreal Protocol.

Sustainable Development

SUSTAINABLE DEVELOPMENT

The goal of sustainable development is nothing less than the permanent preservation of life on earth.

Whereas:

- The basic needs of our growing populations, and the aspirations of all peoples for themselves and their children require continued economic progress especially in developing regions of the world;
- Each nation has the right to choose the pattern of development most compatible with its history, tradition, culture and the concerns of its people;
- Implementation of sustainable development policies must include a full recognition that poverty and illiteracy, as human conditions, must be eliminated. Such conditions are critical impediments to national and global achievement of sustainable development;
- Current approaches to development are rapidly consuming the natural endowments of all nations, in terms of land, water, minerals and fuels, at rates which cannot be sustained over an extended period of time;
- Current approaches to development are destroying increasing numbers of living species of animals and plants, the loss of which impoverishes us and our descendants economically, intellectually and morally;
- The effluents which are a byproduct of economic growth have reached levels that severely compromise local and regional environments, to the extent that the economic and social costs arising from these practices already have begun to outweigh economic gains;
- Some of these effluents, such as the greenhouse gases, have reached levels that will increasingly disturb the basic natural cycles and systems upon which the global environment depends for stability;
- Local and regional environmental and resource degradation will render existing strategies for development increasingly ineffective, threatening our ability to advance;
- Natural systems imbalances at the global level will threaten the fabric of organized international life, with risks and costs escalating rapidly with every delay in addressing the sources of this threat;
- Major improvements in the technologies now used for economic growth as well as new measurement indices will be needed to respond to these profound challenges;
- Even revolutionary advances will be of little use, unless matched by similarly deep changes in attitude, policy, and institutions in every nation;
- The uncontrolled pursuit of biotechnology experimentation and genetic manipulation imposes unusual dangers on the global environment and is inconsistent with the principles of sustainable development and more time is required for international dialogue on the ethical and moral dimensions of genetic manipulation;
- It is necessary to distinguish between the terms "economic growth" and "development." "Economic growth" only takes into consideration numerical measures such as GNP, and does not take into account social and environmental costs; and
- "Development" must be understood as a qualitative measure of well-being. "Sustainable development" is a necessary balance between the interests of present and future generations. It includes both social justice and a healthy environment.

NOW, therefore, be it resolved, that

- The parliaments of each nation are urged to provide the leadership to change and refocus national priorities on conservation and ecological protection as primary national responsibilities.

NATIONAL CHARTER FOR SUSTAINABLE DEVELOPMENT

Be it further resolved, that

- each nation is urged to undertake the establishment of a National Sustainable Development Charter to include self-binding rules and obligations, including economic incentives or disincentives, to respect and concretely recognize the principles of responsible and sustainable development, including:
- measures to control and stabilize population growth;
- practices to conserve and adequately reduce reliance on fossil fuels and non-renewable resources generally;
- revisions of national accounting systems to recognize and incorporate environmental values such as the depletion of non-renewable resources;
- regulations for preservation of habitat, endangered species, and biodiversity;
- policies to prevent the unsustainable use of wetlands, farmlands and forests;
- limitations and controls on the generation and disposal of toxics;
- elimination of subsidies that result in loss of habitat, species, or biodiversity, or the excessive consumption of non-renewable resources;
- practices, especially for industry, to reduce energy demand and minimize waste; and
- adherence to internationally agreed upon standards of ecological conduct applicable to both domestic and international entities, incorporating a principle of global fairness.

GREEN COMMON MARKET

Be it further resolved, that

- the membership of GATT is urged to take the necessary steps to establish a Green Common Market for Trade and Technology in which participants agree to assume an appropriate and comprehensive range of sustainable development strategies and practices while gaining complete and open market access, free of duties, tariffs, quantitative restrictions and other direct and indirect market barriers.
- such Green Common Market shall be established by (1) improving and utilizing the mechanisms of Article XX, or (2) concluding a Sustainable Development Code conferring enforceable obligations upon signatories.

BANK FOR SUSTAINABLE DEVELOPMENT

Be it further resolved, that

- the industrialized world recognize its responsibilities and self-interest in assisting developing countries in achieving sustainable development by establishing a Bank for Sustainable Development with the special purpose of supporting the transition of developing countries addressing and implementing sustainable development practices. Eligibility shall be extended to:

- (1) Those countries with low levels of development and percapita income and for which comprehensive application of sustainable development principles is currently infeasible and which undertake an effective and sustained program to achieve "demographic transition".
 - (2) Those developing countries adopting practices and policies consistent with a national charter for sustainable development;
- capitalization for the Sustainable Development Bank shall be drawn, insofar as possible, from the military and defense budgets of the major industrialized countries; and
 - as an interim measure while arrangements for this new institution are being completed, a "Green Window" for ecologically-related loans be inaugurated at the World Bank.

POPULATION

Be it further resolved, that

- the growth of population must be limited to sustainable levels by each nation, and
- any nation yet to achieve "demographic transition" shall be granted benefits under the Sustainable Development Code upon demonstration that such nation has undertaken a comprehensive program to achieve demographic transition, which program includes but is not limited to:
 - recognition of basic human rights, including the education, employment, and empowerment of women;
 - provision of educational and market-driven employment opportunities, to enable people to earn an adequate minimum standard of living; and
 - successful implementation of effective family planning programs to achieve and maintain replacement-level birth rates.
- all major sustainable development planning should incorporate women's development, education, and family planning policies which take the human factor into careful account.

INTERNATIONAL BORROWING AND LENDING

Be it further resolved, that

- no multilateral lending institution, nor any government agency or government chartered financial institution, shall extend credit:
- for any activity that is inconsistent with sustainable development; or
- to any nation that has not systematically begun to incorporate the principles of sustainable development in its policy practices.
- the determination by any one multilateral lending institution shall be binding on all others.
- all decisions by international lending institutions shall be based on the submission of a thorough evaluation of environmental and social impacts of any activity proposed to be financed.
- policies of all multilateral lending institutions shall respect the perspectives and needs of borrowers as well as lenders.
- all multilateral lending institutions and creditor governments shall adopt policies to strongly encourage and facilitate the reduction and conversion of existing debt, according urgent and highest priority to debt for nature swaps.

TECHNOLOGY TRANSFER

Be it further resolved, that

- the transfer of technologies essential to achieving sustainable development be given high priority for support by all multilateral financial institutions.
- special rules and concessionary terms for the transfer of technologies and access to intellectual property be established to speed and facilitate access by those nations subscribing to the principles of sustainable development.
- pending the completion of international dialogue on biotechnology and genetic manipulation and the establishment of uniform guidelines and protections, no patents be issued that would result in the release of genetically-engineered organisms to the natural environment.

TOXICS

Be it further resolved, that

- each nation shall commit to the urgent implementation of measures to reduce and control toxic emissions into the environment and pledges:
 - (1) to reduce all toxic and mutagenic elements in production activities to the greatest extent feasible by the year 2000.
 - (2) to routinely and accurately monitor the composition and volume of such effluents that are necessary and unavoidable to production activities (after the application of best control technologies); and
 - (3) to dispose of such residual effluents in the most environmentally responsible and protective manner, consistent with the principles of sustainable development, in the country or region where the materials are produced,and shall adopt such national requirements and regulations and dedicate such resources as are necessary to achieve these objectives.

ENVIRONMENTAL COSTS

Be it further resolved, that

- each nation shall develop and apply revised accounting systems and practices that shall fully recognize, in national product and income accounting, all costs associated with:
- the depletion of non-renewable resources, including energy, ecological systems, and species diversity, and
- damage to the environment.
- each national government shall use economic and fiscal measures to require such costs to be imposed on, and returned by, the public or private entity engaging in such activity; and
- each nation shall support and encourage similar revision in accounting systems maintained by the United Nations and other regional and international organizations.

PEACE

Be it further resolved, that

- the sovereign nations of the earth recognize that the material and spiritual sustenance of humankind requires the full commitment of each nation to

- achieving and maintaining global peace. To this end, the nations undertake:
- to resolve conflicts and disputes peacefully through negotiation, diplomacy, and reliance on international law and institutions, including the establishment of an Environmental Court and an Environmental Security Council within the U.N. structure;
 - to reallocate insofar as possible investments in military weapons and defense systems to meet human needs, and particularly the protection of the global environment, education and the eradication of poverty; and
 - to establish policies and norms of behavior that are conducive to the harmonious and sustainable conduct of relations with other countries and peoples.

SUSTAINABLE DEVELOPMENT

Legislative Strategies

The goal of sustainable development is to balance environmental and ecological requirements with economic development. It is a concept which has great tensions. Affluence can cause global warming and ozone depletion as its unintended by-products. Poverty can accelerate the loss of tropical forests and inhibit biodiversity. Population shifts and growth are an critical factor to the ability of a nation or culture to sustain itself over long periods of time.

National Actions

Goal: Develop a national definition of "sustainable development" incorporating economic and ecological sustainability with an eye towards enhancing and preserving our future.

A new approach is required in which all nations aim at a type of development that integrates production with resource conservation and enhancement. An adequate basis for livelihood and equitable access to resources are essential. Because economic and social systems and ecological conditions differ widely among countries, each nation must work out its own goals.

Strategy: Develop criteria for sustainability for industry and agriculture using national definition.

Strategy: Apply national definitions and criteria to national economic and development policies.

Strategy: Establish a national governmental focal point on environmental foresight and policy,

Strategy: Require a review of environmental assessments of major national products and development activities.

Goal: Refine economic and development polices to reflect sustainable development criteria.

Environmental considerations must be integrated into economic, technological, energy, transport, trade, industrial, foreign, and defense policies in order to meet criteria for sustainable development.

Strategy: Develop and implement a national income accounting system that takes appropriate account of the destruction or degradation of natural resources.

Strategy: Support the development of tax incentives that encourage development of criteria for environmental sustainability.

Goal: Establish and fund research programs into methods of conducting sustainable development.

To develop effective methods of sustainable development, we need to know much more about what kinds of development are, and what kinds are not, sustainable.

Goal: Develop best environmental sustainability practices with regard to industrial production, agriculture, and energy goals. Establish regulatory mechanisms to apply and enforce national criteria for evaluating success.

Strategy: Promote national sustainable development discussions with local government, industry, and community leaders.

Goal: Establish National Foresight Capability. In order to fulfill the responsibilities of each generation as a trustee of the environment for succeeding generations, every country should establish a national foresight capability to develop a process for understanding the long-term consequences of major actions and their international implications. Likely areas of potential concern might include: balance of payments/trade; economic well-being; environmental quality; information transfer and communications; national security; population structure, mobility and growth; public health; resource conservation and use; social equity; and technological productivity.

Industrial Practices:

Strategy: Develop industrial standards to provide identifiable criteria for preventing the use of materials that cause waste, recycling those that can be recycled, and disposing of the end products in the most responsible fashion.

Strategy: Develop standards for transport, handling, and disposal of hazardous wastes and emissions.

Strategy: Establish notification procedures for hazardous waste accidents and releases.

Strategy: Develop regulations limiting emissions from industry. Require appropriate use of pollution prevention and control technologies.

Strategy: Establish reasonable and responsible enforcement programs.

Strategy: Encourage community participation in evaluating and advising on hazardous materials affecting them.

Land Use and Agriculture Practices

Goal: Broad land conservation categories should be established to provide for the enhancement of already developed areas; to prevent the development of reserve areas; and to require restoration when necessary. These categories should reflect the national sustainability criteria.

Strategy: Subsidies that overstimulate food production and create inappropriate pressures on land resources at the expense of wetlands, parks and fragile lands should be eliminated or modified.

Strategy: Broad agricultural and forestry categories should be established, indicating proper levels of cropping, grazing, and lumbering for each type of ecosystem represented. These categories should reflect the national sustainability criteria.

Goal: Environmentally sustainable agriculture established as a national goal.

Strategy: Research on optimal mix of chemical and pesticide inputs to lower costs of production and preserve the resource base with minimum damage.

Strategy: Establish active extension services to disseminate new techniques using optimal/minimal effective inputs and maximizing effective organic alternatives.

Goal: Develop programs to improve use of natural resources and crops through use of local seed banks to store and propagate genetic material to prevent the loss of biodiversity and restore the natural functions of biological communities and ecosystems.

Strategy: Establish and fund seed banks and research efforts to utilize the resources available there.

International Actions

Goal: Promote economic assistance programs that incorporate sustainable development criteria which include appropriate technology transfer

Aid agencies should adopt a longer term perspective directed at the protection and rehabilitation of the natural resource base. Intermediary institutions, either non-governmental or linked to local government, that can administer aid more cheaply and involve local people should be established. Aid agencies should adopt stringent requirements for environmental impact assessment, examination of decentralized alternatives, and involvement of affected people.

Strategy: Increase pressure on international lending organizations and other nations to adopt national income accounting practices which incorporate degradation of natural resource factors in calculating GNP.

Strategy: Lender nations should expand the economic criteria by which they provide loans to include environmental and sustainable development criteria.

Strategy: Increase pressure to relevant international organizations, such as UN agencies, the World Bank and regional groups, to develop model contracts and guidelines incorporating a range of sustainable development principles(e.g., principles that encourage exploitation of renewable resources within limits defining sustainable yields).

Strategy: Increase pressure to relevant international organizations such as the OECD to develop codes of conduct for transnational corporations which deal explicitly with environmental matters, embracing the objectives of sustainable development.

Strategy: Require development assistance to be targeted at Least Cost Energy Technologies. (These involve a method of reviewing the full range of options available—for increasing supply and for reducing demand—before making a commitment to follow a particular strategy for energy enhancement.)

Goal: Become signatory to and support international environmental treaties and conventions

Strategy: Sign and support international conservation treaties and conventions, such as World Heritage, and Endangered Species.

Strategy: Encourage a strong and effective international convention for the handling and disposal of hazardous wastes.

Strategy: Promote international codes of practice covering technical, economic, and social (including health and environment) aspects of energy production and consumption.

Goal: Areas already set aside under Debt-for-Nature swaps should develop mechanisms for addressing the needs of adjacent human populations for sustainable development.

Goal: Establish international cooperative compacts reflecting sustainable development with environmental criteria.

Because of potential transboundary effects, it is essential that governments cooperate to develop internationally agreed upon codes of practice. In order to streamline programs and lead to the sharing of expenses for regional initiatives, processes to strengthen co-operation are essential. This requires the identification, analysis and coordination of solutions to international environmental problems.

Strategy: Establish national process for evaluating multilateral treaties, including trade, in order to look at their environmental impacts.

Population

POPULATION

Whereas:

- Annual global population increases are greater, in real terms, than at any time in human history;
- At current rates, in the 30 years it takes for one generation to succeed another, the world's total population will grow by close to 3 billion people;
- Yearly increments over the next 10 years will approach 97 million human beings world-wide, 94 per cent of which will be born in the developing world;
- The implications of such developments are staggering. Nearly everywhere, increasing demands are damaging the natural resource base – land, water and air – upon which all life depends;
- Urban overcrowding and the lack of economic opportunity in many parts of the world exists. Moreover, poverty is widespread and growing: For some 1.2 billion people, poverty is a way of life;
- Pressures on resources reflect the growth of population, equally relevant is the pursuit of lifestyles by industrialized countries which threaten ecosystems and sustainable development. Efforts should be taken by the industrialized countries to show bolder leadership on population and the environment.
- The projected growth of the global population could be as high as 14 billion or approximately 10 billion before it stabilizes sometime late in the next century;
- There is a marked difference between the social, economic and environmental implications of a global population that grows to 14 billion versus one that grows to 10 billion;
- Recognize the importance of economic choices and increased equality at the local, national and international levels, to the success of family planning programs.
- The working group on Population believes that the 1990s are a critical decade for developing population programs that will reduce the future size of the global population;
- Clearly, it is time for concerted action. The triad of population growth and distribution, environmental degradation and pervasive poverty threatens us and our planet as never before. Future generations must be given basic human rights and have equal access to all the benefits society has to offer.

NOW, therefore, be it resolved that Parliamentarians in all nations should:

- Endorse the "Amsterdam Declaration" developed by the participants of the International Forum on Population in the Twenty-first Century, held in Amsterdam, the Netherlands, from 6 to 9 November 1989, whereby population goals and objectives for the coming decade and beyond should include:
 - 1) a reduction in the average number of children born per woman commensurate with achieving, at a minimum, the medium variant population projections of the United Nations;
 - 2) a major reduction in the proportion of women and men who are not currently using reliable methods of family planning, but who want to postpone, delay or limit childbearing;
 - 3) a substantial reduction in very early marriage and teenage pregnancy;
 - 4) an increase in contraceptive prevalence in developing countries so as to reach the objectives of the medium variant population projection of the United Nations.
- Strengthen their political commitment to family planning programs, particularly by giving visibility through Administrative priority;
- Promote citizen participation in national population programs at all levels, in particular at the local and community level;
- Recognize and promote the importance of the rural family. In particular, programs should be encouraged to strengthen the delivery of reproductive health services,

infant and child health care, maternal health care and the education of women in rural areas. Further, it is recommended that effective programs be demonstrated which protect the welfare of rural inhabitants and provide economic choices which enhance equality;

- Develop programs that improve the organization of all planning programs, with particular emphasis given to addressing the rapid urbanization of the global population;
- Improve educational programs at all levels, both within and independent of school systems. Every individual has the right to education. Particular attention should be given to improving the education of, and to reduce illiteracy among, women around the world. In addition, population and environmental education should be developed and promoted at every level;
- Develop programs to improve reproductive health care for women. Programs should be designed to ensure safer motherhood by assisting women to avoid unwanted pregnancies and to procreate during the biologically safe reproductive years. Special attention should be paid to the prevention of pregnancies which carry extra health risks;
- Develop programs that will improve the delivery of family planning services. Particular attention should be paid to improve the logistics and supply of family planning programs so the unmet need for family planning is addressed.
- Promote programs that raise the priority given to population in international diplomacy. In particular, increased international funding for population programs is critical. Increased funding for population programs by multilateral institutions and for non-governmental population programs both nationally and through multinational non-governmental organizations is imperative. Recognizing the recommendations of the Amsterdam Declaration, population programs designed to attain the United Nations median variant estimate of population growth (10.3 billion) must be funded at a level of US \$9 billion, distributed in accordance with the specific needs of individual countries. To reach this goal, all governments, and the United States in particular, must increase financial support for population programs. The United States is encouraged to renew its historical position as the world's leader in international programs.
- Promote the development of integrated population, environmental and economic planning, recognizing that policies affecting one of these areas affects the others as well;
- Encourage policies that promote responsible parenthood -- particularly with respect to male responsibility and participation in the child-rearing process;
- Promote the development of policies that improve the health of children and recognize the effects of environmental degradation on the young. In particular, efforts should be directed at creating educational programs to promote breast-feeding and ensure low-cost, effective, child survival measures. Pursuant to the Amsterdam Declaration, support is given to reducing the 1980 rate of infant mortality to rates of at most 50 per 1000 live births by the year 2000 in all countries and major sub-groups within countries. The health and nutrition of children must be improved so that the decline in infant mortality is a recognized reality by parents;
- Promote policies that take into account the cultural relevancy of population programs -- by taking into consideration social, political, religious and cultural traditions.
- Recognize that poverty is both a determinant of and dependent upon population growth. The development of economic development programs is a critical determinant of fertility and should be encouraged nationally and internationally. Parliamentarians are particularly urged to promote more egalitarian systems and increase equity in national agriculture and rural policies. Recognizing the woman's role as a subsistence farmer, it is desirable to seek a restructuring of social, economic

and political controls over agriculture and land so that women can participate in the management and decisions related to these resources.

