

GLOBAL FUTURE: TIME TO ACT

Report to the President on Global Resources, Environment and Population*

*Council on Environmental Quality
Department of State*

INTRODUCTION AND SUMMARY

A. THE GLOBAL CHALLENGE

Throughout the past decade, a number of reports—from the United Nations, the World Bank, the International Union for the Conservation of Nature and Natural Resources, the Worldwatch Institute, and many other organizations—have sounded a persistent warning. Severe stresses on the earth's resources and environment are apparent. With the persistence of human poverty and misery, the staggering growth of human population, and ever increasing

* In releasing a major report, *Global Future: Time to Act*, Secretary of State Edmund S. Muskie and Council on Environmental Quality Chairman Gus Speth said a "vigorous response is needed to meet a wide range of urgent global problems." The report stressed that "there are impelling reasons of national self-interest" for such a response. "U.S. political and economic security, broadly defined, is already being affected by global resource, environment, and population problems—more so than is commonly understood. The effects will become far greater with time, if present trends continue."

The 250-page report prepared by Council on Environmental Quality and the State Department, proposes a series of concerted actions to meet such global problems as soaring population growth; world poverty and underdevelopment; depletion of cropland, forests and other vital resources; and pollution from hazardous substances, nuclear wastes and the by-products of fossil fuel combustion.

Nicholas C. Yost directed the study. Assisting him were Khristine L. Hall, R. Michael Wright, Katherine Gillman, and staff from CEQ and the Department of State.

Global Future: Time to Act, was released on January 14, 1981. The following is an edited version of the report. Copies of the report in its entirety may be obtained from the Council on Environmental Quality, 722 Jackson Place, N.W., Washington, D.C. 20006.

human demands, the possibilities of further stress and permanent damage to the planet's resource base are very real. To reverse the present trends, to restore and protect the earth's capacity to support life and meet human needs, is an enormous challenge.

The most recent of the warnings was issued in July of this year by the Council on Environmental Quality and the U.S. State Department in *The Global 2000 Report to the President*.** The report is the result of a 3-year effort by more than a dozen agencies of the U.S. government to make long-term projections of world population, resources, and environment through the end of the century. Its projections are based on the assumption that the policies of governments and private companies stay much as they are today; that technological advance continues at the same rate as in recent years, with no revolutionary breakthroughs; and that major wars and other catastrophes do not intervene.

The Global 2000 Report depicted a world "more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now." It projected that world population would increase from 4 billion to 6.35 billion in just one-quarter of a century; that the gap between rich nations and poor would widen; that per capita food consumption would rise somewhat worldwide—but would not improve materially in the poor countries of South Asia and the Middle East, and would decline disastrously in Sub-Saharan Africa; that the real cost of food would rise everywhere; that the real cost of fuels would also rise everywhere and that fuelwood would fall far short of need; that many currently productive grasslands and croplands would turn to desert-like conditions; that as much as 40 percent of the world's remaining tropical forests would be lost; and that as many as 20 percent of the species of plants and animals now inhabiting the earth could be extinct—all by the end of the century.

The report noted that the burning of fossil fuels is already causing damaging increases in the acidity of rain and snowfall, and it is raising the concentration of carbon dioxide in the earth's atmosphere. Continued into the next century, rising CO₂ levels could cause a warming of the earth sufficient to alter substantially the world climate—with possible serious disruption of human activities, especially agriculture.

To each of these findings and conclusions there is an important caveat. They are a description of what may be expected if present

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trends continue. They are not predictions of what *will* occur, but projections of what *could* occur if the nations and people of the world do not respond to their warnings.

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B. SHAPING U.S. RESPONSE

In July, 1980, with the release of *The Global 2000 Report*, President Carter asked for a review of U.S. government programs related to the most serious issues identified in the study and for recommendations for needed changes. This report was prepared with the assistance of a score of government agencies, many institutions outside the government, and hundreds of intensely concerned individuals. Its recommendations are presented in the spirit not of a fixed or final program but as a body of good ideas for the first round of an effective response to the immensely challenging problems before us. Based on the thoughtful efforts of a great many experienced, knowledgeable people within and outside the U.S. government, the report is intended to suggest answers and options—to open a fruitful discussion involving both the public and the government leaders who will develop and execute U.S. policy in the coming years.

The recommendations are for both fresh starts and continuing efforts in the areas identified as needing priority attention. They emphasize our special strengths—especially scientific and technical—and they look to others for leadership in *their* areas of special strength.

The report stresses that international cooperation is imperative in maintaining a productive and habitable earth. No one nation can tackle the problems alone. The success of intensified U.S. efforts will depend on strong efforts by other countries and international organizations as well. Our objective is to focus new international attention on the problems, to strengthen our contributions in ways best suited to our own talents, and to manage our own resources and environment in an exemplary manner.

In thinking about ways to meet the global challenge, those working on this effort kept in mind several basic guiding ideas. One of them is the urgent need for sustainable economic development. Such development is essential to interrupt the cycle of poverty, population growth, and environmental degradation that is putting unsupportable pressures on croplands, pastures, forests, and fisheries in much of the less developed world. It is not realistic to expect people living at the margin of existence, struggling for their day-to-day survival,

to think about the long-term survival of the planet. Economic development of a sustainable nature, far from being antagonistic to protection of global resources and the environment, is absolutely necessary to its success.

This report concludes: "Only a concerted attack on the socioeconomic roots of extreme poverty, one that provides people with the opportunity to earn a decent livelihood in a nondestructive manner, will permit protection of the world's natural systems. Nor will development and economic reforms have lasting success unless they are suffused with concern for ecological stability and wise management of resources." The key concept here is *sustainable* development. Economic development, if it is to be successful over the long term, must proceed in a way that protects the natural resource base of the developing nations.

There are many opportunities to shape development in ways that protect renewable resources for long-term productivity—opportunities that are open to both rich and poor countries. For example, dams or new industries can be better planned to avoid adverse impacts on croplands or fisheries. Transportation systems may be developed that, unlike the auto highway system, do not encourage sprawl and are not solely dependent on petroleum. Agricultural systems can be built on a more sustainable resource-conserving basis, which makes use of organic as well as chemical fertilizer, interplanting of legumes or development of new nitrogen-fixing crops, use of farm machinery that is the right size to fit the job, and pest control methods that use natural predators and selective pesticides rather than broad-scale application of persistent, destructive chemicals.

There are many ways in which the United States, other developed countries, and international organizations can contribute to sustainable economic development in the Third World. One of them is international development assistance. Foreign aid is only a part of the complex of trade and monetary issues, domestic policies, and availability of investment capital from many sources that influence economic growth in developing countries. Nonetheless, it is a vital element in the mix. A sustained commitment to development assistance by the richer nations, including oil-rich nations, is critical to breaking this cycle of hunger, misery, and resource degradation in the Third World.

Several industrialized countries contribute to development assistance the amount proposed as reasonable and necessary by the United Nations—0.7 percent of annual gross national product. Con-

trary to a widely shared public impression, the United States no longer leads in giving aid for development. Although we do make the largest contributions in absolute amounts, in terms of share of GNP contributed we are fifteenth out of seventeen industrialized nations—just ahead of Austria and Italy.

This report recommends a substantially increased U.S. commitment to development assistance programs. Far from simply “throwing money at problems,” this report’s proposals would single out programs that are strategically well-planned where the U.S. contribution is meshed with those of other countries and international organizations and where recipient countries both need the assistance and are able to use it effectively. An example is the World Bank’s five-year fuelwood-forestry program which would double the present rate of tree planting in low income developing countries. Another example is the proposed doubling of resources available to population assistance worldwide. Today there are more demands for family planning services than can be filled—even in countries that formerly seemed unresponsive to population programs.

Direct financial assistance for development projects is just one way to encourage sustainable economic growth. Another is the provision of technical assistance, not only to the neediest countries that are recipients of foreign aid but also to middle or higher income developing countries.

Many of the recommendations in this report emphasize tapping U.S. scientific and technical know-how, using our experience in inventory and assessment of natural resources, resource management, and institution-building and training—as well as our scientific research skills. Promising ideas for applied scientific research are to be found throughout the report. Energy, tropical forests, biological diversity, and pollution control are particular examples of the emphasis on sharing U.S. technical expertise. Private as well as public institutions have much to contribute. For example, the report recommends a partnership between government and industry in tropical forest resource management and calls attention to a demonstration project for reforestation in Southeast Asia, proposed by U.S. forest industry leaders.