- Initiate a review of existing legal mechanisms that can be implemented to further population programs. All nations are urged to develop national population policies. Parliamentarians are encouraged to help educate political colleagues about the nature and urgency of the population issue and to work with colleagues to develop legislative agendas that promote population programs. It is recognized that family planning is a human right. It is the right of individual couples to voluntarily determine family size. We respect human rights for all families and individuals, and family planning must be consistent with acceptable doctrines of human rights.
- Promote family planning research, in particular, these efforts should: (1) encourage the improvement of existing and the development of new methods of family planning; (2) study the causes and the consequences of rural-urban population migration; and (3) generate a data base on the relationship between demographic characteristics and the outcome of development programs. Increasing funding for this research is essential.

POPULATION

Legislative Strategies

National Actions

Goal: To make family planning information and services widely available for any who want it. This should be carried out in a manner that takes account of the diversity of cultures. On average, an annual expenditure of \$15-20 per couple per year could provide adequate family planning information and services in most nations, as well as the training and research need to expand and improve services.

Strategy: Increase funding for national population programs.

Strategy: Increase funding for international family planning programs

Strategy: Dedicate a higher percentage of foreign assistance funding to international family planning.

Strategy: Encourage increased funding for population programs by multilateral development banks.

Strategy: Encourage increased funding for government and non-government population programs both nationally and through multinational non-governmental organizations.

Goal: Develop national population strategies to stabilize population size.

Strategy: Create mechanisms/surveys to determine population targets that can be sustained with domestic natural resources and that can benefit from economic growth and an enhanced quality of life.

Strategy: Encourage balanced distribution of the population in relation to the long-term carrying capacity of the country.

Goal: Develop integrated national population plans.

Strategy: Encourage the development of national plans that coordinate and set environmental, economic, social and overall development goals in conjunction with a comprehensive population plan.

Strategy: Include population considerations in all environmental assessment processes.

Goal: Encourage reductions in fertility rates.

Strategy: Encourage birth spacing—the period of time between births—which promotes infant health, reduces maternal-related illness and reduces family size.

Strategy: Encourage generational spacing—delaying average age at which women first give birth.

Strategy: Create incentives for delaying the birth of the first child.

Strategy: Develop mechanisms to reduce teenage pregnancy through adequate sex education and appropriate services.

Strategy: Raise minimum ages for marriage.

Strategy: Assist women to avoid unwanted pregnancy and to procreate during the biologically safe reproductive years.

Strategy: Expand and reorient primary health care services to increase their impact on women's reproductive health.

Goal: Reduce infant and child mortality

Strategy: Create educational programs to promote breast feeding and ensure sustained low cost effective child survival measures.

Strategy: Develop child nutrition programs.

Strategy: Provide safe drinking water and hygienic conditions through sanitation facilities..

Goal: Reduce maternal mortality

Strategy: Encourage birth spacing.

Strategy: Expand health care services (neo-natal/post natal care).

Strategy: Expand health education programs.

Strategy: Special attention should be applied to the prevention of pregnancies which carry extra health risks.

Goal: Improve the status of women. (Fertility rates are related closely to the status of women in society.)

Strategy: Expand educational opportunities for girls and women.

Strategy: Reduce female illiteracy.

Strategy: Draft and enact laws that promote equal rights for women in marriage, land ownership, and employment.

Strategy: Encourage pay equity

Strategy: Encourage women's participation in the public and the private sector, and in the political and economic spheres of influence.

Goal: Promote policies that reduce rural/urban migration.

Strategy: Land distributive changes through land reform and transmigration of rural population from land-short to surplus areas.

Strategy: Improve communication facilities and electrification which breaks rural isolation and backwardness.

Strategy: Develop services for secondary towns.

Goal: Improve the cultural relevancy in the delivery of population programs. The success of population programs is closely related to delivery that recognizes: (1) local customs and prevailing social mores; (2) community based family planning programs carried out through voluntary non-governmental organizations.

Strategy: Initiate a national inventory of demographic/cultural patterns for assessing the delivery of population services.

Strategy: Expand population programs in the community, especially at the grassroots level through religious leaders. The attention of parliamentarians in Muslim countries or communities is directed to the ACFH Declaration of the International Congress on Islam and Population Policy held in Indonesia in February, 1990.

Goal: Encourage private sector involvement in population programs.

Strategy: Create incentives and encourage the provision of family planning information and contraceptives in the workplace.

Strategy: Establish/mandate promotion of contraceptives in commercial enterprises.

Strategy: Create incentives for private sector research to advance the development of new forms of contraception.

Strategy: Provide quality counseling to allay fears and misconceptions using community leaders, non-governmental organizations and government public health workers.

Goal: Encourage widest possible availability of contraceptive services, including social marketing.

Strategy: Develop national media programs to promote family planning.

Strategy: Establish national programs to distribute family planning information and contraceptive devices.

Goal: Promote family life and sex education for young people.

Strategy: Promote out of school programs for young people to provide sex education and, where appropriate, contraceptive services.

Strategy: Establish national education programs that include course requirements in sex education and family planning.

Goal: Target high-priority groups in national demography.

Strategy: Encourage programs to reduce teenage marriage and pregnancy rates.

Goal: Share information with non-parliamentarians.

Strategy: Organize local conferences on population.

Strategy: Meet/write executive branch officials to encourage family planning programs.

Strategy: Work with religious leaders.

International

Goal: Reinforce the Global Mexico City Population Policy.

Strategy: Create greater awareness of global population goals and policies among parliamentarians everywhere and encourage greater support for these.

Strategy: Network information about program successes and needs with other international parliamentarians.

Strategy: Increase international funding to assist in the production and distribution of contraceptive commodities.

Strategy: Increase funding for international research to improve existing and develop new methods for family planning and contraception.

Strategy: Establish sub-regional, regional and international information networks to collect and disseminate information on family planning programs.

Strategy: Encourage existing organizations to establish cooperative international family planning programs.

Strategy: Fund and support international family planning information and services to make family planning information and services widely available in a manner which is sensitive to diverse cultural beliefs.

Strategy: In order to lower family size (number of births per family) deemed desirable for survival, support programs which promote human well-being, development of human resources, and sustainable economic development combined with environmental and ecological protection. (See Sustainable Development Goals and Options.)

Deforestation and Desertification

DEFORESTATION AND DESERTIFICATION

Whereas:

- Forests are disappearing in every part of the world as the result of human activity driven by economic concerns;
- Other regions are desertified by many factors, including drought and subsistence agriculture. Desertification, as a result of physical, geographic, and man-made developments, leads to the destruction of ecosystems, and to deterioration of all forms of organic life;
- The forests of the world, especially rainforests, are often complex ecosystems, the loss of which is often irreversible. The short-term gain from their destruction is frequently followed by permanent reduction of any other economic potential;
- Our advancing knowledge of the rainforests already shows that they can most often produce more wealth if left intact for sustainable uses, than if they are cut down, or burned, for short-term gain;
- Land cleared through deforestation is in many regions unsuitable for ongoing agriculture and exhausted within a few years, so that the deforestation leads to no permanent gain, but rather could and often does lead, to a cycle of growing economic costs, including flooding, disruption of hydrological cycles, and, ultimately, in the some instances, desertification;
- Sharply declining global acreages of forest, particularly through burning, contribute to large numbers of environmental problems, including the increase of greenhouse gases in the atmosphere, reduced food production due to erosion of soil, flooding, etc;
- The destruction of forests and other habitats forever denies to humankind the benefits derived from species of animals and plants that disappear in this process, including especially plant species which may be essential for improved crops for cultivation and those which may form the basis for biotechnological application, medicine, and other scientific uses;
- Deforestation, especially from burning, also results in significant release of carbon dioxide into the atmosphere and a contribution to the greenhouse effect that causes global warming;
- Protection of existing forests from clearcutting and burning is more cost-effective than reforestation; in addition to avoiding the expense of reforestation, this performs important watershed protection functions, preserves biological diversity, and reduces atmospheric carbon dioxide emissions more effectively;
- The economic impetus behind the destruction of rainforests often stems from economic pressures caused by poverty and population growth, which leads to land clearing and pressure on land resources for marginal agriculture;
- Debt pressures in many developing countries are creating destructive pressures on both forest and land resources;
- International trade practices often play an important role in over-exploitation of forest and land resources;
- International lending institutions have contributed, often inadvertently, to deforestation;
- In many cases, excessive use of pesticides and other chemical substances has reached a critical level, leading to depletion of soil fertility and soil degradation that contributes to desertification;
- Loss of tree cover in arid and drought-prone areas causes soil erosion and desertification, and creates fuelwood shortages that leads to further deforestation;

- The world's temperate forests are suffering extensive degradation from air pollutants, often trans-boundary in origin. Large areas in many forests subjected to such pollutants, as well as wood cutting and burning, have died or suffered severe ill effects;
- The role of women in rural societies has often been ignored by development efforts, despite the fact that in many societies women are the main farmers and fuelwood gatherers, acting through desperate poverty as the agents of deforestation and desertification; and
- The processes of deforestation and desertification occur locally but the consequences are often global.

NOW, therefore, be it resolved that:

- Governments seeking to protect the fundamental, long-term interests of their people should seek to arrest deforestation and desertification and the reverse their effects where possible;
- This interest involves not only the direct responsibility of each government to sustain forests and lands under its legal authority, but also a responsibility for all governments to cooperate and to assist in this task as part of a global effort;
- An international convention for the protection of all the world's forests, along the lines of the International Whaling Convention, should be urgently pursued. The importance of protecting both temperate and tropical forests should be stressed, together with the specific responsibilities of both developed and developing countries. Such a convention should recognize the unique value of the remaining old growth, primary forests of the world, and establish mechanisms and incentives for their protection. Specific targets for reducing deforestation and goals for achieving reforestation should be established;
- Reversing deforestation in all nations is essential. In tropical areas this is especially important in view of the contributions to greenhouse gas emissions made by burning of forests, and in view of the unsustainability of the agriculture and livestock practices in these areas of poor soils. The nations of the world should work together to develop the incentives that will encourage forest protection while assuring economic development of the people in countries where these large tropical forest are located;
- The important role of paper recycling in protecting forests -- by reducing demand for tree cutting -- should be recognized, and nations should encourage such recycling to the maximum extent possible.
- Increased scientific knowledge will be needed to enable forests to survive the impact of human activities, and to retard the spread of deserts. Major efforts should be made to discover forest products, both timber and non-timber, that can be harvested on a sustainable basis. New strains of crops suitable for arid agriculture and marginal lands must be developed and disseminated. Governments should provide resources for the accumulation of this knowledge as a priority;
- A strong emphasis on technical and financial assistance targeted to women is essential, particularly in small-scale efforts and agricultural extension, in order to provide them with alternatives to practices that exacerbate deforestation and desertification;
- Governments should also act to change the economic incentives which now promote deforestation and desertification. At the national level, this will require a mixture of tax incentives, new laws and regulation bearing on land use, and in many cases land reform;

- International trade agreements should take into account and attempt to reduce their environmental impacts, especially those on forests and other natural resources. Implementation of trade agreements should be monitored to determine any negative effects on deforestation or land use practices that they have;
- In order to relieve the pressures on environment and natural resources, especially in marginal lands, such as steep slopes, forests, and arid lands, debt reduction measures should be pursued more vigorously, both through bilateral and multilateral channels. This may include greater use of debt-for-sustainable development designed to assure forest protection, especially providing better economic alternatives. However, such transactions should occur only when initiated by the debtor country, in order to avoid any concerns about infringements on sovereignty;
- Governments should adopt national accounting methods that reflect the loss of forests and land resources as reductions in national wealth to be balanced against monetary gains from their exploitation;
- Sustainable methods of forest management must be developed and implemented. In particular, the negative impacts on all types of forests of destructive logging practices should be recognized and avoided.
- The Tropical Forestry Action Plan should be supported, to achieve sustainable management of forests and to improve forest protection and preservation of nature reserves. It should be carefully monitored to assure that it is a mechanism for developing better forest protection options;
- Internationally, the role of many air pollutants, including acid precipitation, as causes of trans-boundary forest deterioration should be recognized by governments, and measures to reduce them should be pursued;
- Development and dissemination of sustainable agricultural methods should be a high priority in order to reduce causes of desertification, including soil erosion, over-exploitation of fragile lands, over-grazing on rangelands, and over-use of chemical inputs that can reduce long-term productivity of the land;
- Irrigation should be carefully designed to prevent the salinization and waterlogging of the soil that results in desertification;
- Fuelwood alternatives should be developed, especially through application of renewable energy technologies that will facilitate development while relieving pressures on tree cover that causes desertification;
- Deforestation caused by fires--intentionally set for agricultural clearing or otherwise--that go out of control has been extensive; forestry aid to countries and communities should take into account the need for fire control equipment and training;
- Reforestation should be carried out using ecologically appropriate species and methods, choosing those that are appropriate to site-specific conditions;
- Combatting desertification outside the forest zones requires introduction of new systems of agriculture, reduced use of chemical herbicides and pesticides, protection of soil from erosion and secondary salinization, and sound rangeland management;
- Desertification control through better water management and water research should be a goal of government policies and international assistance;
- Technical and financial resources specifically targeted at forest and rangeland preservation, rehabilitation, and reforestation must be provided. The developed nations have a particular responsibility to provide assistance, both bilaterally and through multilateral lending institutions, for such purposes. This should include greater use of "debt-for-nature" swaps;

- All financial assistance, both bilateral and multilateral, should avoid negative impacts on forest and other natural resources;
- In order to facilitate increased private sector involvement in reforestation, lending practices should recognize the very long-term nature of such investments, and should be designed to provide a moratorium on payments for the first ten years, or until reforested areas are able to produce income; and
- Public environmental education, that includes the important role of forest and rangeland protection in a healthy environment, should be established in every country.

DEFORESTATION AND DESERTIFICATION

Legislative Strategies

National Actions

Establish a national forest protection goal with research, education, and operational programs. In order to develop effective policies concerning deforestation and desertification, many of the gaps currently existing in our knowledge of the subjects will have to be filled. Research and programs aimed at preservation and restoration of forests, rangelands, and croplands are needed. Programs to educate citizens about reasons for not deforesting and about alternatives to current practices are necessary, along with citizen participation in developing the best methods of implementing the goals.

Goal: Preserve existing forest cover.

Strategy: Develop natural forest management techniques.

Strategy: Establish protected areas, including intact biosystem reserves.

Strategy: Develop selective timber harvesting techniques.

Strategy: Establish and implement economically viable, non-timber-producing options, including tourism.

Strategy: Pursue reductions in ozone depletion and air pollution, both of which adversely affect forest cover.

Strategy: Link forest protection values to watershed management programs.

Goal: Restore forest cover in deforested areas.

Strategy: Reforest tropical and other wooded areas.

Strategy: Develop tree planting programs.

Goal: Develop explicit sustained-yield timber harvest management policies.

Strategy: Improve timber valuation, utilization and marketing to capture real values of timber and to reduce waste.

Strategy: Regulate timber sale practices, including foreign concession contract terms.

Goal: Ensure that national economic policies promote sustained-yield management of forests and land resources as well as long-term preservation of forests.

Strategy: Include evaluations of social and biological costs of deforestation/reforestation in economic analyses of development projects and policies.

Strategy: Review financial and economic incentives to deforest, including tax breaks, subsidized interest rates, and guaranteed loans, and, where possible, eliminate them.

Strategy: Provide incentives, such as tax credits and other financing mechanisms, for restoration and for sustainable uses of forests and semi-arid areas.

Strategy: Develop alternative sources of employment and income outside forests, to relieve pressure on existing forests and marginal lands.

Strategy: Work with farmers, peasants, small landowners, and indigenous people through community participation in local strategies for economic development, sustainable land use management, and environmental protection. This might include measures such as improved credit, guaranteed loans, land grants, and market incentives.

Goal: Include the use of agroforestry in basic agricultural goal.

Strategy: Develop a research program on agroforestry.

Strategy: Establish optional combined production recommendations for crops and trees, in a non-destructive sustainable manner, while meeting basic needs for food, fuel, and timber

Strategy: Develop improved cropland management practices, which include agroforestry, and require their use.

Goal: Establish and strengthen educational and research programs.

Strategy: Establish and fund forest resource inventories.

Strategy: Develop research on alternative/renewable fuels, to substitute for wood now used for cooking and heat. Research increased cooking stove efficiency, wind and other renewable energy sources.

Strategy: Develop education programs to illustrate suggested alternatives to current practices and illustrate current practices which are successful.

Strategy: Develop land use planning standards which incorporate environmental incentives for preserving, restoring and improving land productivity for forests. These should be consistent with sustainable development and biological diversity.

Strategy: Promote the recycling of wood products, e.g. newsprint.

Goal: Restore degraded land.

Strategy: Restore and rehabilitate current desert areas and other degraded drylands.

Strategy: Develop improved rangeland management practices, e.g., prohibition of agriculture and grazing in certain areas, reseedling, low-input agriculture, sustainable annual cropping, improved cultivation practices, and

planting of shelterbelts.

Goal: Promote effective conservation financing techniques.

Strategy: Support the development of Conservation Trust Funds, to finance protection, enforcement, training, education programs, land swaps, park establishment, relocation, etc.

Strategy: Pursue debt-for-nature swaps.

International Actions

Goal: Promote, support, and become involved in international cooperative activities.

Strategy: Support Debt-For-Nature swaps, which can dramatically increase the impact of conservation expenditures.

Strategy: Explore other debt-reduction measures for countries with endangered forests.

Strategy: Review objectives of FAO-initiated Tropical Forestry Action Plan to ensure that action plans can be shown to decrease deforestation. Monitor the extent the activities can be shown to promote reduction of deforestation and the sustainable use of the world's forests.

Strategy: Support work of International Tropical Timber Organization, which involves sustained yield forest management and forest conservation.

Strategy: Revitalize the U.N.'s 1977 Plan of Action to Combat Desertification, dealing with ecologically appropriate land uses and recovery measures.

Strategy: Cooperate in the use of satellites and other modern technology to monitor the world's forests and dry rangelands, and trends towards further desertification.

Strategy: Create global conservation or environment funding mechanisms through the World Bank, UN organizations, or an independent mechanism.

Strategy: Support activities of non-governmental organizations (NGOs) involved in forestry activities in both industrialized countries and the developing world.

Goal: Become signatory to and support international environmental treaties and conventions.

Strategy: Sign and support international conservation treaties and conventions, such as World Heritage, Convention on Trade in Endangered Species and World Flora and Fauna (CITES), Ramsar Convention, etc.

Strategy: Encourage timber conservation components of international commodity groups.

Goal: Establish environmental criteria for economic assistance programs and institutions.

Strategy: Increase pressure on national overseas development agencies and multilateral development banks to develop more effective environmental guidelines and to support ecologically sound projects, and, conversely, to end those projects which directly or indirectly promote deforestation or damage critical areas of high biological richness.

Strategy: Provide effective technical assistance and other bilateral assistance to research and other programs assisting forestry and drylands activities in developing countries.

Goal: Explore other economic pressures and sanctions.

Strategy: Explore transfer taxes or tariffs imposed on underpriced commodities imported from another country.

Strategy: Require country-of-origin labelling provisions for such underpriced commodities.