Many of the federal agencies contributing ideas to this report noted the frustration felt by highly competent technical people—U.S. government foresters, land use planners, wildlife managers, pollution control engineers—who cannot easily respond to foreign countries’ requests for technical assistance in resource management and environmental protection. Several institutional impediments stand

in the way. Chapter 10, Institutional Changes, discusses possible remedies, including a special budget process by which technical assistance programs of many agencies would be considered together and a total budget allocation parceled out among them.

Indeed, in the hundreds of letters and comments offering suggestions for a U.S. response to global resource, environment, and population problems, the most frequent recommendation, by an overwhelming margin, was for institutional changes to assure enduring, effective attention to these long-term global issues. The same concern was strongly expressed in *The Global 2000 Report*. That report documented in detail our government's present inability to anticipate and evaluate global problems. To muster a coordinated response is still more difficult.

Among the dozens of suggestions for developing institutions and laws that will assure steadfast, adequate attention to global issues, two stand out. One is to centralize authority for fostering the development of an integrated U.S. strategy on global resources, environment, and population in one single government institution. The other is to establish a hybrid public-private institution to supplement the government effort, to stimulate independent analysis, and to involve private groups—industry, labor, environmental, population, academic, and others—in a creative dialogue with the government.

This central government body would cope with a gamut of needs from data collection and analysis to policy development. As this report repeatedly points out, some of the critical information needed for analysis of global resource and environment problems simply does not exist. A central coordinating body should stimulate global data collection and provide for easy access. It should also project trends and analyze the probable results of different responses to global problems. The weaknesses in the government's modeling abilities, described in *The Global 2000 Report*, can be cured only by a more holistic approach, achieved through better coordination.

Finally, coordinated development of policy is absolutely essential. All the pieces must be evaluated and brought together in a coherent whole—a job attempted in this report for the first round, but one that must be continued, expanded, and made a permanent, high priority part of government operations.

The ideas and work summed up in this report are a beginning. Some of the recommendations rest on a very comprehensive body of work. For example, the chapter on Tropical Forests distills recommendations that grew out of a two-year effort—led by the Departments of State and Agriculture—to devise a comprehensive U.S.

strategy for protection and wise management of the world's tropical forests. This effort evaluated national and international activities, public and private; identified the most urgent needs; and looked for the best ways to use American talents.

In other areas of priority concern, our understanding is far less sophisticated. This report calls for efforts similar to the one completed for tropical forests in three major areas of concern: world agricultural lands and soils, biological diversity, and global water resources. These strategy studies will lay the basis for better informed and more refined recommendations for action in these areas.

In general, the recommendations in the report are initial steps, the first increments in what needs to be done, efforts which must be duplicated, enhanced, repeated, and expanded upon many times over by other national and international organizations, by private institutions, by business, and by industries. A guiding hand at the center of the U.S. government's share of the response is critical—not only for coordination but for staying power.

Americans—and citizens of other nations throughout the world—must make a commitment and stick with it. Global population, resource, and environment problems will not be solved tomorrow, or even in ten years or twenty. Yet it is essential to act promptly, to begin to bring these problems down to manageable size.

With each year of inaction, the problems become harder to cure. The opportunity to stabilize the world's population below 10 billion, for example, is slipping away; the longer it takes the world to reach replacement fertility levels, the greater the ultimately stabilized world population will probably be.

Provided we manage the earth's resources wisely, future generations will not be faced with a crisis in which our planet will cease to support the number of people living on it. But that specter is now visible. To restore and protect the earth as an ecologically and politically stable habitat for the human race may be the most serious task of the last 20 years of this century.

C. SUMMARY OF RECOMMENDATIONS

1. Population

[a.] Problem:

Between now and the year 2000, almost 2 billion more people will be added to the present world population of 4.5 billion. Ninety percent of the growth will occur in low income countries, where popula-

tions are predominantly young and have their childbearing years ahead of them. At the very least, explosive population growth makes the provision of decent conditions for the world's people more difficult. In some areas, it is already overwhelming efforts to educate, house, and employ the population. And the attempts of growing numbers of people to wrest a living from the land is undermining the very soil, water, and forest resources on which long-term stability and improvements in standard of living depend. Population growth in richer countries, though much slower, is also of concern, because consumption of resources per capita (especially commercial energy and other nonrenewable resources) is very much higher.