Safeguarding Oceans and Water Resources

SAFEGUARDING OCEANS AND WATER RESOURCES

Whereas:

- The global water cycle is essential to life on earth;
- The scale of human activity has caused changes at every level of this cycle: polluting the earth's water and oceans; endangering human health; shifting the distribution of water by large-scale development; and reducing aquatic life due to pollution, over-harvesting, destruction of habitats, and alteration of ecosystems on local, regional, and global scales;
- The best way to protect water resources is to keep pollution from entering waters;
- High-seas driftnet fishing and other destructive activities disrupt marine life throughout the world's oceans;

and

- Short-term economic benefits from exploitation of ocean and water resources deprive future generations, diminish the quality of life, disrupt international stability and global security, and even threaten life itself.

NOW, therefore, be it resolved that:

- It is in our interest and that of future generations to address the exploitation of ocean and water resources to prevent further irrevocable damage;
- Ocean and water resources are so important to life that a precautionary approach should be used in allowing discharge of potentially harmful pollutants and wastes. Where there is reason to believe that adverse effects of discharges are likely, even in the face of scientific uncertainty, such discharges should be prohibited;
- Policies must be adopted to stop pollution at its source, with highest priority placed on measures that prevent the creation and dispersal of environmental contaminants;
- Changing our practices requires strengthening and enforcing environmental laws on all levels, based on equity within and between communities, regions and nations and on the requirement that these resources be managed in such a way that they may be bequeathed in a healthy condition.
- Policies must be adopted that ensure future land development in a manner sustainable to the global water cycle;

- Worldwide efforts should be made to develop and share new practices and technologies that minimize pollutants resulting from industrial, agricultural, and other human activities;
- Polluters should pay for the control of pollution and the damages they cause. But this principle is not sufficient to protect oceans and freshwater. It must be accompanied by incentives or fee systems to prevent overuse and exploitation of water resources;
- Expand international programs of research and technology development to protect, manage and restore our marine and freshwater resources. These programs should be internationally funded and should ensure the active participation by developing countries. The need for further research should not be used as an excuse to delay protective actions;

and

- Establish strong international systems for monitoring and enforcement of international conventions, treaties, and laws and for the protection of ocean and water resources.

AND in furtherance of these goals, be it resolved that nations join together in international convention and by individual action in an effort to:

- Properly treat and disinfect sewage and sludge before discharge to the water or land or use for agriculture or other purposes;
- Establish policies and programs to:
 - minimize the use of toxic substances and the generation of toxic wastes, including bans on certain chemicals that are highly toxic;
 - clean up abandoned hazardous waste sites to prevent contamination of surface and ground waters; and
 - implement the Basel Convention regarding the international transportation and management of hazardous waste;
- Prohibit ocean dumping of harmful or potentially harmful wastes;
- Limit urban and agricultural runoff containing harmful substances through land use controls and agricultural practices that minimize the use of fertilizers and pesticides and control soil erosion;
- Establish policies to avert and respond to oil spills and regulate offshore drilling discharges by:
 - increasing penalties and liability for spills at the national and international levels;
 - requiring double hulls and bottoms for oil tankers and improving navigation and licensing requirements;

- establishing an international fund for emergency response and clean up of oil spills and compensation for damages that result from spills to be paid for by a fee on oil from exporting and consuming countries.
 - Reduce the use of plastics and properly dispose of plastics and other debris to prevent pollution to beaches, oceans and coastal waters and reduce the threat to marine life.
 - Prevent acid rain by promoting energy efficiency and conservation and requiring pollution control technologies on power plants, industry and automobiles;
 - Require multilateral development banks to fully assess environmental impacts and to fund projects that are environmentally sustainable;
 - Develop and implement comprehensive national and international plans to manage activities in the coastal zone with particular emphasis on the relationship of land use practices to coastal degradation;
 - Seek unilateral and cooperative measures to;
 - minimize sea level rise;
 - mitigate impacts on low lying countries of increases in sea level that may occur from environmental changes already in motion; and
 - direct development away from areas susceptible to sea level rise;
 - Protect marine biodiversity and productivity by developing mechanisms to preserve sensitive coastal areas such as wetlands, barrier islands, estuaries, coral reefs, and other critical wildlife habitats;
 - Establish regional regimes for effective sustainable management of international fishery resources, and in particular, ban high-seas driftnet fishing;
 - Strongly limit the taking of marine mammals by banning commercial whaling and reducing whaling under scientific permit;
 - Use freshwater more efficiently through conservation and recycling;
 - Establish international agreements for the extraction, use, and protection of freshwaters shared between nations;
- and
- Protect groundwater resources by limiting withdrawals to sustainable levels and controlling major activities, such as land development and discharges that may contaminate important aquifers.

Be it also resolved that:

- As Antarctica plays a significant role in the global climate system and the aquatic food chain, provide comprehensive and effective protection of the Antarctic ecosystem by:
 - granting Antarctica special protective status as a Land of Science, treaty park, and international wilderness area;
 - extending the current moratorium on mineral exploration and negotiating a total ban on exploration and exploitation of mineral and energy resources in Antarctica;
 - adopting specific environmental protection measures until a comprehensive environmental protection regime can be negotiated to control tourism, waste disposal, oil spills, research activities, and to extend protected areas;

and

- We encourage parliamentarians to return to their respective nations and propose domestic legislation that would prohibit all exploitation of Antarctica until a new convention is signed.

SAFEGUARDING OCEANS AND WATER RESOURCES

Legislative Strategies

National Actions

I. Water Quality

Pollution threatens future use and productivity of waters. Contaminants include toxic chemicals, microorganisms, nutrients, oil and grease, plastics, and litter. Pollutants enter aquatic environments predominantly from land-based municipal, agricultural and industrial sources and are primarily a result of human activities involving use of the land and waste disposal. Pollution is best controlled by preventing contaminants from entering surface waters, groundwater, estuaries or oceans. Treatment of contaminated waters is often difficult, particularly in the case of groundwater.

Pollution has serious adverse effects on human health. Water-borne pathogens (bacteria and viruses) cause human illness when ingested in contaminated shellfish, drinking or bathing water and lead to diseases such as cholera, typhoid, dysentery, gastroenteritis, and hepatitis. Nitrate-contaminated drinking water, from fertilizers and sewage disposal, is responsible for serious illness in humans. Toxic chemicals in drinking water can cause acute illness and increase the risk of chronic disease, such as cancer.

In addition pollution is harmful to fish and wildlife. Excessive nutrients (phosphorous and nitrogen) lead to eutrophication, or aging of lakes, streams, and estuaries, in which excessive algal growth depletes oxygen, kills fish and degrades drinking water supplies. Toxics contaminate aquatic organisms causing acute (short-term) impacts including death and chronic impacts (disease). Toxic chemicals are often harmful at low levels, and may persist in the environment for many years.

Ocean and water resources are so important to life that a precautionary approach should be used in allowing discharge of potentially harmful pollutants and wastes. Where there is reason to believe that adverse effects of discharges are likely, even in the face of scientific uncertainty, such discharges should be prohibited.

Polluters should pay for the control of pollution and the damages they cause. But this principle is not sufficient to protect oceans and freshwater. It must be accompanied by incentives such as a fee system to prevent overuse and exploitation of water resources.

There is continuing need for international programs of research and technology development and transfer to protect, manage and restore our marine and freshwater resources. The program should be internationally funded and should ensure the active participation by developing countries. However, the need for further research should not be used as an excuse to delay protective actions.

There must be a strong international program for monitoring and enforcement of international conventions, treaties, and laws for the protection of ocean and water resources.

Goal: Improve sewage treatment. Sewage discharges may release pathogens,

nutrients, and, in many cases, toxics to waters. Control will require proper treatment and disposal of sewage along with monitoring and closing contaminated waters to drinking, bathing, and fishing.

Strategy: Eliminate discharges of raw sewage.

Strategy: Upgrade all sewage plants to at least secondary treatment.

Strategy: Require proper operation and maintenance of sewage treatment plants.

Strategy: Promote low technology methods to cycle sewage nutrients especially in conjunction with aquaculture and/or irrigated agriculture. It is important that the sewage not be contaminated with toxic substances.

Strategy: Disinfect sewage effluent to kill pathogens. Assess technologies and make information available to all nations.

Strategy: Ensure proper disposal of sewage sludge. Evaluate methods including incineration, ocean disposal and landfill.

Strategy: Establish water quality and discharge standards to restrict pollutant discharges from sewage treatment plants.

Strategy: Limit growth where sewage treatment capabilities are at or near capacity.

Strategy: Monitor waters to assure that standards are met.

Strategy: Prohibit new or increased discharges of pollution from sewage plants that would cause a violation of water quality standards.

Strategy: Eliminate combined sewage overflows and separate stormwater treatment from sewage treatment so that raw sewage is not allowed to bypass treatment plants.

Strategy: Strengthen industrial waste pretreatment programs to prevent toxic wastes from harming or interfering with proper functioning of sewage treatment plants or contributing to violation of water quality standards.

Goal: Eliminate toxic pollution. Toxic chemicals enter waters in effluent discharges from industrial and household sources, nonpoint source runoff, and from improper disposal of hazardous wastes. Prolonged exposure even to small doses of heavy metals, organic compounds, pesticides and other toxic chemicals can cause a variety of health and welfare problems for humans and aquatic organisms. Toxic chemicals build up in the tissues of humans and animals, working their way up the food chain from tiny plankton to humans as larger organisms consume smaller ones. Toxics also have a high affinity for sediments and tend to accumulate there over time. Toxic muds can reach high concentrations, are deadly to the benthic biota, and can act as a long term source of toxins in the water column.

Strategy: Set as the highest priority, to establish preventive measures to reduce formation and use of toxics.

Strategy: Establish and enforce water quality and effluent standards to prevent discharge of toxic chemicals from industrial sources.

Strategy: Issue and enforce permits that limit toxic discharges with firm goals of zero discharge.

Strategy: Monitor waters and discharges to assure that standards are met.

Strategy: Require proper disposal of hazardous wastes.

Strategy: Establish fiscal and tax incentives for reduction, recovery and reuse of waste toxics.

Strategy: Strive for worldwide bans on certain chemicals that are highly toxic.

Strategy: Set international standards and establish international monitoring networks.

Strategy: Impose and enforce economic and criminal penalties for violation of effluent limits.

Strategy: Clean up old or abandoned hazardous waste sites that may be leaking toxic chemicals into surface and ground waters.

Strategy: Clean up leaking underground storage tanks that hold petroleum and other products and initiate regulations to ensure that such products are properly stored.

Strategy: Control runoff from factories, storage areas, etc.

Goal: Protect oceans from harmful or potentially harmful wastes. One important and relatively easy way to manage sources of ocean pollution is to prohibit deliberate at-sea disposal of wastes that degrade the marine environment. Included among these are toxic industrial wastes, radioactive waste, sewage sludge, toxic incinerator ash, and contaminated dredged materials. At-sea incineration of hazardous wastes may pollute the sea through deposition of airborne toxics, ash disposal, or spills in transportation.

Strategy: Ratify and enforce the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal.

Strategy: Eliminate ocean disposal of sewage sludge and municipal, hazardous, and radioactive wastes.

Strategy: Eliminate at-sea incineration of hazardous wastes.

Strategy: Phase out disposal of contaminated dredge spoils and establish water and sediment quality programs to prevent further toxification of sediments during phase out.

Goal: Control urban runoff. Rainfall runoff from urban areas contributes vast amounts of sediment, nutrients, bacteria, and toxic chemicals (organics, heavy metals, oil and grease) that pollute waterways. Necessary control programs range from simple maintenance efforts such as street sweeping to construction of projects

that will prevent polluted runoff from entering nearby streams.

Strategy: Implement land use controls, including zoning and comprehensive planning; site planning; building codes; special area and resource protection zones; acquisition and conservation easements; and coastal zone management programs.

Strategy: Create riparian buffer zones; control overdevelopment; protect sensitive aquifers, wetlands, and other critical areas; and evaluate and mitigate cumulative impacts of existing and proposed developments in a watershed.

Strategy: Establish effective urban stormwater management programs that address both existing and future development; include design standards and performance standards to ensure compliance with water quality standards; and prevent runoff through site designs that use proper drainage patterns and open space, retention and detention basins.

Strategy: Establish erosion and sediment controls that require diversion structures to channel runoff away from disturbed surfaces; retention or treatment of any contaminated runoff; rapid and permanent stabilization of disturbed surfaces; and best management practices to prevent contamination of runoff by construction chemicals or other materials.

Strategy: Adopt erosion and sediment control regulations that ensure that a control plan is developed before construction begins; inspections are carried out at construction sites; and administrative penalties, stop work orders, and enforcement actions may be pursued.

Strategy: Educate the public to minimize the use of polluting chemicals around the house and yard.

Strategy: Develop technologies to recycle waste oils and grease.

Goal: Control runoff from agricultural and range lands. Runoff from croplands treated with fertilizers and pesticides and from lands used to raise domestic animals is a major contributor of nutrients (nitrates and phosphates), sediment, toxins, and microorganisms to the aquatic environment. Effective control programs restrict the amount of pollutants available to transport and reduce the exposure of these pollutants to waters.

Strategy: Establish programs which include design standards that require or prohibit certain practices and performance standards that prohibit any significant off-site transfer of pollutants.

Strategy: Restrict the amount or timing of fertilizer and manure applied.

Strategy: Educate farmers on agricultural practices that minimize the use of fertilizers and pesticides, and control soil erosion.

Strategy: Expand research on low-input methods of agricultural production.

Strategy: Require vegetated buffer strips along surface waters.

Strategy: Develop programs that address livestock pollution by controlling livestock densities and locations and preventing livestock access to riparian areas.

Strategy: Establish programs to address pesticide pollution by controlling the amount, timing, and type of pesticide used.

Strategy: Create funds through multilateral development banks and other development organizations to promote transfer of agricultural technologies to developing countries.

Strategy: Control pesticide pollution by taxes on pesticide sale and manufacture, and through pesticide registration and reporting requirements.

Strategy: Examine current practices to try to discourage overuse of fertilizers or pesticides.

Strategy: Develop new technologies to reduce dependence on fertilizers and pesticides.

Strategy: Eliminate or reduce subsidies that promote overproduction and farming on erodible or marginal lands.

Goal: Avert oil spills and regulate offshore drilling discharges. Oil spills have devastating effects on aquatic ecosystems: polluting beaches, destroying habitats, killing fish, waterfowl, benthic organisms, and marine mammals, and inhibiting spawning and growth of fish. Offshore drilling operations generate large quantities of waste materials that are discharged to surrounding waters.

Strategy: Close sensitive areas to oil and gas development and insist on strict tanker traffic control patterns within designated areas.

Strategy: Increase penalties and liability at the national and international levels.

Strategy: Improve tanker design, construction, navigation and licensing requirements.

Strategy: Require double hulls/bottoms for vessels carrying oil and refined products.

Strategy: Develop regional or international contingency plans to address potential oil spills.

Strategy: Promote energy efficiency to reduce the demand for oil.

Strategy: Institute operating and licensing requirements for offshore drilling and terminals.

Strategy: Prohibit discharge of drilling and production waste in sensitive offshore areas.

Strategy: Reduce the number of processing, storing, and transfer facilities by encouraging common use.

Strategy: Guarantee that ships, sailing in environmentally vulnerable coastal areas, with hazardous cargo, are guided by persons with knowledge of local conditions.

Strategy: Develop an international marking system for transported oil that would identify the source of a spill.

Strategy: Create an international treaty and funding mechanism to pay for the preparation for, response to, and cleanup of oil spills.

Goal: Prevent plastics and debris pollution of beaches and ocean and coastal waters. The haphazard disposal of plastic material on land and from ships results in littering of beaches and seriously damages marine life, particularly sea mammals, diving birds, and reptiles. These may be injured by the ingestion of plastic fragments, or entrapped in plastic packing and fishing gear. Enforcement of existing regulations on land and at sea, and increased public education, should reduce considerably the amount of plastic refuse, while better design and more frugal utilization of plastics for packing and fishing purposes would reduce the risk to aquatic organisms.

Strategy: Prohibit disposal of plastics from vessels and sewers.

Strategy: Reduce usage of disposable plastics (e.g. 6-pack holders) through recycling programs or substitution of more environmentally compatible material.

Strategy: Adhere to MARPOL Annex V Protocol and ensure that adequate terminal facilities and receptacles are provided for proper disposal of vessel generated garbage.

Strategy: Enforce littering fines on beaches.

Strategy: Regularly remove debris that is floating or has washed up on shore.

Strategy: Regulate disposal of medical waste and enforce laws against illegal disposal.

Strategy: Initiate further consideration of and research into the development of biodegradable products.

Goal: Prevent acid rain. Acid deposition, caused by the atmospheric transformation and long-range transport of emissions from fossil fuel power plants and other sources, causes widespread damage to lakes, streams and aquatic organisms, as well as crops, forests, statues and buildings. Nitrogenous components of acid rain are a major source of eutrophication in coastal waters.

Strategy: Promote energy efficiency and conservation and develop least cost energy plans.

Strategy: Reduce emissions of sulfur dioxide and oxides of nitrogen by switching to low sulfur fuels or using scrubbers or other technologies to clean emissions.

Strategy: Develop international goals and timetables to reduce emissions of pollutants that contribute to acid rain.

Strategy: Promote and coordinate research and development into new technologies and share technologies internationally.

Strategy: Tighten auto emissions, promote alternative fuels, and encourage car pooling and mass transportation.

Goal: Consider environmental effects of projects. Massive development or public works projects often create adverse effects on nearby lakes and streams, through runoff and physical alteration of the aquatic, stream and wildlife habitat, while planning for such projects – whether by government or private citizens – frequently fails to take into account unintended environmental impacts.

Strategy: Establish criterion of sustainable development for approval of large-scale development and public works.

Strategy: Require environmental impact assessments during the planning of large-scale development and public works projects to identify and prevent harmful environmental effects.

Strategy: Allow for full and adequate public participation in planning projects and allow for citizen suits to challenge the adequacy of planning and environmental assessments.

Strategy: Consider the effects of all development in the watershed.

Strategy: Continue to pressure multilateral development banks, such as the IMF and World Bank, to include environmental assessments in the loan decision-making process and to fund environment and conservation projects..

Strategy: Encourage developers to incorporate measures to mitigate harmful environmental effects of their projects.

II. OCEANS AND COASTAL WATERS

While large disasters such as the Exxon Valdez oil spill in Alaska attract world attention, it is the routine assaults to the marine environment that are the most damaging. In addition to pollution and waste disposal discussed in the previous section, the assaults to oceans and estuaries come from coastal population and development, destruction of important habitat, overharvesting of living marine resources, and sea level rise.

Goal: Implement coastal zone management. The coastal zone is a unique region with resources that require special attention. About half of the world's population lives along the coast, creating enormous pressures from activities such as development and waste disposal. Many countries have instituted comprehensive management programs for the coasts that consider a variety of land- and water-based activities and their relationship to coastal resources.

Strategy: Develop economic or broad scope plans for sustainable fisheries, ports and shipping, transportation, agriculture, tourism, and industry in the coastal zone that take into account the need to protect important coastal

resources.

Strategy: Participate in UNEP's Regional Seas Program to improve a nation's institutional capability, data base, and financial support for management and research in transboundary issues such as marine pollution, fisheries protection and storm forecasting.

Strategy: Develop national, state or local land use plans, including maps, policies, guidelines, legally binding zoning ordinances, and special restrictions or setback requirements.