[b.] U.S. interests:

Unless population growth can be brought under control, the world's efforts to solve a broad range of environmental, resource, and economic problems will be undercut. Thus, the many important interests the United States has in solving these problems—reducing the potential for social unrest, political instability, international conflict over control of land and resources, massive migration of “ecological refugees,” and deterioration of world prosperity and trade—are at stake.

[c.] U.S. strategy:

The United States is by far the world's leader in international population assistance, providing more than one-half of total governmental aid. However, overall international population assistance (including U.S. assistance) has declined in real terms during this decade. At the same time, there is mounting evidence that population programs work; demands for family planning are growing. U.S. strategy should be based on cooperation with other nations and international organizations to raise population assistance substantially, encouraging others to increase their contributions, elevating international awareness of population problems, improving understanding of relationships between population growth and national security, and strengthening research into more effective population control measures. It must also be recognized that overall economic development—especially better nutrition and health, lowered infant mortality, and better education and employment opportunities—plays an essential role in lowering fertility rates.

[d.] Recommendations:

The United States should:

- i. Together with other donors and international organizations, launch a program aimed at significantly increasing family planning over the next decade by doubling resources available and improving maternal and child health care.
- ii. Expand government assistance for research in more effective contraception methods suited to the needs of recipient countries.
- iii. Develop a U.S. national population policy that includes attention to issues such as population stabilization; availability of family planning programs; just, consistent, and workable immigration laws; improved information needs; and institutions to ensure continued attention to domestic population issues.

2. Food and Agriculture

[a.] Problem:

Population increases will place great stress on world food supply. Although food production may expand 90 percent (under optimistic assumptions) by the year 2000, the increase will be less than 15 percent on a per capita basis. And this global estimate disguises regional disparities; food availability and nutrition levels may scarcely improve in South Asia and the Middle East and may actually decline in the poorer parts of Africa. Of particular concern is the ability to improve world agricultural yields in the face of pressures leading to degradation of agricultural soil and water resources and the conversion of some of the best cropland to other uses.

[b.] U.S. interests:

The potential for political and social instability in a world with large numbers of hungry and starving people is well known. Under such conditions, the demand for food assistance from the United States, the world's largest bread basket, is likely to grow. This means difficult policy and economic decisions about expansion of U.S. food aid to poor nations on concessional terms. Further, protection of the agricultural resource base is one of the global problems the United States directly shares with other countries. Our own croplands are already under heavy pressure, with erosion, loss of soil fertility, and conversion to nonagricultural uses. If food production capacity declines elsewhere in the world, U.S. trade may prosper (in

good times); yet the pressures will also be great to overuse and abuse U.S. agricultural resources.

[c.] U.S. strategy:

The U.S. approach in recent years has been to assist other nations to expand food production through giving high priority to agriculture in the U.S. development assistance program. The United States has also tried to strengthen international bodies (e.g., the Food and Agriculture Organization) in this area and has maintained the world's largest food relief program. The proposed U.S. strategy calls for a continuation of these efforts, but also for special attention to a new dimension of the world food problem: the deterioration of the productive capacity of the world's agricultural resource base. Moreover, while helping to build the capabilities of food-deficit nations for self-sufficiency, we must at the same time maintain our own production capacities. U.S. studies already underway or now concluding—the National Agricultural Lands Study and the appraisal of the nation's soil and water resources under the Resources Conservation Act—provide the basis for a strengthened domestic program.

[d.] Recommendations:

The United States should:

- i. Expand significantly U.S. development assistance to the crucial food sector in low income countries.
- ii. Establish an Interagency Task Force on World Agricultural Lands (on the model of the Interagency Task Force on Tropical Forests) to assess world agricultural lands and trends affecting their productivity, review current national and international responses, recommend a coordinated U.S. strategy as part of international efforts to address the problem, and provide the foundation for proposals for an international plan of action.
- iii. Lead by example in protection and wise management of U.S. agricultural lands. Elements in the program should include:
 1. Federal technical and financial assistance to state and local governments wishing to develop land preservation policies and soil and water conservation programs.
 2. An Agricultural Land Conservation Fund to help finance state and local conservation programs.
 3. Financial incentives to help preserve farmland.
 4. Examination by federal agencies of programs affecting agricultural lands (e.g., federal loan and loan guarantee programs, sewer, water, and highway programs) to ensure that

their actions do not unnecessarily encourage farmland conversion.