Strategy: Develop integrated resource management plans that consider combined effects of cross sectoral projects on coastal environments and any cascading effects from one ecosystem into another.

Strategy: Eliminate subsidies that encourage coastal development. Assess environmental impacts of coastal development projects.

Strategy: Establish mechanisms to protect critical coastal areas such as wetlands, barrier islands, coral reefs, and endangered species habitats.

Strategy: Establish evacuation plans for severe storms.

Strategy: Establish monitoring programs to identify sources, fates, and effects of pollutants, and to assess the effectiveness of management efforts.

Strategy: Establish coastal special area acquisition programs.

Strategy: Develop coastal atlases or data banks.

Goal: Minimize and protect against sea level rise. Global warming may cause sea levels to rise as a result of thermal expansion and melting of polar ice caps. If current estimates are correct, sea level rise could displace millions of people, destroy large acreages of arable lands, and completely eliminate some low-lying countries. Rising seas could also destroy beaches, mangroves, and wetlands; inundate valuable shoreline property; and cause saltwater intrusion into coastal freshwater aquifers. Severe storms and droughts would occur more frequently. Engineers and managers will have to choose between fortifying the shoreline through expensive construction projects or abandoning inundated areas. Either option carries great social and economic costs.

Strategy: Research, develop, and implement effective cooperative measures to minimize or eliminate the impact of any sea level rise in low lying island countries and areas.

Strategy: Identify areas susceptible to sea level rise.

Strategy: Develop national and regional strategies to prevent development that would be seriously affected by anticipated sea level rise.

Strategy: Direct new development away from areas threatened by storm surges.

Strategy: Discourage rebuilding in coastal areas that are susceptible to sea

level rise and have been severely damaged by storms.

Goal: Protect Antarctica. While the continent of Antarctica and the surrounding Southern Ocean remains among the earth's last unspoiled ecosystems, this status is threatened by a number of current and future activities. Improper waste disposal practices, overfishing and the potential for minerals development all could undermine the viability and integrity of the Antarctic ecosystem. These problems, though diverse in nature, can only be adequately addressed through a unified and comprehensive approach. The uniquely international nature of Antarctic policy presents numerous obstacles to effective environmental protection, but at the same time offers unparalleled opportunity for creative solutions. If adopted together, the options listed below could provide a framework for lasting protection of Antarctica.

Strategy: Support the negotiation of a Comprehensive Environmental Protection regime within the Antarctic Treaty System to provide an effective integrated approach to environmental protection in the Antarctic while continuing to negotiate and implement specific environmental protection measures that are necessary in the immediate future.

Strategy: Adopt a Conservation Strategy within the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) to ensure the health of the marine ecosystem.

Strategy: Grant Antarctica special protective status as a Land of Science, Antarctic Treaty park, and international wilderness reserve.

Strategy: Urgently negotiate a ban on prospecting, exploration and development of mineral and energy resources within the Antarctic Treaty Area. Oppose international agreements that would open the door to mineral prospecting and likely future exploitation in Antarctica.

Strategy: Call for the extension of the current voluntary moratorium on all Antarctic minerals activities until a Comprehensive Environmental Protection regime is in place which must include a permanent ban on mineral and energy exploration and extraction activities.

Strategy: Allow activities only if not harmful to the ecosystem based on best available scientific data and through comprehensive environmental impact assessment and monitoring procedures which should be applied to all human activities in Antarctica.

Strategy: Ensure that environmental protection measures adopted under the Antarctic Treaty are implemented and enforced by national research programs.

Strategy: Limit the amount and type of materials brought to Antarctica, increase recycling, and removal of waste from the Treaty area. Phase out incineration, open burning, landfilling, and dumping of untreated sewage and other waste and hazardous materials into the Antarctic environment from land or from ships, with strict controls on navigation and discharge from vessels.

Strategy: Extend national environmental policies to national facilities and activities in Antarctica.

Strategy: Encourage sharing of Antarctic research facilities to avoid overcrowding of stations and unnecessary environmental impacts.

Strategy: Institute strict guidelines for tourist activities to reduce hazards to wildlife and habitat. Oppose land-based tourist operations as being inherently too damaging to the environment.

Strategy: Combat overfishing and allow depleted finfish stocks to recover. Impose a moratorium on all finfishing in the Southern Ocean until a Conservation Strategy is adopted. Cap krill harvesting at current levels and contain this fishery to areas monitored under CCAMLR.

Strategy: Expand the Antarctic Treaty's system of protected areas with appropriate involvement of nongovernmental organizations and see that areas are well marked and that management plans are followed.

Strategy: Require long-term environmental monitoring efforts to identify and anticipate environmental problems

Goal: Manage fisheries. The global yield of marine fisheries reached a record level of 84.5 million tons in 1987, up from 21 million tons in 1951. Scientists estimate the oceans can sustain a 100 million ton commercial fishery, but pollution, waste, and habitat loss may reduce this yield. Meanwhile, world demand is expected to double by the year 2000. The increasing sophistication of fisheries technology and the expanding scope of fishing activities are exerting enormous pressures on the world's living marine resources. Overfishing has depleted a number of valuable fishery resources, while sewage pollution has made some shellfish unfit for human consumption. Highly productive estuaries and coastal waters are increasingly degraded, and marine resources could eventually be damaged on a global scale. In addition, the expansion of mariculture and aquaculture must minimize local pollution, preserve ecological balance, and protect against introduction of exotic species and diseases.

Strategy: Assess stocks using catch-per-unit effort data or independent assessments to evaluate stock status. Establish vessel onboard and shoreside observer programs to provide data on harvested stocks. Include observer programs as an important element of international living marine resource conventions and agreements.

Strategy: Set a goal of sustainable development for all fisheries and develop regulations and economic incentives to achieve that goal. Develop management plans that separate stock conservation determinations from allocation decisions. Work towards regional or international management of all transboundary and highly migratory stocks.

Strategy: Strengthen conservation efforts through international fisheries agreements and conventions.

Strategy: Stop overfishing by evaluating the effectiveness of alternative forms of limited entry, limited access, and individually transferrable quotas. Institute gear, area, time, or harvestable size restriction to control stock exploitation whenever necessary. Prevent overcapitalization by eliminating subsidies for fishing vessel construction.

Strategy: Identify and protect critical habitat, especially breeding areas. Create marine reserves in areas where there are problems of overexploitation.

Strategy: Develop international standards for aquaculture operations.

Strategy: Provide for enforcement of restrictions, guidelines, and standards including sanctions and penalties sufficient to deter continued undesirable activities. Increase cooperative monitoring and enforcement agreements between nations.

Strategy: Ban the use of large-scale driftnets and other inefficient and wasteful techniques on the high-seas of the world's oceans. Work to secure bans on driftnet fishing through existing regional and international management regimes, such as the United Nations resolution "Large-scale driftnet fishing and its impacts on the living marine resources of the world's oceans and seas", the International North Pacific Fisheries Commission, Convention to Prevent Driftnet Fishing in the South Pacific, The International Convention for the Conservation of Atlantic Tunas, etc. Press for statistically valid observer programs on the high seas driftnet fleets to provide complete data for moratoria decisions scheduled for 1991.

Strategy: Develop and enforce effective sustainable management regimes for highly migratory fish stocks, such as albacore tuna, on a regional basis.

Strategy: Minimize by-catch of non-target species by technological advances in gear engineering, more efficient harvesting methods, and economic incentives.

Strategy: Invest in research and development of ecologically sound fishing technology.

Strategy: Clean up sources that pollute shellfish beds.

Strategy: Support full funding for national and international fisheries research.

Goal: Protect marine biodiversity. The ocean is home to the broadest variety of organisms on earth. Coastal marine ecosystems are rapidly becoming biologically impoverished due to the widespread effects of pollution and overharvesting. New fishing technologies threaten the variety of life in numerous marine ecosystems. Coral reefs are perhaps the most acutely endangered of all marine systems – due to pollution, runoff from deforestation, overfishing, and rises in sea temperatures. Coastal wetlands are also critically threatened, often due to development activities in the coastal zone.

Strategy: Protect critical habitat by establishing protected areas and marine sanctuaries.

Strategy: Give protected area status to important coral reefs.

Strategy: Establish national programs to preserve, protect, and enhance wetlands, estuaries, and other important habitat.

Strategy: Establish economic incentives for protection of critical habitat and

disincentives for its destruction. Remove economic incentives that promote unwise coastal development.

Strategy: Encourage direct acquisition of important habitat and consider use of conservation easements.

Strategy: Establish international recovery programs for endangered marine species.

Strategy: Eliminate trade in endangered species by establishing effective international sanction provisions capable of enforcement against offending nations, corporation, or individuals.

Strategy: Identify and protect critical habitat for endangered species.

Strategy: Increase international attention to the aggressive and timely listing of marine species in need of added protection.

Strategy: Support efforts of international organizations such as the International Whaling Commission (IWC) to limit taking of marine mammals . Participate in international observer programs. Strengthen the IWC's current moratorium on whaling into a ban, and reduce whaling activities outside the ban, in particular, reduce whaling under scientific permit.

Strategy: Support research on biological diversity in ocean ecosystems.

Strategy: Consider biological diversity as a component of environmental impact assessments.

III. FRESHWATER SCARCITY

Freshwater is an increasingly scarce resource due to the growing demands generated by population growth, urbanization, industrialization, and irrigation. Competition between domestic and agricultural uses and conflicts between countries are likely outcomes of this scarcity. Areas including northern China, northern Africa, parts of India, Mexico, the Middle East, and parts of the Western United States may experience severe water shortages as early as this decade. Traditional engineering solutions, including building dams, drilling wells, and conducting interbasin transfers of water are often costly and environmentally damaging, and therefore, these concerns must be balanced against the need for the project. Faced with increasing shortages, nations must work toward better management of existing supplies, recognizing that each country has unique problems. Conservation and recycling can provide water at lower cost and with less environmental damage than developing new sources even for nations that have abundant supplies.

Goal: Use water more efficiently. By increasing water productivity -- the benefit gained from each liter used -- food production, industrial output, and cities can expand without a parallel increase in waters demands. Investments in water efficiency, recycling, and conservation can increasingly yield more usable water per dollar than can conventional water supply projects. But their potential is severely undermined by pricing policies and water laws that encourage inefficiency and

waste. Removing these institutional barriers is crucial to expand the many new water-conserving methods now in limited use. Only by managing water demand, rather than ceaselessly striving to meet it, is there hope for a truly secure and sustainable water future.

Strategy: In developed countries, use water pricing to manage demand. Remove, where possible, public subsidies of water. Set price at the marginal cost – the cost of delivering additional water from the best available source.

Strategy: Establish water markets that allow water or water rights to be transferred between willing buyers and sellers.

Strategy: Where appropriate, establish regional water programs where one user can "loan" water to others in years when they do not need the water.

Strategy: Require management plans that evaluate efficiency measures as an alternative to developing new supplies.

Strategy: Conserve irrigation water by leveling fields, upgrading sprinklers, recycling used irrigation water, installing drip or trickle irrigation systems, irrigating according to need, and educating about the appropriate quantities and precise scheduling requirements of different crops.

Strategy: Abate water leakages by, for example, lining canals.

Strategy: Conserve industrial water by recycling cooling water, using water efficient technologies, recycling rather than manufacturing materials, and applying strict pollution control requirements for wastewater.

Strategy: Conserve domestic water by encouraging use of water efficient appliances and requiring their use for new construction, and by instituting regular leak detection programs for distribution systems and in homes, factories, and offices.

Strategy: Use brackish water, treated wastewater or stormwater for irrigation, industrial cooling water or other demands that do not require potable water.

Strategy: Support research on water efficient technologies.

Strategy: Expand research on cost-effective, low-energy methods of desalting water.

Strategy: Use rainwater collection systems in urban areas, where appropriate.

Goal: Consider environmental consequences of water projects. Large water projects have harmful social, health, and environmental impacts, and this is often ignored in evaluating the cost-benefit of the project. Excessive water withdrawals from the world's rivers threaten the fish and other wildlife dependent on a minimum flow, and effect the lakes, estuaries and inland seas that rely on inputs of freshwater. Dams and reservoirs in developing countries have displaced hundreds of thousands of people and spread serious diseases like malaria and schistosomiasis.

Strategy: Discourage large environmentally damaging water projects.

Strategy: Encourage development of agroforestry and erosion control measures, and improve efficiency of water use as alternatives to large water projects.

Strategy: Protect instream requirements, including the fish and wildlife that depend on the stream, by setting minimum streamflow requirements.

Strategy: Provide tax and land use incentives and controls to retain streamside vegetation and wetlands that help regulate stream flows.

Strategy: Practice riverbasin or watershed management and upland reforestation.

Strategy: Coordinate management of land and water resources. For example, discourage growth and development in water short areas.

Goal: Prevent groundwater mining. In much of the world, groundwater withdrawals exceed the rate of replenishment, threatening future water supplies and leading to subsidence and saltwater intrusion.

Strategy: Limit water withdrawals to "safe yield" -- water is only taken out at the same rate that it is recharged to maintain water equilibrium.

Strategy: Use fees or financial incentives to discourage groundwater withdrawals and encourage conservation.

Strategy: Limit development above overburdened aquifers and protect key aquifer recharge areas.

Strategy: Recharge aquifers with fresh water where cost-effective and practical. Help restore aquifers through reforestation and improved land use management.

Goal: Protect groundwater quality. Groundwater programs should coordinate the related issues of allocation and quality. Excessive groundwater pumping can spread a contamination plume through an aquifer or draw in low-quality water from, for instance, a coastal or salt-water aquifer.

Strategy: Map aquifer systems and their associated recharge and discharge areas.

Strategy: Classify aquifers to identify critical drinking water supplies and other particularly sensitive aquifers for priority protection.

Strategy: Adopt a policy of non-degradation.

Strategy: Minimize excessive groundwater withdrawals in coastal areas to prevent saltwater intrusion.

Strategy: Establish ambient water quality standards. Use these standards to trigger controls on sources of contamination and to gauge the effectiveness of limits on discharges that cannot be measured, such as those from nonpoint pollution sources.

Strategy: Control sources of contamination through comprehensive source reduction and waste minimization techniques, discharge controls, or surface-use restrictions (e.g. zoning, controls over facility siting, and public acquisition of land to protect aquifer recharge areas). Implement "best management" controls on nonpoint sources.

Strategy: Establish groundwater monitoring programs to assure that standards are met.

Strategy: Establish compliance and enforcement mechanisms and take action against violators. Allow citizens suits and citizen rewards for providing evidence against polluters.

Strategy: Coordinate all environmental and natural resource programs that affect groundwater resources, especially those that control the allocation and use of groundwater and those that integrate surface water and groundwater management.

Preservation of Biological Diversity

PRESERVATION OF BIOLOGICAL DIVERSITY

Whereas:

- The diversity of life on our planet is part of the common inheritance not only of nations but also of humankind, and is a trust for each generation to hold safe for the next;
- The impact of human intervention has accelerated far beyond natural levels the loss of species of all life forms;
- The weakening and ultimate disappearance of certain animal and plant species damages land and water based food chains in ways that increase the cost and reduce the availability of food for hundreds of millions of people;
- The destruction of untold other species, which are perishing wholesale because of the loss of their habitats, cuts off forever scientific discoveries of potentially great benefit in medicine and plant genetics for agriculture;
- The processes by which humankind destroys the habitats of other species are inseparable from the processes by which humankind is destroying its own habitat;
- The uncontrolled extinction of other species is a clear signal of dangers already menacing human life;
- Humankind cannot survive unless it develops a relationship to the natural environment sustainable over generations;
- We cannot hope to successfully defend our own habitat if we do not also act to defend other species and preserve their habitats; and
- National laws to protect species and their habitats must often contend with economic forces that are international in scope, including the consumption demands of other nations and the behavior of international institutions including major lenders and multinational corporations;

NOW, therefore, be it resolved that:

- In order to curtail the loss of species worldwide, nations should commit themselves to the negotiation of a Convention on the Preservation of Biological Diversity, with the objective of opening the Convention for signature by 1992;
- In order to preserve the world's most concentrated areas of species diversity, the nations of the world should commit themselves to the shared responsibility of ensuring no further loss of primary forest by the year 2000;
- Laws and regulations are needed not only to prevent the extermination of specific species, but also to assure the preservation of habitats, and to subordinate human interaction with these habitats to that purpose;
- National law should require accountability by all institutions whose actions affect the survival of species and of habitats, including the effect of legislation itself upon the environment;
- Major international lending institutions and trans-national corporations, including private banks, should be required by law and by international agreement where needed, to publicly submit to procedures which honestly and publicly estimate the impact that the ongoing projected activities of these institutions will likely have upon the survival of species and of habitats;
- Nations must strive to mitigate economic and cultural activities which threaten the survival of species and ecosystems by extending legal and fundamental principles of protection to all life forms and natural communities and by finding methods of mediating and adjudicating conflicts between economic, cultural and protection goals;
- Natural area inventories should be undertaken to locate and determine the

- status of the earth's various life forms and their habitats and natural communities; the knowledge of which must establish protection goals and guide the development policies and decisions of nations and investors;
- Because wetlands are critical and especially threatened ecosystems, all nations should develop immediately policies designed to comply with the Ramsaar Convention.
 - As global climate change occurs affecting and possibly disrupting food production cycles, there is a special need for national and international legal instruments to protect the habitats of critical plant species, essential to devise new strains of crops able to survive in stressed environments;
 - Knowledge generated by these activities should belong to the scientific community at large, to the maximum extent possible. However, commercial benefits derived from such knowledge must be shared equitably by those who discover and market new products, with the nation from whose natural endowment the original samples and genetic information came.
 - All nations should ban commerce in endangered species and their products; and
 - Biotechnologies and genetic manipulation of plants and animals in agriculture and husbandry should be restricted and even forbidden insofar and when genetic erosion, genetic uniformity or instability of the ecosystem and loss of biodiversity are implied or involved.

PRESERVATION OF BIOLOGICAL DIVERSITY

Legislative Strategies

National Actions

Goal: Develop a full inventory of national biological resources through monitoring, research programs and data management. If we are to develop effective policies to prevent loss of biological diversity, we need to know more about existing ecosystems and use that information for protection and management decisions.

Strategy: Accelerate inventories of biological, species, subspecies, communities and ecosystems.

Strategy: Intensify and expand monitoring of key populations, subspecies, species, communities, ecosystems and biological processes, particularly those threatened with extinction or likely to be declining, to assess biological diversity and impacts from development activities.

Strategy: Develop, promote and fund additional research relating to biological diversity, particularly with regard to species that are likely to be declining.

Strategy: Establish conservation data centers to collect and distribute information on the location and status of all elements of biological diversity.

Goal: Promote protection and management of lands and waters that serve as critical habitat for maintaining biological diversity. A coherent and consistent approach must be taken with respect to protection and management of lands and waters at the national and local levels, with the explicit goal of preserving biological diversity.

Strategy: Coordinate management of national lands at national, regional and local levels so as to preserve biological diversity.

Strategy: Provide incentives, and eliminate disincentives, to local community protection of natural resources in protected areas.

Strategy: Orient national land and water protection decisions toward establishing a system of protected reserves and sanctuaries that preserve biological diversity.

Strategy: Establish protected areas of sufficient size and appropriate design to maintain ecological processes.

Strategy: Place greater investment in restoration/rehabilitation of degraded critical ecosystems, e.g. wetlands, estuaries, lakes, rivers, tropical forests, coral reefs, coastal bottom communities, climate zones, and oceanic islands. Preserve entire, intact ecosystems, ecological corridors, altitude gradients, etc.

Goal: Promote development of planning processes that include protection of biological resources. Improved national and local planning is needed to ensure that development occurs in a manner compatible with the maintenance of biological

diversity.

Strategy: Develop land and water resource management plans that promote sustainable use of living resources.

Strategy: Develop integrated coastal zone management plans to guide coastal development in a manner that is consistent with the protection of critical ecosystems and their inherent biological diversity.

Strategy: Encourage integrated planning and coordination among industrial, transportation, agriculture, forestry, fisheries, parks and education sectors.

Strategy: Promote integrated planning in areas of special value to biological diversity as identified by inventories and monitoring.

Strategy: Limit and control the impact of all national defense activities that threaten biological diversity.

Goal: Establish captive propagation and reintroduction programs. Protection, storage, propagation and reintroduction of genetic material is a valuable supplement in preventing loss of biological diversity and to restoring the natural structure and function of biological communities and ecosystems. This approach should not be considered a cure, but only a crutch where needed.

Strategy: Increase research on storage, propagation and reintroduction of species.

Strategy: Support and establish zoos, botanical gardens, seed and gene banks to preserve and propagate organisms, especially for endangered species.

Strategy: Encourage reintroduction of organisms into former native habitats.

Goal: Develop more effective regulatory approaches aimed at protection of biological diversity. National regulations should be developed and enforced to prevent the loss of biological diversity through destruction of ecosystems, communities and individual organisms.

Strategy: Enact explicit requirements to consider impact on biological diversity as part of the environmental assessment of national regulatory and economic development decisions.

Strategy: Enforce regulations of the use and consumption of biological resources.

Strategy: Enact and enforce laws to protect endangered species.

Strategy: Focus regulatory programs in areas having special value to biological diversity as identified by inventories and monitoring.

Strategy: Regulate the use of advanced biotechnology, such as gene technology.

Strategy: Each nation must take ultimate responsibility for the preservation of species endemic to that nation.

International Actions

Goal: Raise priority of biological diversity in economic assistance programs and institutions, and promote supportive policies. Ensure that decisions by economic assistant programs and institutions are consistent with the maintenance of biological diversity.

Strategy: Environmental guidelines and criteria on grants of foreign economic assistance should be developed to prevent loss of biological diversity.

Strategy: Encourage coordination among donors of bilateral and multilateral economic assistance to adopt consistent environmental assessment requirements that include impact on biological resources and habitat.

Strategy: Modify development programs to assist local efforts to protect forests, wetlands, waters, and other critical ecosystems.

Strategy: Increase pressure on national overseas development agencies and multilateral development banks to develop more effective environmental guidelines and to finance ecologically sound projects, and, conversely, to end those projects which directly or indirectly promote deforestation or damage critical areas of high biological richness as well as displace indigenous peoples.

Strategy: Provide effective technical assistance and other bilateral assistance to research and other programs assisting forestry and drylands activities, as well as wetlands, and activities in other critical ecosystems in developing countries.

Goal: Pursue international cooperative activities to ensure protection of biological diversity. Improved international cooperation is essential to maintain biological diversity because organisms, communities and ecosystems are not organized according to political boundaries.

Strategy: Use Debt-for-Nature swaps to provide financial resources for management of protection areas.

Strategy: Develop a genetic treasure map of the world based on Vavilov's "Centers of Biodiversity."

Strategy: Establish a protection plan for Centers of Biodiversity.

Strategy: Respect the unique knowledge of ecosystems and species which indigenous peoples have.

Strategy: Preservation activities should respect the habitats, customs and cultures of indigenous peoples.

Goal: Nations and companies which benefit from the utilization of biological resources in other countries should participate appropriately in the preservation of the affected communities from which the resources are taken.

Goal: Those nations whose biological resources are utilized by other countries should share equitably in the earnings derived from their development.

Goal: Establish an international cooperative program in the U.N. system or independently to identify and preserve genetic material that is needed to reinforce and restore productivity of commercial food crops.

Strategy: Encourage establishment of conservation trust funds, through allocation of national funds and contributions from international conservation organizations and other nations, to support projects to conserve biological diversity.

Strategy: Support and endorse both an international convention for the conservation of biological diversity and for the establishment of a fund for that purpose.

Strategy: Participate in Regional Seas programs, as coordinated by UNEP.

Strategy: Establish international marine reserves in critical ecosystems that encompass international waters.

Strategy: Provide economic incentives for those countries which act boldly in matters of biodiversity protection.

Strategy: Sponsor the transfer of technology devoted to increase the production and protection of the species, including the results of genetic engineering research, referring to food.

Strategy: Support international agreements to control air and water pollution and toxic chemicals that threaten critical species.

Strategy: Develop river basin compact on river management, water use, etc.

Goal: Encourage all nations to protect endangered ecosystems and species.

Strategy: Ban commerce on importation and exportation of endangered species and their products. Support Convention on Trade in Endangered Species and World Flora and Fauna (CITES).

Goal: Raise priority of international cooperation concerning possible adverse consequences of advanced biotechnology.

Strategy: Increase international research and development programs.

Strategy: Provide an international discussion concerning environmental ethics within biotechnology.

Goal: Establish a world system of nature preserves.

Strategy: Encourage the establishment of multinational nature preserves.

Strategy: Coordinate planning for preserves among neighboring countries.

Strategy: Coordinate preserves for critical habitats of species that migrate among nations.

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- Antonio Luiz Maya
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NEWS FROM

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FOR IMMEDIATE RELEASE
May 1, 1989

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Remarks of
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Forum on Global Change and Our Common Future
National Academy of Sciences
Washington, D.C.
May 1, 1989

Many of us have come to this gathering because of a shared belief that humankind has suddenly entered into a brand new relationship with the planet Earth, and that human civilization is, in its current pattern, causing grave and perhaps soon irreparable damage to the ecological system which supports life as we know it.

My purpose is to sound an alarm loudly and clearly -- of imminent and grave danger -- and to describe a strategy for confronting this crisis, with changes in our collective behavior and thinking which, if made, can forestall and prevent the horrendous prospect of an ecological collapse.

First, why is such an alarm necessary? Do we need a crisis before we can act?

Sometimes in human affairs a pattern is well set before its implications are felt in our daily lives. This is true both in politics and in science. When shattered glass filled the streets of Berlin on Kristallnacht, few could conceive of the holocaust to follow. But from a distance, the pattern is now clear. When the first atom was split, few could conceive of nuclear bombs. But when Einstein wrote Roosevelt, the pattern was clear.

How much information is needed by the human mind to recognize a pattern? How much more is needed by the body politic to justify action in response?

It took a long time for the world to respond to Hitler. Because of Hitler, it took only a short time for Roosevelt to respond to Einstein.

In a classic experiment often cited, a frog dropped into a pot of boiling water quickly jumps out. But the same frog, put in the water before it is slowly heated, will remain in place until it is boiled.

The meaning of a pattern is conveyed by contrast as opposed to sameness. Sameness lulls the senses and conveys an absence of danger. Gradual change sometimes resembles sameness, obscuring danger from minds which reserve their alertness for sharp

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contrasts. Exponential change at first resembles sameness, then gradual change, then explosive contrast.

It is often hard to recognize the shape of an exponential curve before it reaches the explosive stage. It is difficult because the contrast essential to understanding very large patterns is sometimes visible only from a distance.

If an individual or a nation is accustomed to looking at the future one year at a time, and the past in terms of a single lifetime, then many large patterns are concealed. If a political body looks at policies in the context of a single nation, then the global impacts will remain invisible.

When you consider the relationship of the human species to the planet Earth, not much change is visible in a single year, in a single nation. Yet, if you look at the entire pattern of that relationship from the emergence of the species until today, May Day 1989, a distinctive contrast in very recent times clearly conveys the danger to which we must respond. It took ten thousand human lifetimes for the population to reach two billion. Now, in the course of a single human lifetime -- mine and yours -- it is rocketing from two billion toward ten billion, and is already halfway there.

No big warning signal
Startling graphs showing the loss of forest land, topsoil, stratospheric ozone, and species all follow the same pattern of sudden, unprecedented acceleration in the latter half of the 20th century. And yet, so far, the pattern of our politics remains remarkably unchanged.

The earth's forests are being destroyed at the rate of one football field's worth every second, one Tennessee's worth every year. An enormous hole is opening in the ozone layer, reducing the earth's ability to protect life from deadly ultraviolet radiation. Living species die at such an unprecedented rate that more than half may disappear within our lifetimes. Chemical wastes, in growing volumes, seep downward to poison groundwater and upward to destroy the atmosphere's delicate balance. Huge quantities of carbon dioxide, methane, and chlorofluorocarbons dumped in the atmosphere are trapping heat and raising global temperatures.

In 1987, carbon dioxide levels in the atmosphere began to surge with record annual increases. Global temperatures are also climbing: 1987 was the second hottest year on record; 1988 was the hottest. Scientists now predict our current course may raise world temperatures almost five degrees Celsius in the lifetimes of people in this room. The last time there was such a shift, it was five degrees colder: New York City was under one kilometer of ice. If five degrees colder over thousands of years produces an ice age, what could five degrees warmer produce in one lifetime?

Why are these dramatic changes taking place? Because the human population is surging, because the industrial, scientific, and technological revolutions magnify the environmental impact of

these increases, and because we tolerate self-destructive behavior and environmental vandalism on a global scale.

The problem in organizing our response is that the worst effects seem far off in the future, and they are so unprecedented they seem to defy common sense. While right now, in the present, millions of people are suffering in poverty and dying of starvation, warfare, and preventable diseases. How do we deal with these immediate problems and at the same time confront the problems of the future? One of the philosophers of the environmental movement, Ivan Illich, in a recent interview, explained the sudden environmental activism of Margaret Thatcher, Mikhail Gorbachev, and other world leaders previously uninterested in the global environment by saying "what has changed is that our common sense has begun searching for a language to speak about the shadow our future throws."

Science already has such a language. Have you ever seen the picture showing how time and space are shaped by mass, with a black hole pictured as a deep well in a grid, with the space and time around the well sloping toward it? Human political awareness is shaped by history in precisely that way. Our political awareness of the world is shaped and bent by events. Large events like World War II exert a powerful gravitational pull on every idea we have about the world around us. The Holocaust shapes every idea we have about human nature.

And just as in Einstein's theory, future events can exert the same gravitational pull on our thinking as events in the past -- even though the events in the future have not yet occurred.

Time is relative in politics as in science. The political will which made possible the mass political protests against escalating the nuclear arms race came from awareness of a downslope toward a future we did not want to see. Many felt us being pulled toward a nuclear war that would crush human history forever into a black hole. We are now changing our course away from that downslope, we hope, and taking a new direction -- even though 99.99% of all human beings on earth have never seen, heard, or personally felt nuclear destruction. The awareness of that potential future event came from political communication, with abstract symbols, like words.

Now, throughout the world, we are witnessing the emergence of a new political will to take a different course in order to avoid the slope toward global environmental destruction. We see the catastrophe coming, we hear Rachel Carson's Silent Spring. The slope seemed gradual at first but now it is steep. We feel strongly pulled toward ecological collapse by the policies we are now pursuing.

I personally became deeply involved in the effort to avoid a nuclear holocaust nine years ago because I felt the slope toward that horrendous possibility. And I tried to bring to the task the skills of my profession. I believe all this talk about the global environment as a national security issue makes a great deal of sense in political terms.

For the past 13 years, as a citizen and as a member of the United States Congress, I have had long-standing interests in both the environmental threat and in national security. As a practical matter, I have dealt with these subjects as separate intellectual accounts: involving distinct areas of public policy, each with its own completely different set of concerns and participants.

Yet, they grow more and more alike. National security comprises matters that directly and imminently menace the interests of the state, or the welfare of the people. As such, these issues command the attention of political leaders at the highest level, with a proportionate claim on the resources of government and the wealth of the nation. If society were an organism, national security would involve the instinct for survival.

To this point, the national security agenda has been dominated by issues of military security, embedded in the context of global struggle between the United States and the Soviet Union: a struggle which the protagonists have often waged through distant surrogates, but which has always harbored the risk of direct confrontation and nuclear war.

Given the changes in Soviet behavior which have begun under Gorbachev, there is growing optimism that this long, dark period may be passing. There is also hope this will open the international agenda for other urgent matters and for the release of enormous resources, now committed to war, toward other objectives.

Many hope that the global environment will be the new Dominant Issue. They assert that a collective, international struggle for stability in the ecosystem will succeed the old pattern of national struggle for temporal power, and will justify the preemption of enormous resources, and reshape the public consciousness in support of another long, global struggle.

I am deeply in sympathy with this view, and yet as someone who has worked hard on both issues, I believe the analogy must be used very cautiously. The US-Soviet struggle has lasted almost half a century, consumed several trillions of dollars, cost us close to one hundred thousand American lives in Korea and Vietnam, and has profoundly shaped the psychological and social consciousness of our people. Much the same could be said of the Soviets, who, if anything, have endured far more than have we for the sake of their ideology.

Nothing is automatic or foreordained about the course of US-Soviet relations, no matter how many editorial writers now claim the "Cold War is Over." Nothing relieves us of our present responsibilities for defense or of the need to conduct painstaking negotiations to limit arms and reduce the risk of war. The old agenda is with us still, exacting its price in wealth, creativity and the attention of statesmen.

And yet, the environmentalists are right.

Certainly, there is strong evidence the new enemy is at least as real as the old. For the general public, the shocking images of last year's drought, or of beaches covered with medical garbage, inspired a sense of peril once sparked only by Soviet behavior. But for environmental specialists, the steady flow of data from scientific investigation of the environment -- often ambiguous, but always menacing -- is eerily equivalent to intelligence collection against the more familiar Soviet threat. The U2 spy plane, for example, now is used to monitor not missile silos but ozone depletion.

Already, we are seeing governments struggling to resolve issues whose domains go far beyond anything in our experience. Debate over the disposition of radioactive wastes, for example, involves choices that must remain valid across geological time. The species now disappearing at an unprecedented rate will never return. The global climate pattern could shift to a new equilibrium and never regain its former pattern.

In the not distant future, there will be a new "sacred agenda" in international affairs: policies that enable the rescue of the global environment. This task will one day join, and then perhaps even supplant, preventing the world's incineration through nuclear war, as the principle test of statecraft.

However, in thinking about environmentalism as a national security concern, it is important to differentiate between what would -- in military jargon -- be called the level of threat. Certain environmental problems may be important but are essentially local; others cross borders, and in effect represent theaters of operations; and still others are global and strategic in nature.

On this scale, even phenomena as important as the slow suffocation of Mexico City, the deaths of northern forests in America and Europe, or even the desertification of large areas of Africa, will likely not be regarded as full scale national security issues.

However, the greenhouse effect and stratospheric ozone depletion fit the profile of national security issues of global significance. These phenomena certainly will in time produce effects big enough to threaten international order, even at the level of war and peace. In the case of global warming, the fact that some of the worst effects will not fully manifest themselves until the middle of the next century is offset by the fact that actions we take now will determine the extent of the damage later.

When nations perceive that they are threatened at the strategic level, they may be induced to think of drastic responses, involving sharp discontinuities from everyday approaches to policy. In military terms, this is the point when the United States begins to think of invoking nuclear weapons. The global environment may well involve responses that are, in comparative terms, just as radical. Not just business as usual,

not just incremental variations but massive departures from the norm.

Nuclear war is an apocalyptic subject, and so is global environmental destruction. We are dealing here with increasingly credible forecasts of climatic dislocations, vast changes in growing cycles, inundations of coastal areas and the loss to the sea of vast territories -- some of them very heavily developed and populated. We also are dealing not only with a threat to human health, but unpredictable and potentially vast changes to all life at the surface of the earth and the seas, as the result of prolonged exposure to increased ultra-violet radiation.

What's more, despite some progress made toward limiting some sources of the problem, such as CFCs, we have to face the stark fact that we have barely scratched the surface. Even if all other elements of the problem are solved, a major threat is still posed by emissions of carbon dioxide, the exhaling breath of the industrial culture upon which our civilization rests. The implications of the latest and best studies on this matter are staggering. We must be honest about them. Essentially, they tell us that with our current pattern of technology and production, we face a Hobsonian Choice between economic growth in the near term, and massive environmental disorder as the subsequent penalty.

This central fact cuts across the face of all environmental strategies as we generally think of them. It suggests that the notion of environmentally sustainable development at present may be an oxymoron, rather than a realistic objective. It declares war, in effect, on routine life in the advanced industrial societies. And -- central to the outcome of the entire struggle to restore global environmental balance -- it declares war on the Third World.

The Third World does not have a choice about whether or not it will develop economically. If it does not develop economically, poverty, hunger and disease will consume entire populations. And long before that, whole societies will experience revolutionary political disorder. Rapid economic growth is a life-or-death imperative throughout the Third World. The peoples and governments of the Third World will not be denied that hope, no matter the longer-term costs for the global environment.

And why should they accept what we, manifestly, will not accept for ourselves? Who is so bold as to say that any nation in the developed world is prepared to abandon industrial and economic growth? Who will proclaim that any nation in the developed world will accept even serious compromises in levels of comfort, for the sake of global environmental balance? And who will apportion these sacrifices; who will then bear them?

Development, of course, is part of the problem as well as the solution. We know that, just as we know that nuclear deterrence depends on the weapons we are trying to render obsolete.

The effort to solve the nuclear arms race has been complicated not only by simplistic stereotypes of the enemy and the threat he poses. It also has been complicated by simplistic demands for immediate unilateral disarmament, without any basis for a widely shared confidence that the original threat is no longer real.

My own belief is that perceptions must evolve simultaneously in both superpowers as technology evolves simultaneously in both countries, as conscious efforts are made to improve information about the other, about the nature of the threat, and the confidence we can summon that the threat is in fact changing and receding.

In similar fashion, the effort to solve the global environmental crisis will be complicated not only by blind assertions that more and more environmental manipulation and more and more resource extraction are essential for economic growth. It will also be complicated by the emergence of simplistic demands that development, or technology itself, must be stopped for the problem to be solved. This is a crisis of confidence which must be addressed.

This speech, if you'll permit me a personal moment, is the first time I've spoken in public on any subject in six weeks. My wife and I have been in Johns Hopkins Hospital, at the bedside of our son, who was hit by an automobile. I've been living in the world of medical science, pursuing the goal of restoring our son to health. Ten years ago, a child with his injuries would have had several surgical interventions which doctors now realize are unwise, given the greater likelihood of the body healing itself where some injuries are concerned.

Yet, two days after the accident, when doctors were unable to stabilize internal bleeding, my wife and I naively hoped that same natural healing process would take care of that problem and make any surgery unnecessary. If the doctor had relied not on science but on us, we would have unwisely urged against an operation. But doctors have acquired sufficient knowledge to realize that the body should be allowed to heal itself when it can do so. At the same time, they they know there are some instances where intervention is essential to save life.

Similarly, we must acquire sufficient knowledge of the earth's system to judge when it can heal itself, and when it is necessary for us to intervene. For example, when 40,000 children die of disease and starvation every 24 hours, we obviously must intervene. But it is past time to recognize that many of society's interventions in the environment have been and are unwise. Much ecological destruction is subsidized by governments. We need more knowledge, more experience, and the kind of sensitive judgments that modern doctors have learned to make.