5. Examination and use by state and local governments of growth management tools to discourage farmland conversions.

6. New initiatives to improve soil conservation.

iv. Propose an international technical conference on conversion of agricultural lands.

v. Strengthen national and international programs to preserve crop germ plasm.

vi. Through assistance, cooperation, and research programs, domestic and international, encourage the use of sustainable agricultural management techniques, including integrated pest management, more efficient use of commercial fertilizer, and biological fixation of nitrogen.

vii. Work actively toward a better international food reserve system.

3. Renewable Energy Resources and Conservation

[a.] Problem:

While most of the world, rich and poor, is having to adjust to soaring oil prices, the developing countries without their own oil resources are hardest hit. They are now spending \$50 billion per year to buy oil—almost twice the amount they receive collectively from all outside sources for development assistance. At the same time, the world's poorest half, most of whom rely mainly on traditional fuels such as firewood and agricultural waste, face another energy crisis: dwindling supplies of firewood. This combination is aggravating already severe economic and ecological problems and adding to the difficulties of achieving economic growth.

[b.] U.S. interests:

The link between U.S. national interests and those of other countries—especially the developing countries—is nowhere more obvious than in energy. Greater use of energy conservation and development of renewable energy resources can benefit rich and poor nations alike. Success in these areas would ease pressures on the world oil market and give the world a longer time to make the transition from overdependence on oil. Greater use of conservation and renewable energy in developing countries can contribute greatly to sustainable economic growth of the Third World, in which the United States has broad foreign policy and national security interests. Moreover, the

United States and other developed countries are interested in reducing demands for financial aid because of high oil prices and in reducing pressures for expensive high technology energy alternatives such as nuclear power. Use by developing countries of new renewable energy and conservation technologies can directly benefit U.S. research, development, and demonstration efforts—and vice versa.

[c.] U.S. strategy:

A broad effort, including energy conservation and increased efficiency; accelerated production from nonrenewable commercial sources, such as oil, gas, coal, and hydropower; and expanded and sustained production of energy from renewable sources is needed to meet developing country—and indeed global—energy needs. A U.S. strategy to promote energy conservation and renewable energy sources both at home and abroad is just one element in that broad program, but a key element. Long-term environmental and natural resource constraints point to the need for sustained priority attention to renewable sources and conservation. The strategy proposed here includes a boost in U.S. development assistance for energy, principally for a share in a coordinated international program to plant trees for fuelwood. It also includes strengthened technical assistance to a broad range of developing countries—rising middle income nations, as well as the low income developing countries in which the Agency for International Development (AID) efforts are concentrated.

[d.] Recommendations:

The United States should:

- i. Support recent World Bank proposals for a major increase in assistance for fuelwood growing and conservation. As part of the effort, AID should substantially increase its assistance for fuelwood planting. The program should be designed according to ecologically sound principles.
- ii. Encourage the World Bank to accelerate lending for renewable energy and conservation activities and support the idea of a new World Bank energy facility.
- iii. Develop mechanisms for easier access by developing countries to new energy technologies developed by the U.S. government and also, so far as possible, to privately owned technologies.
- iv. Study ways to make U.S. government technical experts in renewable energy and conservation more readily available to a broad

range of developing countries, including a voluntary program of short-term technical assistance that would tap the abilities of the private sector.

v. Participate actively in the 1981 U.N. Conference on New and Renewable Sources of Energy.

vi. Establish an interagency task force to develop a realistic strategy for achieving the goal of 20 percent of U.S. energy from renewable sources by 2000.

4. Tropical Forests

[a.] Problem:

The conversion of forested land to agricultural use and the demand for fuelwood and forest products are depleting the world's forests at an alarming rate—as much as 18-20 million hectares annually, an area one-half the size of California. Most of the loss is in the tropical regions of developing nations where some 40 percent of the remaining forests may disappear by 2000. Hundreds of millions of people are already directly affected by this extremely serious and growing global environmental problem.