The cross-cut between the imperatives of growth and the imperatives of environmental management, represents a supreme test for modern industrial civilization. The test is whether we

can devise very dynamic new strategies which will accommodate economic growth within a stabilized environmental framework.

That is an extreme demand to place upon technology. There is no real assurance that such a balance can in fact be struck. Nevertheless the effort must be made. And because of the urgency, scope and even the improbability of complete success in such an endeavor, I am strongly tempted to use a military term for a metaphor. To deal with the global environment, we will need the environmental equivalent of the Strategic Defense Initiative, a Strategic Environment Initiative.

I have been an opponent of the military SDI. But even opponents of SDI recognize this effort has been remarkably successful in drawing together previously disconnected government programs, in stimulating the development of new technologies, and in forcing upon us a wave of intense new analysis of subjects previously thought to have been exhausted.

We need the same kind of focus and intensity, and similar levels of funding, to deal comprehensively with global warming, stratospheric ozone depletion, species loss, deforestation, ocean pollution, acid rain, air and water and groundwater pollution, and all of the problems degrading the world's environment. In every major sector of economic activity -- energy, agriculture, manufacturing, and transportation, for example -- a Strategic Environment Initiative must identify and then spread sets of increasingly effective new technologies: some that are already well in hand; some that need further work, though well understood in principle; and some that are revolutionary ideas whose very existence is now a matter of speculation.

Let me briefly illustrate:

Energy is the lifeblood of development. Unfortunately, today's most economical technologies for converting energy resources into usable forms of power (as in burning coal to make electricity) release a plethora of pollutants. An Energy SEI should focus on producing the energy of development without compromising the environment. Chief on the near-term list of alternatives are energy efficiency and conservation; on the mid-term list, solar power, possibly new-generation nuclear power, biomass (with no extraneous pollutants and a closed carbon cycle), as well as enhanced efficiency; and long-term, nuclear fusion, as well as enhanced versions of solar, biomass, and nuclear energy, and energy efficiency.

In agriculture, we have witnessed vast growth in Third World food production through the Green Revolution, but often that growth relied on heavily subsidized fertilizers, pesticides, irrigation, and overall mechanization, sometimes giving the advantage to rich farmers over poor ones. We need a second green revolution, to address the needs of the Third World's poor: a focus on increasing productivity from small farms on marginal land, with low-input agricultural methods. These technologies, whose components are not only technological, but financial and political, may be the key to satisfying the land hunger of the

disadvantaged and the desperate who are slashing daily into the rainforest of Amazonia -- leaving behind the depleted soil of their first homesteads. It may also be the key in the battle to arrest the desertification of sub-Saharan Africa, where human need and climate stress are now operating in a deadly partnership.

Fortunately, the next wave of agricultural improvements is almost upon us -- from biotechnology. In my view, we should carefully push forward work on new crop strains with genetic encoding that allows "natural" resistance to pests, disease, and droughts; not to mention improved yield. Of course, biotechnology will not completely solve the problems that arise from inadequate distribution of food supplies -- they are most often due to a failure of politics, not crops.

In addition, new industrial processes, new materials, and increased use of recycled materials, will all become important to "sustainable" development.

Needed in the U.S. probably more than anywhere, is a Transportation SEI focusing in the near term on improving the mileage standards of our vehicles, and encouraging and enabling Americans to drive less. In the mid-term, come questions of alternative fuels, such as biomass-based liquid fuels or electricity. And in the mid- and long-terms come the inescapable need for re-examining the entire structure of our transportation sector, and its inherent demand on the personal vehicle for efficient transport.

Funds to promote these research objectives could be drawn from very modest US energy taxes, eventually perhaps even a CO2 tax, although that is not yet politically viable. The U.S. government should organize itself to finance the export of energy-efficient systems, and of renewable energy sources. That means preferential lending arrangements through the Export - Import Bank, and Overseas Private Investment Corporation.

Encouragement for the Third World should also come in the form of attractive international credit arrangements for energy efficient and environmentally sustainable processes. Funds for this lending stream would be generated by institutions such as the World Bank, which, in the course of debt swapping, might dedicate new funds to the purchase of environmentally sounder technologies.

Finally, the United States, other developers of new technology, and international lending institutions, should establish centers of training at locations around the world, to create a core of environmentally educated planners and technicians, in order to "make the ground fertile" for sowing environmentally attractive technologies and practices; an effort not unlike that which produced agricultural research centers throughout the world during the Green Revolution.

With this SEI, we must transform science and technology to make it more efficient, consume less of the earth's natural resources, and emphasize waste minimization, recycling, and the

use of renewable resources in harmony with the natural world. We must start by quickly obtaining massive quantities of information about the global processes now underway -- through, for example, the Mission to Planet Earth program of NASA.

And we also must target first the most readily identifiable and correctable sources of environmental damage. Today, for example, I have introduced a new comprehensive legislative package to effectively halt chlorofluorcarbon, carbon tetrachloride, methyl chloroform, and halon emissions, and to promote development of technologies to replace those that now rely on CFCs. Earlier this year, I introduced the World Environment Policy Act of 1989, a far-ranging bill to address virtually every aspect of the global environmental crisis, including CFCs and CO2.

In order to accomplish our goal we also must transform global politics, shifting from short-term concerns to long-term concerns, from conflict to cooperation.

The evidence of the last six months leads me to believe we have the capacity for this change. Just as the equilibrium of an environmental system can suddenly change from one state to another, the equilibrium of one political system can suddenly change from one state to another. We politicians are frequently adept at symbolic action, a pretense of change without the substance of change. And for that reason, my optimism is tempered by awareness of the power in the forces of greed and fear. But I do believe we have the capacity for what is needed - - because the challenge can now be accurately described in terms of national security.

Some may believe that the idea of the environment as a national security issue is just rhetoric. Most of us in this room, however, accept it as a statement of fact. But, we also know that just as the world has been living with the possibility of man-made disaster in the form of nuclear war, so it now lives with the growing threat of man-made disaster in the form of catastrophic environmental failure.

In many ways, it is the same basic dilemma. In each case, our survival was threatened at a basic, primal level -- the fear of death from attack by an enemy, the fear of death from running out of food. To each threat, we responded with more and more efficiency. The increasing sophistication of our technology has enabled us to confront each threat to our survival with a more powerful response. And in each case, the effort to secure our survival has instead threatened our survival.

Moreover, even if we are successful this time in meeting the needs of our survival and preserving the world environment, it probably won't be the last time we'll face this basic problem. Genetic engineering may pose the same dilemma all over again. In the effort to protect ourselves against disease, we're creating a new and more powerful technology that ultimately will confront us with the same historic challenge to human nature and the same

hubristic relationship of our species to the limits nature has designed for us as part of the world ecological system.

As a result, it is hard to escape the conclusion that we must also transform ourselves -- or at least the way we think about ourselves, our children, and our future. This last transformation is the most essential, and yet the most difficult. If there is one cause for the prevailing pessimism about our ability to meet this unprecedented challenge, it is the belief by many that we are incapable of the change in thinking required.

And yet, there are precedents which give cause for realistic hope. Human sacrifice and slavery were both once commonplace in human societies, yet both are now obsolete. Our thinking was transformed. These changes, like most changes in global climate patterns, took place over a long period of time. But now, just as climate changes are telescoped into short periods of time, we must create in a single generation changes in human thinking of a magnitude comparable to the change that brought about the abolition of slavery. Yet once again, we must remind ourselves that the pattern of change required is visible only from a distance.

In this case, we cannot rely on science to give us a new point of view for it is partly responsible for the problem. In ways not yet fully understood, the scientific revolution itself changed the way we saw ourselves in relation to the world. We detached ourselves from nature to examine the physical world. In a kind of Heisenberg Principle writ large, we altered -- without realizing it -- the nature of what we began to examine. The new pattern of thinking we must now create is one in which we once again see ourselves as a part of the ecological system in which we live. What we now lack is a sense of the proper location of our species in the ecosystem. We have lost our eco-librium.

How then can we gain sufficient distance from ourselves to see a pattern which contains ourselves in a larger context? My own religious faith teaches me that we are given dominion over the earth, but that we also are required to be good stewards of the earth. If we witness the destruction of half the living species God put on this earth during our lifetimes as a result of our actions, we will have failed in the responsibility of stewardship. Are those actions, because of their result, "evil"? The answer depends not upon the everyday nature of the actions, but upon our knowledge of their consequences. In an examination of Hitler's lieutenants, Hannah Arendt coined the memorable phrase "the banality of evil." The individual actions which collectively produce the world's environmental crisis are indeed banal when they are looked at one by one: the cutting of a tree, the air conditioning of a car.

"Evil," and "good" are terms not used frequently by politicians. But in my own view, this problem cannot be solved without reference to spiritual values found in every faith. For

many scientists on the edge of new discoveries in cosmology and quantum physics, the reconciliation of science and religion sometimes now seems near at hand. ~~It is a reconciliation not unlike the one we seek~~ between man and nature

But even without defining the problem in religious terms, it is possible to conclude that the solutions we seek will be found in a new faith in the future of life on earth after our own, a faith in the future which justifies sacrifices in the present, a new moral courage to choose higher values in the conduct of human affairs, and a new reverence for absolute principles that can serve as guiding stars by which to map the future course of our species and our place within creation.

##

* reconciliation between man + nature

- in a Heisenberg Bell's way large we are altering the nature of the env't we are observing.

- 1/2 of all living species will be extinguished w/in our lifetime.

* So far the message has not caught on

- ^{our actions present} misguided / imprudent man handling of the environment
 - IRON seeding of the oceans
 - the bitter harvest
 - acid rain + trees.
 - Liming of lakes, streams.

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THE NEW REPUBLIC

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PLUS: A COMPLETE FACSIMILE OF TNR'S FIRST ISSUE



THE ECOLOGY OF SURVIVAL

By Al Gore

Theories about history are built on sand. Yet millions have died believing in their ultimate truth. It's because we have paid such a high price for historical theorizing that we can ill afford to lose our perspective now, or to stop thinking about where we've been and what it tells us about where we're going. To paraphrase Santayana, those who cannot remember the past ought to be condemned to reread it.

Seventy-five years, the measure of one magazine, is now the measure of one human lifetime—the number of years an American child born today can expect to live. Looking back 75 years, we can accept or ignore any number of political, cultural, or strategic lessons. Looking ahead into the life of that child, however, we see two indisputable patterns. With the invention of nuclear weapons we changed the character of warfare in ways that must preclude any conflict on the scale of the one that began in 1914. That lesson is widely understood, and we have some basis for hoping that it will guide our future affairs. The second dramatic change has not yet been so widely accepted. Humankind has suddenly entered into a new relationship with the planet Earth. Our survival depends upon our capacity to grasp, and quickly, the extent to which the current pattern of world civilization threatens the ecological system that sustains life as we know it.

From this side of the Atlantic, at least, the future looked better in 1914. Back then America didn't need a coup in Panama; that year we opened the Canal. Productivity growth in the United States was almost too fast to measure. In the fall of 1913 a Model T came off the assembly line at Henry Ford's new Highland Park plant every 12 hours. By the spring of 1914 that plant was producing one car every hour. The world environment was as untrampled as the poppies in Flanders Fields. The biggest threat to the rain forest was Tarzan, created that year by Edgar Rice Burroughs.

From politics to art, the world was breaking loose from the old order. The acceleration of history was already well under way. Einstein's theory of relativity had jolted science. Cubism was fracturing the way artists interpreted the world. Ancient dynasties and im-

mense empires began to die with the Archduke Ferdinand. The World War hardly made the world safe for democracy, but it did put the foes of democracy on notice. The period since then represents a succession of struggles between democratic powers and tyranny in all its guises. In 1914, as Europe descended into carnage, by far the greater number of the world's peoples lived under tyrannies. But of the major nations that went to war in Europe, only the established democracies survived with their political systems intact. The interwar years were marked by philosophical as well as geopolitical struggles on a global scale, with the ideologies of fascism, communism, and democracy in contention. In World War II, not only was fascism defeated; its exemplars underwent apparently permanent societal conversions, from which they emerged as democracies themselves. Now we appear to be experiencing the rapid dissolution of Communist tyranny. The process is advancing in Europe and perhaps gathering strength in Asia, the result of irresistible internal forces that can be set back but not permanently stopped.

In the developing worlds of Latin America, Africa, and Asia, the battle between democratic and tyrannical forms of government has been less decisive. Nevertheless, over the last decade the trend has been toward democratic forms, from Argentina and Brazil to the Philippines. Looking at this pattern, some conclude that humankind is maturing out of tutelage, throwing off submission to the arbitrary rule of those who claim legitimacy by divine right or historical "law" and embracing instead the self-rule that derives its legitimacy from the will of the electorate. Perhaps so. But experience ought to make us wary of premature declarations of victory, and we should certainly reject the idea that we have arrived at the end of political history. The human imagination is much too fertile for that, and the human capacity for inventing systems of political belief has not exhausted itself. We can expect that "isms" will continue to appear, displacing others in the hearts and minds of millions, over cycles of time that may run from decades to centuries and even to millennia.

Yet because of the events and accomplishments of the last 75 years, there are indeed critical, and permanent, new factors in the life of humanity. These relate to the physical world, whose constants are beyond the

AL GORE is a U.S. Senator from Tennessee.

power of ideological manipulation. We have, in the course of a single life span, managed to grasp the levers of our own destruction: first, in the form of nuclear weapons; and second, in the form of the industrial destruction of the biosphere, which has begun to move ahead at geometric rates of increase. When you consider the relationship of the human species to the planet Earth, not much change is visible in a single year, in a single nation. Yet if you look at the entire pattern of that relationship from the beginning of the modern era in 1914 until today, the contrast is starkly clear.

In 422 years, from the time of Christopher Columbus until 1914, world population tripled, to 1.6 billion. In the last 75 years it has tripled again, to 5.2 billion. We are told that in the next 75 years it will double and perhaps even triple once more. Nearly every index of the impact of modern industrial society follows the same pattern of sudden, unprecedented acceleration. Americans consumed around 40 billion kilowatt-hours of electricity in 1914. Last year we used 60 times that much. U.S. production of synthetic organic chemicals (from PCBs to pesticides to plastics) has gone from almost nothing to 225 billion pounds per year—half a ton for every American. The world's fossil fuel use has increased ten times over, and with it, carbon dioxide has flooded the Earth's atmosphere. Other greenhouse gases have soared upward at similar rates: U.S. nitrogen oxide emissions are up 800 percent since 1914; methane concentrations have nearly doubled; and the world's emissions of chlorofluorocarbons, which had not yet been invented in 1914, have increased by 80 times since World War II, and are still doubling every decade, posing a deadly threat to the Earth's protective ozone shield.

The hole in the ozone layer is only the most widely accepted manifestation of a much broader challenge to the Earth's environment. We are destroying forest land at the rate of one acre per second; we are poisoning our rivers, lakes, groundwater, and oceans; we are causing living species to be destroyed at a rate 1,000

times greater than at any time in the last 65 million years; we are filling the atmosphere with gaseous wastes that threaten changes to the climatic system in the next 75 years as large as those that accompanied the ice ages over hundreds of thousands of years. These dramatic changes are taking place not only because the human population is surging and our standard of living has increased, but because we tolerate environmental vandalism on a global scale.

For 75 years the price we would have to pay for our actions has seemed impossibly remote. Only now are we beginning to see, in Ivan Ilych's phrase, "the

shadow our future throws." Whether we look forward in hopes of glimpsing what the future holds or gaze backward at the events that have dominated the world since 1914, we see something that resembles one of those artist's depictions of relativity theory, with time and space curved like a checkerboard grid painted by Salvador Dali. Our political awareness of the world is shaped and bent by events. Vast calamities such as the world wars exert a powerful gravitational pull on every idea we have about the world around us. And, just as in Einstein's theory, future events can exert the same gravitational pull on our thinking as events in the past. The political will to slow down the nuclear arms race came from the

feeling that we were being pulled toward a future we had never seen but didn't want. Now, as we are being drawn toward the brink of ecological collapse, we must be willing to consider drastic ecological action.

There is no way for humanity to forget its skills for self-destruction, by war upon each other or by war upon the environment. In an exchange of Promethean proportions, we have acquired deadly knowledge that we can never lose but must learn to keep under control forever. That is the new and permanent point of departure for political wisdom. And if we are to succeed in keeping civilization intact, it is clear that one ism must be revived and renewed: globalism—by which I mean not some kind of world order prescribed and imposed

Thorstein Veblen Reconsidered *George Charney*

THE NEW REPUBLIC

A Journal of Politics and the Arts - January 22, 1972, 50 cents

How Clean Is Clean?

The Editors on Water Pollution

Moving to the Suburbs - Robert Cassidy

Shooting at Henry - John Osborne

War Powers - Alexander M. Bickel

The Old Decency - Reed Whitemore

Populist Rumbblings - Peter Barnes

COVER, JANUARY 22, 1972

from above, but rather a sense of responsibility for the good order of the world, rising upward from all of its peoples, and ultimately manifesting itself in the behavior of their governments, both domestically and in international relations.

A new globalism cannot be based on some transformation of human nature, by which people will be endowed with new virtues of foresight and restraint. In the last 75 years we have had enough of efforts to create the New Man in one image or another. Jefferson's educated citizenry will have to suffice. The globalism we need can develop out of roots already universally present. It will be an enlightened, informed extension of our desire to survive, and of our often even more intense desire to provide for the survival and well-being of our children and grandchildren. Globalism will be marked by the sense that if our affairs are conducted on the basis of an unlimited struggle for supremacy—whether among nations or over nature—the result will be an increasingly high risk of almost immeasurable loss for all. It will be marked also by a sense that at some level, cooperation secures for all of us what strife cannot.

Mikhail Gorbachev now speaks as an advocate of a globalist approach based on mutual consent, rather than hegemony. It is certainly a revolution of sorts to hear such things from a Soviet leader. But it is well to remember that Gorbachev has at best caught up with the doctrine of collective security as propounded by Woodrow Wilson in 1918 and again by Franklin Roosevelt in 1945.

The essence of the doctrine of collective security is that security is indivisible and mutual: it must be provided for all, by actions to which all must contribute, or it exists for no one. That is certainly the lesson we must apply as we struggle to redefine our security relationship in military terms. Reductions of strategic and conventional weapons are desirable, but not in the abstract. They must seek a result in which the residual forces are perceived by all concerned parties to be stable, in the sense of lacking the capacity for decisive surprise. And reductions must be carried out in a political context that buttresses the expectation of peace and justifies diminished preparation for war.

But the notion of mutual security must now move from an exclusive concern with security as an issue of peace or war to a definition of security that includes the global environment. With that in mind, I have proposed a Strategic Environment Initiative (SEI). Let's face it: the Strategic Defense Initiative can't assure our survival for the next 75 years. A Strategic Environment Initiative might. I am no admirer of SDI, but one doesn't have to be an admirer to recognize that it drew together previously scattered facilities and resources and that it attracted a generous share of the government's budget for research and development. We need to approach the technological challenge of environmental protection and economic growth with at least the same intensity—and with comparable or greater levels of funding.