[b.] U.S. interests:

The loss of wood products and forest-derived drugs and pharmaceuticals, the unprecedented extinction of plant and animal species with loss of tropical forest habitat, and the potential risk of large-scale climate change argue strongly for U.S. concern and involvement. In addition, accelerated erosion and siltation from deforested watersheds are undercutting development assistance investments in agriculture and water supply projects, many financed by the United States. U.S. and international disaster relief is increasingly in demand to cope with floods and droughts directly tied to tropical deforestation. Humanitarian concerns also argue strongly for U.S. assistance for the many millions of people suffering from floods, drought, deteriorating agriculture, and diminishing supplies of firewood due to loss of tropical forests.

[c.] U.S. strategy:

The United States has taken the lead in the past two years to bring the deforestation problem to international attention in the United Nations and elsewhere. World awareness of the problem and commitments to action are increasing, and the first steps toward a coordinated global plan of action (based on a U.S. initiative) have been

taken. Domestically, U.S. government and private institutions are beginning to mount new efforts. The U.S. Interagency Task Force on Tropical Forests reported to the President in July on a comprehensive "Policy, Strategy, and Program for the United States." The proposed near-term strategy for the United States is to continue to promote international awareness and action; selectively to support key international organizations that would play lead roles in a worldwide attack on the problem; to strengthen the capabilities of U.S. public and private sector institutions to contribute; and to insure that the limited tropical forests of the United States are properly managed.

[d.] Recommendations:

The United States should:

- i. Press for adoption by the international community of a "global plan of action" on tropical deforestation.
- ii. Provide financial and technical assistance to enable the FAO to fulfill the international leadership role.
- iii. Coordinate U.S. programs closely with the FAO and World Bank to optimize use of resources.
- iv. Designate and support the Forest Service's Institute of Tropical Forestry (Puerto Rico) and Institute of Pacific Islands Forestry (Hawaii) as "national centers" for tropical forest research, education, and training.
- v. Call upon the World Bank to design and support an international cooperative program on reforestation of large watersheds.
- vi. Expand the tropical forest management capabilities of AID and the Peace Corps.
- vii. Pursue, through the Interagency Task Force, a new partnership of government and private industry to broaden the base of U.S. planning and to improve U.S. technical contributions to international programs.

5. Biological Diversity

[a.] Problem:

The accelerating destruction and pollution of habitat for wild animals and plants threatens extinction of species in the next twenty years of an unprecedented scale. As much as 15-20 percent of all species on earth could be lost in the next twenty years, about one-half because of the loss and degradation of tropical forests and the rest principally in fresh water, coastal, and reef ecosystems.

Estimates of species loss often include only mammals and birds or all vertebrate animals. The estimate here also includes insects, other invertebrates, and plants.

[b.] U.S. interests:

The U.S. interest in preserving biological diversity is truly global and long-term. A great many of the species under threat have not even been classified or given scientific names, much less studied for their possible benefits. The potential for pharmaceuticals is extremely significant; about one-half the commercial drugs now on the world market were originally derived from living organisms. Wild plants and animals provide a wealth of materials and chemicals, such as woods, fibers, oils, resins, and dyes. The locally cultivated varieties and wild relatives of the world's major food crops are sources of genetic traits essential to improving crop yields and resistance to pests and diseases. Wild plants and local cultivars and wild animals may also prove invaluable sources of new foods.

[c.] U.S. strategy:

The United States has long been a leader, domestically and internationally, in the conservation of wild living resources and biological diversity. State wildlife conservation laws, the U.S. Endangered Species Act, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the International Whaling Convention, and many other laws and treaties bespeak this concern. The proposed strategy would continue these efforts and add to them an emphasis on cooperative international action toward selection of priority areas worldwide for conservation of ecosystems and habitat of wild plants and animals; and toward multiple use of natural ecosystems to serve human purposes, to conserve the fauna and flora of the ecosystems, and to maintain their continued functioning as well.

[d.] Recommendations:

The United States should:

- i. Establish a federal Interagency Task Force on Conservation of Biological Diversity to develop a comprehensive long-term strategy to maintain biological diversity, integrating national and international programs.
- ii. Examine and select for increased U.S. support existing international programs to identify priority areas for protection of biological diversity.