If we continue our current pattern of technology and production, we will be able to achieve economic growth in the near term only at the cost of massive environmen-

tal disorder in the not so distant future. For the developing world, the problems of reconciling economic growth and environmental protection are compounded by high rates of population growth and a massive debt burden. Yet the cooperation of Third World nations is crucial to controlling problems as vast as global warming. Their share of greenhouse gas emissions from fossil fuels could grow from about 20 percent today to as much as 60 percent by 2050. A Strategic Environment Initiative would promote environmentally sustainable development by identifying and spreading new technologies to developing countries, where 95 percent of world population growth will take place during the next century. Here in the United States, the Strategic Environment Initiative must modernize technologies and practices in every economic sector, from more fuel-efficient cars and energy-efficient appliances to manufacturing that relies on recycled material, to a second green revolution requiring fewer fertilizers and pesticides. The emerging consensus for environmental protection is opening the door to solutions once considered politically impossible.

It will not be enough, however, to change our laws, policies, and programs. We must also change the way we think about ourselves, our children, and our future. For a very long time, we have seen ourselves as separate from the world around us. At least since the beginning of the scientific method, and probably since Aristotle, we have seen nature as the object of our experiments, exploitation, and dominion. As scientists reflected on Einstein's revolution, they discovered that the act of observing alters what is observed. Heisenberg established that "uncertainty principle" in 1923. But its philosophical application is not limited to the subatomic world he described. In a kind of Heisenberg Principle writ large, we have altered—without realizing it—our relationship to nature itself. We must now create a new pattern of thinking in which we once again see ourselves as a part of the ecological system in which we live. We have lost, so to speak, our eco-librium.

How can we gain sufficient distance from ourselves to see a pattern that contains us in a larger context? My own religious faith teaches me that while we are given dominion over the Earth, we also are required to be good stewards of the Earth. If our actions cause the destruction of half the living species God put on this Earth during our lifetimes, we will have failed in the responsibility of stewardship. Are those actions, because of their result, "evil"? The answer depends not upon the everyday nature of the actions, but upon our knowledge of their consequences. For the individual actions that collectively produce the world's environmental evil are indeed banal when they are looked at one by one: the cutting of a tree, the flicking on of an air conditioner, the dumping of some inconvenient waste.

"Evil" and "good" are terms not used frequently by politicians. Yet I do not see how this problem can be solved without reference to spiritual values found in every faith. For many scientists on the edge of new discov-

eries in cosmology and quantum physics, the reconciliation of science and religion sometimes now seems near at hand. It is a reconciliation not unlike the one we seek between humankind and nature. But even without defining the problem in religious terms, it is possible to conclude that the solutions we seek will be found in a new

faith in the future of life on Earth after our own, a faith in the future that justifies sacrifices in the present, a new moral courage to choose higher values in the conduct of human affairs, and a new reverence for absolute principles that can serve as stars by which to map the future course of our species and our place within creation.

NEWS FROM

U.S. Senator Al Gore



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FOR IMMEDIATE RELEASE
TUESDAY, May 22, 1990

Contact: Marla Romash
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**LEGISLATION INTRODUCED TODAY TO FUND INT'L CFC EFFORT
Would Support Fund Administration Rejected
Intended to Bolster U.S. Position When Negotiations Resume in June**

WASHINGTON -- An international fund to help developing countries reduce emissions and use of ozone-depleting chemicals would receive support the Administration refused through legislation introduced today (5/22) by Sens. Al Gore, D-TN, Claiborne Pell, D-RI, George Mitchell, D-ME, Patrick Leahy, D-VT, Tim Wirth, D-CO, John Kerry, D-MA, Max Baucus, D-MT, Joe Biden, D-DE, Brock Adams, D-WA, Alan Cranston, D-CA, and Dale Bumpers, D-AR.

The Ozone Protection Funding Act of 1990 authorizes funding for the U.S. contribution to an international account to assist developing countries in complying with the Montreal Protocol on Substances that Deplete the Ozone Layer. The Bush Administration earlier this month disrupted negotiations in Geneva designed to strengthen the Protocol by rejecting U.S. participation in the international effort.

"The Administration is blindfolded, sitting on its hands with lead in its boots, apparently ready to expose the citizens of our country and of every country to the health risks that come from the destruction of the upper ozone layer," said Gore. "We cannot accept the Administration's preference for environmental negligence, and we will not allow the United States to become an environmental outcast, isolated within a world community that recognizes the urgency of the need for action."

Negotiators working to strengthen the Protocol will meet in London in June. The Geneva negotiations stalled last week when the U.S. refused to join other industrialized nations agreeing to contribute to the \$100 million fund, to be created over three years. The U.S. was to contribute \$25 million over three years. The legislation introduced today would authorize that contribution.

"There's no question about the science. We know which chemicals eat away at the upper ozone and we know that skin cancer and cataracts and other illnesses follow when more ultra violet radiation hits the earth because the upper ozone is depleted. What's

(MORE)

unexplainable and inexcusable is the Bush Administration policy," said Gore.

Revisions to the Protocol would speed the phase-out of chlorofluorocarbons and halons the Protocol already controls. The new amendment, which would require ratification, contains provisions which would add to the Protocol new chemicals also proven to be ozone-depleters and create the special fund to assist developing countries to "leapfrog" to chemicals and technologies which do not deplete the ozone layer.

"This effort responds to a decade of scientific findings, highlighted by the sudden appearance of a continent-sized hole in the ozone layer above Antarctica. Now we know the damage can be found above the North Pole and that over the entire Northern Hemisphere, the problem is much worse than ever predicted," Gore said.

Gore and 11 of his colleagues wrote President Bush on May 9 protesting the U.S. action in Geneva and requesting a meeting with the President to discuss the issue.

"The problem President Bush created in Geneva will make a bad situation worse. The U.S. is in a position to develop alternatives and to lead the world in this technology. Almost daily now we read about another company replacing old, dangerous technologies with new, environmentally safe technologies," Gore said. "These new technologies will benefit not only the environment, but the U.S. trade balance."

"The U.S. Senate has acted, including provisions in the Clean Air Act that will speed the phase-out of ozone-depleting chemicals, develop a plan to promote alternatives, and prohibit the transfer or investment in technologies that produce ozone-depleting chemicals. It's time our international policy reflected that commitment," Gore said.

##

101st CONGRESS
2nd SESSION

S. ____

To authorize the United States contribution to an international account established by the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, for the purpose of assisting developing nations in their efforts to comply with the provisions of the Protocol; and for other purposes.

IN THE SENATE OF THE UNITED STATES

May 22 (legislative day, _____), 1990

Mr. GORE (for himself, Mr. PELL, Mr. MITCHELL, Mr. LEAHY, Mr. WIRTH, Mr. KERRY, Mr. BAUCUS, Mr. BIDEN, Mr. ADAMS, Mr. CRANSTON, and Mr. BUMPERS) introduced the following bill; which was read twice and referred to _____.

A BILL

To authorize the United States contribution to an international account established by the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, for the purpose of assisting developing nations in their efforts to comply with the provisions of the Protocol; and for other purposes.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Ozone Protection Funding Act of 1990."

SEC. 2. FINDINGS.

The Congress finds that --

(1) the depletion of the stratospheric ozone layer by manmade chemicals is a global phenomenon, whose solution will require national action and international cooperation;

(2) while stratospheric ozone depletion has had its most pronounced effects in polar regions, depletion is occurring worldwide, with current levels over the United States already reduced by about 2% to 3%;

(3) a depleted ozone layer will allow more ultraviolet-B radiation to reach the Earth's surface, with serious health implications for all peoples, as well as deleterious effects on agricultural crops and natural ecosystems;

(4) in order to terminate emissions of chlorofluorocarbons and other ozone-depleting substances as rapidly as possible, the highest priority must be given to developing and deploying safe alternative chemicals and technologies worldwide, to replace ozone-depleting substances;

(5) many developing nations that have not signed the Montreal Protocol on Substances that Deplete the Ozone Layer are now acquiring inefficient, chlorofluorocarbon-based refrigeration equipment, which could lead to large increases in emissions of ozone-depleting chemicals in the coming decades;

(6) in order to assist developing nations in acquiring non-ozone depleting chemicals and technologies, the Parties to the Montreal Protocol agreed in principle to provide special funding for that purpose; and

(7) the United States' share of that assistance has been determined during recent negotiations to be a minimum of \$25 million over the next three years, with a possible increase to \$75 million over the next three years if the remaining nations that have not ratified the Montreal Protocol do so.

SEC. 3. OBJECTIVE AND NATIONAL GOAL.

(a) The objective of this Act is to protect human health and natural ecosystems from all known and potential dangers due to depletion of the stratospheric ozone layer, which is or would be caused by emissions of chlorofluorocarbons, halons, or other ozone-depleting chemicals.

(b) In order to achieve the objective of this Act, it is the national goal to provide a United States contribution to an international account established by the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, for the purpose of assisting developing nations in their efforts to comply with the provisions of the Protocol.

SEC. 4. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Department of State up to \$25 million in each of FY 1991, FY 1992, and FY 1993, for the purpose of assisting developing nations in their efforts to comply with the provisions of the Montreal Protocol on Substances that Deplete the Ozone Layer, including bilateral assistance and the United States contribution to an international account established by the Parties to the Protocol.

The Global Environment: A National Security Issue

Keynote Address by
U.S. SEN. AL GORE, D-Tennessee
National Academy of Sciences
Forum on Global Climate Change
Washington, D.C.
May 1, 1989

Many of us have come to this gathering because of a shared belief that humankind has suddenly entered into a brand new relationship with the planet Earth, and that human civilization is, in its current pattern, causing grave and perhaps soon irreparable damage to the ecological system which supports life as we know it.

My purpose is to sound an alarm loudly and clearly -- of imminent and grave danger -- and to describe a strategy for confronting this crisis, with changes in our collective behavior and thinking which, if made, can forestall and prevent the horrendous prospect of an ecological collapse.

First, why is such an alarm necessary? Do we need a crisis before we can act?

Sometimes in human affairs a pattern is well set before its implications are felt in our daily lives. This is true both in politics and in science. When shattered glass filled the streets of Berlin on Kristallnacht, few could conceive of the holocaust to follow. But from a distance, the pattern is now clear. When the first atom was split, few could conceive of nuclear bombs. But when Einstein wrote Roosevelt, the pattern was clear.

How much information is needed by the human mind to recognize a pattern? How much more is needed by the body politic to justify action in response?

It took a long time for the world to respond to Hitler. Because of Hitler, it took only a short time for Roosevelt to respond to Einstein.

In a classic experiment often cited, a frog dropped into a pot of boiling water quickly jumps out. But the same frog, put in the water before it is slowly heated, will remain in place until it is boiled.

The meaning of a pattern is conveyed by contrast as opposed to sameness. Sameness lulls the senses and conveys an absence of danger. Gradual change sometimes resembles sameness, obscuring danger from minds which reserve their alertness for sharp contrasts. Exponential change at first resembles sameness, then gradual change, then explosive contrast.

It is often hard to recognize the shape of an exponential curve before it reaches the explosive stage. It is difficult because the contrast essential to understanding very large patterns is sometimes visible only from a distance.

If an individual or a nation is accustomed to looking at the future one year at a time, and the past in terms of a single lifetime, then many large patterns are concealed. If a political body looks at policies in the context of a single nation, then the global impacts will remain invisible.

When you consider the relationship of the human species to the planet Earth, not much change is visible in a single year, in a single nation. Yet, if you look at the entire pattern of that relationship from the emergence of the species until today, May Day 1989, a distinctive contrast in very recent times clearly conveys the danger to which we must

respond. It took ten thousand human lifetimes for the population to reach two billion. Now, in the course of a single human lifetime -- mine and yours -- it is rocketing from two billion toward ten billion, and is already halfway there.

Startling graphs showing the loss of forest land, topsoil, stratospheric ozone, and species all follow the same pattern of sudden, unprecedented acceleration in the latter half of the 20th century. And yet, so far, the pattern of our politics remains remarkably unchanged.

The earth's forests are being destroyed at the rate of one football field's worth every second, one Tennessee's worth every year. An enormous hole is opening in the ozone layer, reducing the earth's ability to protect life from deadly ultraviolet radiation. Living species die at such an unprecedented rate that more than half may disappear within our lifetimes. Chemical wastes, in growing volumes, seep downward to poison groundwater and upward to destroy the atmosphere's delicate balance. Huge quantities of carbon dioxide, methane, and chlorofluorocarbons dumped in the atmosphere are trapping heat and raising global temperatures.

In 1987, carbon dioxide levels in the atmosphere began to surge with record annual increases. Global temperatures are also climbing: 1987 was the second hottest year on record; 1988 was the hottest. Scientists now predict our current course may raise world temperatures almost five degrees Celsius in the lifetimes of people in this room. The last time there was such a shift, it was five degrees colder: New York City was under one kilometer of ice. If five degrees colder over thousands of years produces an ice age, what could five degrees warmer produce in one lifetime?

Why are these dramatic changes taking place? Because the human population is surging, because the industrial, scientific, and technological revolutions magnify the environmental impact of these increases, and because we tolerate self-destructive behavior and environmental vandalism on a global scale.

"How much information is needed by the human mind to recognize a pattern? How much more is needed by the body politic to justify action in response?"

The problem in organizing our response is that the worst effects seem far off in the future, and they are so unprecedented they seem to defy common sense. While right now, in the present, millions of people are suffering in poverty and dying of starvation, warfare, and preventable diseases. How do we deal with these immediate problems and at the same time confront the problems of the future? One of the philosophers of the environmental movement, Ivan Illich, in a recent interview, explained the sudden environmental activism of Margaret Thatcher, Mikhail Gorbachev, and other world leaders previously uninterested in the global environment by saying "what has changed is that our common sense has begun searching for a language to speak about the shadow our future throws."

Science already has such a language. Have you ever seen the picture showing how time and space are

shaped by mass, with a black hole pictured as a deep well in a grid, with the space and time around the well sloping toward it? Human political awareness is shaped by history in precisely that way. Our political awareness of the world is shaped and bent by events. Large events like World War II exert a powerful gravitational pull on every idea we have about the world around us. The Holocaust shapes every idea we have about human nature.

And just as in Einstein's theory, future events can exert the same gravitational pull on our thinking as events in the past -- even though the events in the future have not yet occurred.

Time is relative in politics as in science. The political will which made possible the mass political protests against escalating the nuclear arms race came from awareness of a downslope toward a future we did not want to see. Many felt us being pulled toward a

nuclear war that would crush human history forever into a black hole. We are now changing our course away from that downslope, we hope, and taking a new direction -- even though 99.99% of all human beings on earth have never seen, heard, or personally felt nuclear destruction. The awareness of that potential future event came from political communication, with abstract symbols, like words.

Now, throughout the world, we are witnessing the emergence of a new political will to take a different course in order to avoid the slope toward global environmental destruction. We see the catastrophe coming, we hear Rachel Carson's *Silent Spring*. The slope seemed gradual at first but now it is steep. We feel strongly pulled toward ecological collapse by the policies we are now pursuing.

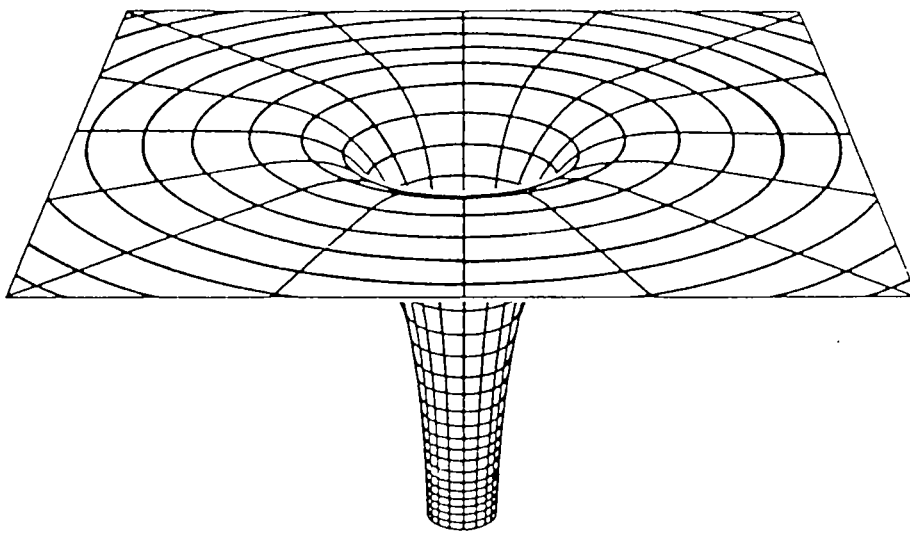
I personally became deeply involved in the effort to avoid a nuclear holocaust nine years ago because I felt the slope toward that horrendous possibility. And I tried to bring to the task the skills of my profession. I believe all this talk about the global environment as a national security issue makes a great deal of sense in political terms.

For the past 13 years, as a citizen and as a member of the United States Congress, I have had long-standing interests in both the environmental threat and in national security. As a practical matter, I have dealt with these subjects as separate intellectual accounts: involving distinct areas of public policy, each with its own completely different set of concerns and participants.

Yet, they grow more and more alike. National security comprises matters that directly and imminently menace the interests of the state, or the welfare of the people. As such, these issues command the attention of political leaders at the highest level, with a proportionate claim on the resources of government and the wealth of the nation. If society were an organism, national security would involve the instinct for survival.

To this point, the national security agenda has been dominated by issues of military security, embedded in the context of global struggle between the United States and the Soviet Union: a struggle which the protagonists have often waged through distant surrogates, but which has always harbored the risk of direct confrontation and nuclear war.

Given the changes in Soviet behavior which have begun under Gorbachev, there is growing optimism that



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Restoring Eco-librium

this long, dark period may be passing. There is also hope this will open the international agenda for other urgent matters and for the release of enormous resources, now committed to war, toward other objectives.

Many hope that the global environment will be the new Dominant Issue. They assert that a collective, international struggle for stability in the ecosystem will succeed the old pattern of national struggle for temporal power, and will justify the preemption of enormous resources, and reshape the public consciousness in support of another long, global struggle.

I am deeply in sympathy with this view, and yet as someone who has worked hard on both issues, I believe the analogy must be used very cautiously. The US-Soviet struggle has lasted almost half a century, consumed several trillions of dollars, cost us close to one hundred thousand American lives in Korea and Vietnam, and has profoundly shaped the psychological and social consciousness of our people. Much the same could be said of the Soviets, who, if anything, have endured far more than have we for the sake of their ideology.

Nothing is automatic or foreordained about the course of US-Soviet relations, no matter how many editorial writers now claim the "Cold War is Over." Nothing relieves us of our present responsibilities for defense or of the need to conduct painstaking negotiations to limit arms and reduce the risk of war. The old agenda is with us still, exacting its price in wealth, creativity and the attention of statesmen.

And yet, the environmentalists are right.

Certainly, there is strong evidence the new enemy is at least as real as the old. For the general public, the shocking images of last year's drought, or of beaches covered with medical garbage, inspired a sense of peril once sparked only by Soviet behavior. But for environmental specialists, the steady flow of data from scientific investigation of the environment -- often ambiguous, but always menacing -- is eerily equivalent to intelligence collection against the more familiar Soviet threat. The U2 spy plane, for example, now is used to monitor not missile silos but ozone depletion.

Already, we are seeing governments struggling to resolve issues whose domains go far beyond anything in our experience. Debate over the disposition of radioactive wastes, for example, involves choices that must remain valid across geological time. The species now disappearing at an unprecedented rate will never return. The global climate pattern could shift to a new equilibrium and never regain its former pattern.

In the not distant future, there will be a new "sacred agenda" in international affairs: policies that enable the rescue of the global environment. This task will one day join, and then perhaps even supplant, preventing the world's incineration through nuclear war, as the principal test of statecraft.

However, in thinking about environmentalism as a national security concern, it is important to differentiate between what would -- in military jargon -- be called the level of threat. Certain environmental problems may be important but are essentially local; others cross borders, and in effect represent theaters of operations; and still others are global and strategic in nature.

On this scale, even phenomena as important as the slow suffocation of Mexico City, the deaths of northern forests in America and Europe, or even the desertification of large areas of Africa, will likely not be regarded as full scale national security issues.

However, the greenhouse effect and stratospheric ozone depletion fit the profile of national security issues of global significance. These phenomena certainly will in time produce effects big enough to threaten international order, even at the level of war and peace. In the case of global warming,

the fact that some of the worst effects will not fully manifest themselves until the middle of the next century is offset by the fact that actions we take now will determine the extent of the damage later.

When nations perceive that they are threatened at the strategic level, they may be induced to think of drastic responses, involving sharp discontinuities from everyday approaches to policy. In military terms, this is the point when the United States begins to think of invoking nuclear weapons. The global environment may well involve responses that are, in comparative terms, just as radical. Not just business as usual, not just incremental variations but massive departures from the norm.

Nuclear war is an apocalyptic subject, and so is global environmental destruction. We are dealing here with increasingly credible forecasts of climatic dislocations, vast changes in growing cycles, inundations of coastal areas and the loss to the sea of vast territories -- some of them very heavily developed and populated. We also are dealing not only with a threat to human health, but unpredictable and potentially vast changes to all life at the surface of the earth and the seas, as the result of prolonged exposure to increased ultra-violet radiation.

What's more, despite some progress made toward limiting some sources of the problem, such as CFCs, we have to face the stark fact that we have barely scratched the surface. Even if all other elements of the problem are solved, a major threat is still posed by emissions of carbon dioxide, the exhaling breath of the industrial culture upon which our civilization rests. The implications of the latest and best studies on this matter are staggering. We must be honest about them. Essentially, they tell us that with our current pattern of tech-

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nology and production, we face a Hobson's Choice between economic growth in the near term, and massive environmental disorder as the subsequent penalty.

This central fact cuts across the face of all environmental strategies as we generally think of them. It suggests that the notion of environmentally sustainable development at present may be an oxymoron, rather than a realistic objective. It declares war, in effect, on routine life in the advanced industrial societies. And -- central to the outcome of the entire struggle to restore global environmental balance -- it declares war on the Third World.

The Third World does not have a choice about whether or not it will develop economically. If it does not develop economically, poverty, hunger and disease will consume entire populations. And long before that, whole societies will experience revolutionary political disorder. Rapid economic growth is a life-or-death imperative throughout the Third World. The peoples and governments of the Third World will not be denied that hope, no matter the longer-term costs for the global environment.

And why should they accept what we, manifestly, will not accept for ourselves? Who is so bold as to say that any nation in the developed world is prepared to abandon industrial and economic growth? Who will proclaim that any nation in the developed world will accept even serious compromises in levels of comfort, for the sake of global environmental balance? And who will apportion these sacrifices; who will then bear them?

Development, of course, is part of

the problem as well as the solution. We know that, just as we know that nuclear deterrence depends on the weapons we are trying to render obsolete.

The effort to solve the nuclear arms race has been complicated not only by simplistic stereotypes of the enemy and the threat he poses. It also has been complicated by simplistic demands for immediate unilateral disarmament, without any basis for a widely shared confidence that the original threat is no longer real.

My own belief is that perceptions must evolve simultaneously in both superpowers as technology evolves simultaneously in both countries, as conscious efforts are made to improve information about the other, about the nature of the threat, and the confidence we can summon that the threat is in fact changing and receding.

In similar fashion, the effort to solve the global environmental crisis will be complicated not only by blind assertions that more and more environmental manipulation and more and more resource extraction are essential for economic growth. It will also be complicated by the emergence of simplistic demands that development, or technology itself, must be stopped for the problem to be solved. This is a crisis of confidence which must be addressed.

This speech, if you'll permit me a personal moment, is the first time I've spoken in public on any subject in six weeks. My wife and I have been in Johns Hopkins Hospital, at the bedside of our son, who was hit by an automobile. I've been living in the world of medical science, pursuing the

goal of restoring our son to health. Ten years ago, a child with his injuries would have had several surgical interventions which doctors now realize are unwise, given the greater likelihood of the body healing itself where some injuries are concerned.

Yet, two days after the accident, when doctors were unable to stabilize internal bleeding, my wife and I naively hoped that same natural healing process would take care of that problem and make any surgery unnecessary. If the doctor had relied not on science but on us, we would have unwisely urged against an operation. But doctors have acquired sufficient knowledge to realize that the body should be allowed to heal itself when it can do so. At the same time, they know there are some instances where intervention is essential to save life.

Similarly, we must acquire sufficient knowledge of the earth's system to judge when it can heal itself, and when it is necessary for us to intervene. For example, when 40,000 children die of disease and starvation every 24 hours, we obviously must intervene. But it is past time to recognize that many of society's interventions in the environment have been and are unwise. Much ecological destruction is subsidized by governments. We need more knowledge, more experience, and the kind of sensitive judgments that modern doctors have learned to make.

The cross-cut between the imperatives of growth and the imperatives of environmental management, represents a supreme test for modern industrial civilization. The test is whether we can devise very dynamic new strategies which will accommodate economic growth within a stabilized environmental framework.

That is an extreme demand to place upon technology. There is no real assurance that such a balance can in fact be struck. Nevertheless the effort must be made. And because of the urgency, scope and even the improbability of complete success in such an endeavor, I am strongly tempted to use a military term for a metaphor. To deal with the global environment, we will need the environmental equivalent of the Strategic Defense Initiative, a Strategic Environment Initiative.

I have been an opponent of the military SDI. But even opponents of SDI recognize this effort has been

A Strategic Environment Initiative

remarkably successful in drawing together previously disconnected government programs, in stimulating the development of new technologies, and in forcing upon us a wave of intense new analysis of subjects previously thought to have been exhausted.

We need the same kind of focus and intensity, and similar levels of funding, to deal comprehensively with global warming, stratospheric ozone depletion, species loss, deforestation, ocean pollution, acid rain, air and water, and groundwater pollution, and all of the problems degrading the world's environment. In every major sector of economic activity -- energy, agriculture, manufacturing, and transportation, for example -- a Strategic Environment Initiative must identify and then spread sets of increasingly effective new technologies: some that are already well in hand; some that need further work, though well understood in principle; and some that are revolutionary ideas whose very existence is now a matter of speculation.

Let me briefly illustrate:

Energy is the lifeblood of development. Unfortunately, today's most economical technologies for converting energy resources into usable forms of power (as in burning coal to make electricity) release a plethora of pollutants. An Energy SEI should focus on producing the energy of development without compromising the environment. Chief on the near-term list of alternatives are energy efficiency and conservation; on the mid-term list, solar power, possibly new-generation nuclear power, biomass (with no extraneous pollutants and a closed carbon cycle), as well as enhanced efficiency; and long-term, nuclear fusion, as well as enhanced versions of solar, biomass, and nuclear energy, and energy efficiency.

In agriculture, we have witnessed vast growth in Third World food production through the Green Revolution, but often that growth relied on heavily subsidized fertilizers, pesticides, irrigation, and overall mechanization, sometimes giving the advantage to rich farmers over poor ones. We need a second green revolution, to address the needs of the Third World's poor: a focus on increasing productivity from small farms on marginal land, with low-input agricultural methods.

These technologies, whose components are not only technological, but financial and political, may be the key to satisfying the land hunger of the disadvantaged and the desperate who are slashing daily into the rainforest of Amazonia -- leaving behind the depleted soil of their first homesteads. It may also be the key in the battle to arrest the desertification of sub-Saharan Africa, where human need and climate stress are now operating in a deadly partnership.

Fortunately, the next wave of agricultural improvements is almost upon us -- from biotechnology. In my view, we should carefully push forward work on new crop strains with genetic encoding that allows "natural" resistance to pests, disease, and droughts; not to mention improved yield. Of course, biotechnology will not completely solve the problems that arise from inadequate distribution of food supplies -- they are most often due to a failure of politics, not crops.

In addition, new industrial processes, new materials, and increased use of recycled materials, will all become important to "sustainable" development.

Needed in the U.S. probably more than anywhere, is a Transportation SEI focusing in the near term on improving the mileage standards of our vehicles, and encouraging and enabling Americans to drive less. In the mid-term, come questions of alternative fuels, such as biomass-based liquid fuels or electricity. And in the mid- and long-terms come the inescapable need for re-examining the entire structure of our transportation sector, and its inherent demand on the personal vehicle for efficient transport.

Funds to promote these research objectives could be drawn from very modest US energy taxes, eventually perhaps even a CO₂ tax, although that is not yet politically viable. The U.S. government should organize itself to finance the export of energy-efficient systems, and of renewable energy sources. That means preferential lending arrangements through the Export - Import Bank, and Overseas Private Investment Corporation.

Encouragement for the Third World should also come in the form of attractive international credit arrangements for energy efficient and en-

vironmentally sustainable processes. Funds for this lending stream would be generated by institutions such as the World Bank, which, in the course of debt swapping, might dedicate new funds to the purchase of environmentally sounder technologies.

Finally, the United States, other developers of new technology, and international lending institutions, should establish centers of training at locations around the world, to create a core of environmentally educated planners and technicians, in order to "make the ground fertile" for sowing environmentally attractive technologies and practices; an effort not unlike that which produced agricultural research centers throughout the world during the Green Revolution.

With this SEI, we must transform science and technology to make it more efficient, consume less of the earth's natural resources, and emphasize waste minimization, recycling, and the use of renewable resources in harmony with the natural world. We must start by quickly obtaining massive quantities of information about the global processes now underway -- through, for example, the Mission to Planet Earth program of NASA.

And we also must target first the most readily identifiable and correctable sources of environmental damage. Today, for example, I have introduced a new comprehensive legislative package to effectively halt chlorofluorocarbon, carbon tetrachloride, methyl chloroform, and halon emissions, and to promote development of technologies to replace those that now rely on CFCs. Earlier this year, I introduced the World Environment Policy Act of 1989, a far-ranging bill to address virtually every aspect of the global environmental crisis, including CFCs and CO₂.

In order to accomplish our goal we also must transform global politics, shifting from short-term concerns to long-term concerns, from conflict to cooperation.

The evidence of the last six months leads me to believe we have the capacity for this change. Just as the equilibrium of an environmental system can suddenly change from one state to another, the equilibrium of one political system can suddenly change from one state to another. We politi-

“... the solutions we seek will be found in a new faith in the future of life on earth after our own, a faith in the future which justifies sacrifices in the present, a new moral courage to choose higher values in the conduct of human affairs, and a new reverence for absolute principles that can serve as guiding stars by which to map the future course of our species and our place within creation.”

cians are frequently adept at symbolic action, a pretense of change without the substance of change. And for that reason, my optimism is tempered by awareness of the power in the forces of greed and fear. But I do believe we have the capacity for what is needed -- because the challenge can now be accurately described in terms of national security.

Some may believe that the idea of the environment as a national security issue is just rhetoric. Most of us in this room, however, accept it as a statement of fact. But, we also know that just as the world has been living with the possibility of man-made disaster in the form of nuclear war, so it now lives with the growing threat of man-made disaster in the form of catastrophic environmental failure.

In many ways, it is the same basic dilemma. In each case, our survival was threatened at a basic, primal level -- the fear of death from attack by an enemy, the fear of death from running out of food. To each threat, we responded with more and more efficiency. The increasing sophistication of our technology has enabled us to confront each threat to our survival with a more powerful response. And in each case, the effort to secure our survival has instead threatened our survival.

Moreover, even if we are successful this time in meeting the needs of our survival and preserving the world environment, it probably won't be the last time we'll face this basic problem. Genetic engineering may pose the same dilemma all over again. In the effort to protect ourselves against disease, we're creating a new and more power-

ful technology that ultimately will confront us with the same historic challenge to human nature and the same hubristic relationship of our species to the limits nature has designed for us as part of the world ecological system.

As a result, it is hard to escape the conclusion that we must also transform ourselves -- or at least the way we think about ourselves, our children, and our future. This last transformation is the most essential, and yet the most difficult. If there is one cause for the prevailing pessimism about our ability to meet this unprecedented challenge, it is the belief by many that we are incapable of the change in thinking required.

And yet, there are precedents which give cause for realistic hope. Human sacrifice and slavery were both once commonplace in human societies, yet both are now obsolete. Our thinking was transformed. These changes, like most changes in global climate patterns, took place over a long period of time. But now, just as climate changes are telescoped into short periods of time, we must create in a single generation changes in human thinking of a magnitude comparable to the change that brought about the abolition of slavery. Yet once again, we must remind ourselves that the pattern of change required is visible only from a distance.

In this case, we cannot rely on science to give us a new point of view for it is partly responsible for the problem. In ways not yet fully understood, the scientific revolution itself changed the way we saw ourselves in relation to the world. We detached

ourselves from nature to examine the physical world. In a kind of Heisenberg Principle writ large, we altered -- without realizing it -- the nature of what we began to examine. The new pattern of thinking we must now create is one in which we once again see ourselves as a part of the ecological system in which we live. What we now lack is a sense of the proper location of our species in the ecosystem. We have lost our eco-librium.

How then can we gain sufficient distance from ourselves to see a pattern which contains ourselves in a larger context? My own religious faith teaches me that we are given dominion over the earth, but that we also are required to be good stewards of the earth. If we witness the destruction of half the living species God put on this earth during our lifetimes as a result of our actions, we will have failed in the responsibility of stewardship. Are those actions, because of their result, "evil"? The answer depends not upon the everyday nature of the actions, but upon our knowledge of their consequences. In an examination of Hitler's lieutenants, Hannah Arendt coined the memorable phrase "the banality of evil." The individual actions which collectively produce the world's environmental crisis are indeed banal when they are looked at one by one: the cutting of a tree, the air conditioning of a car.

"Evil," and "good" are terms not used frequently by politicians. But in my own view, this problem cannot be solved without reference to spiritual values found in every faith. For many scientists on the edge of new discoveries in cosmology and quantum physics, the reconciliation of science and religion sometimes now seems near at hand. It is a reconciliation not unlike the one we seek between man and nature.

But even without defining the problem in religious terms, it is possible to conclude that the solutions we seek will be found in a new faith in the future of life on earth after our own, a faith in the future which justifies sacrifices in the present, a new moral courage to choose higher values in the conduct of human affairs, and a new reverence for absolute principles that can serve as guiding stars by which to map the future course of our species and our place within creation. ■

United States Senate

WASHINGTON, DC 20510-4202

May 23, 1991

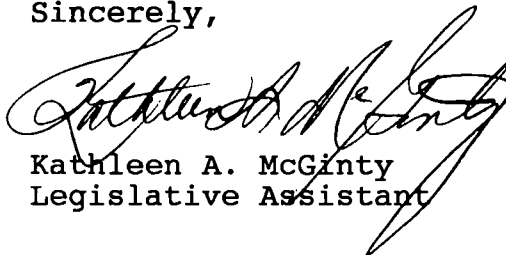
Ms. Irina Zikova
Embassy of Czechoslovakia
Washington, D.C.

Dear Ms. Zikova:

I have told Senator Gore of your government's interest in hosting the next Interparliamentary Conference on the Global Environment. He received the news with great enthusiasm and indicated that he would make every effort to clear his schedule so that he could fully participate in the event.

Please keep in touch as your plans develop.

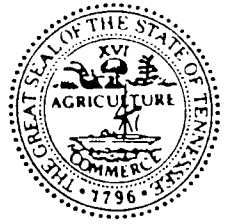
Sincerely,



Kathleen A. McGinty
Legislative Assistant

NEWS FROM

U.S. Senator Al Gore



(D - Tennessee) SR 393 Russell Building, Washington, D.C. 20510 (202) 224-4944

DATE 23 May
TO Lina Zikova
FROM Katy McInty
PAGES including cover 2
SUBJECT IPC

Interparliamentary conference, 1991 planning guide

1. Key issues for immediate decision

- When?
- Where?
- Who to invite?
- How to pay for it?
- What additional resources are needed, and where are they to be found?
- What are the subjects for discussion?
- How is this to relate to 1993 UN conference in Brazil?

2. Agenda

- + Decisions need to be made about the issues and the program
 - + Issues
 - + Add to existing list?
 - Energy?
 - Waste management and disposal?
 - + Obtain up-to-date information about implementation of existing legislative strategies.
 - Identify additional strategies, if any, to be added to 1990 list.
 - + Program
 - When is conference to be held?
 - How many days to meet?
 - Allocate time to working groups and plenary sessions
 - + Define structure to manage the process—chairmen, staff
 - How many subgroups? Chairmen needed for each, with staff support.

3. Invitations

- + Should be sent to all who attended 1990 conference?
 - Alternatively, should be sent to heads of parliaments who sent delegations.
- Additional invitations should be sent to parliamentary heads who could not attend or who have expressed interest.

4. Additional financial support

- Decision must be made about support for those who cannot afford the costs of trip.
- + If legislators from less developed countries are to attend, they may need financial support from foundations.
 - What foundations should be approached? When?

5. Facilities

- + Where is conference to be held?
 - Need to find place for meetings before and during conference.
- Additional visits to neighboring areas? Tours?
- Special events for delegates and spouses?

6. Speakers

- + Is there to be a central theme to conference?
 - Speakers to address themselves to aspects of this theme.
- + How many speakers (function of total time in plenary sessions)?
 - These should be identified and invited with as much advance notice as possible.
- + Key dignitaries to attend and speak?
 - Identify and invite.

7. Resource availability

- + Develop advisory committees on conference issues.
 - Environmental groups
 - Private sector

- + What physical equipment must be located and obtained beforehand?
 - Computers
 - Telephones
 - Printing assistance
- + Press support is critical
 - A press list should be prepared in advance.
 - Mailings to interested press and outside organizations should begin at least four months prior to conference.
- 8. **Communications system**
 - Communications before, during and after conference is a critical element.
- 9. **INEP**
 - + Environmental network is slowly coming into place.
 - This should be energized and used as a planning tool.
- 10. **Executive committee**
 - + A planning committee was named, but has not yet been activated.
 - + This should be done very soon.
 - The necessary preliminary steps are being taken now.

PHONE (202) 363-6315

Visa Office 363-6308

Embassy of the Czech and Slovak Federal Republic
3900 Linnean Avenue, N.W.
Washington, D.C. 20008

FAX TRANSMISSION

PHOTOCOPY
PRESERVATIONTo: K. McKenzie, Senator A.Gore OfficeFAX NO: 224-0580FROM: Czechoslovak Embassy - Irena ZikovaFAX NO: 966-8540NUMBER OF PAGES 1
/including Cover Sheet/

If you do not receive all pages, please contact:

phone 363-6315

Dear Ms. McKenzie,

On the 11/26/90 our Embassy passed a letter for Senator Gore from Alexander Dubcek, President of Czechoslovak Federal Parliament, to Ms. C. Brown concerning the Senator's preliminary promise to assist in the preparation of the 1991 Conference on Global Environmental Problems in Prague. Could you please let us know immediately if the Senator is still considering his participation in this event?

Sincerely,

Irena Zikova
Irena Zikova
Second Secretary