- iii. Consider proposing the establishment of an international fund to help developing countries protect and manage critical ecological reserves and habitat, especially in tropical forests.
- iv. Increase support of national and international efforts to inventory the world's flora and fauna and to collect species and germ plasm.
- v. Increase U.S. assistance for training wildlife management and conservation professionals of developing countries, especially at selected institutions in those countries.
- vi. Expand our ability to offer U.S. technical expertise in conservation of biological diversity to other countries.

6. Coastal and Marine Resources

[a.] Problem:

Growing threats to coastal and marine ecosystems come from urban and industrial development and destruction of productive coastal wetlands and reefs; pollutants washed from the land, dumped or discharged into the ocean, or deposited from the atmosphere; and uncontrolled exploitation of world fisheries. The worldwide harvest of fish—a major component of the world's food supply—has leveled off and by the year 2000 may contribute less to the world's nutrition, on a per capita basis, than it does today. A special concern is the lack of data regarding the degree of pollution and disturbance and the longevity of impact in the open oceans.

[b.] U.S. interests:

Increased pressure on traditional fisheries may lead to collapse of major sources of protein. Conversion and pollution of coastal wetlands in the United States and throughout the world undermine the resource base of fisheries and wildlife. They can also destroy the ability of wetlands to assimilate waste and cleanse water and to buffer coasts from adverse weather conditions.

[c.] U.S. strategy:

The United States should improve management of its own fisheries on an ecologically sound basis and share this expertise with other countries. Similarly, U.S. programs to inventory, monitor and protect coastal resources should be improved and the results shared internationally. Common action with other nations is the only means for achieving protection of many ocean resources, such as migrating species—especially the great whales. Antarctica represents a special

opportunity for international cooperation for ecologically sensitive management; the United States should continue to provide strong leadership toward that objective.

[d.] Recommendations:

The United States should:

- i. Prepare for a U.S. technical conference to review and improve ecologically sound fisheries management.
- ii. Expand support of fisheries management in developing countries bilaterally and by means of increased funding to the FAO.
- iii. Inventory and map coastal resources and assess the inputs and impacts of major pollutants into coastal and marine areas from land-based sources; cooperate with other countries to do likewise.
- iv. Expand efforts to establish marine sanctuaries and seek international agreement on the protection of habitat of migrating species.
- v. Continue to support a moratorium on all commercial whaling until the continued survival of whales can be assured.
- vi. Undertake research needed to implement the Antarctic Living Resources Treaty; continue efforts to assure that exploitation of Antarctic mineral resources will not take place until a decision has been made—on the basis of sufficient information—that such development is acceptable.

7. *Water Resources*

[a.] Problem:

Human needs for water will greatly increase over the next twenty years; in one-half of the countries of the world, population growth alone will cause demands to double. Data on water availability and quality is exceptionally poor, but it is clear that problems of water supply will be serious in many regions. Parts of the world, especially the Third World, are already suffering severe water shortages and drought, and water-borne disease is endemic in many areas. Without concerted efforts to the contrary, reliable water supplies will be disrupted increasingly because of damage to watersheds, and contamination is likely to increase in the future.

[b.] U.S. interests:

Unless water supplies are managed successfully, U.S. development assistance efforts will be undercut, need for drought relief will increase, and pressures for mass migration will mount. With 148 of the world's major river basins shared by two or more countries, the

United States must anticipate an increasing number of conflicts among countries over competing uses of water. International cooperation and information exchange on water management techniques can directly benefit the United States because there is much to learn from other countries on the management and conservation of water resources.

[c.] U.S. strategy:

A major U.S. goal is to heighten awareness of water management issues. This goal in turn requires the development of an adequate data base—now simply unavailable—and subsequently a coherent strategy on world water needs by region. The U.S. contribution to global water problems should emphasize U.S. strengths in data collection and monitoring, pollution control, environmental assessment of water resource development projects, nonstructural alternatives to such projects, and water conservation.

[d.] Recommendations:

The United States should:

- i. Establish an Interagency Committee on Global Water Supply and Management to assess data and monitoring of world water availability and needs, identify potential areas of conflict over water resources, and propose ways for the United States to cooperate with other nations in this area by sharing expertise and knowledge.
- ii. Improve U.S. bilateral technical assistance in water resource management and increase financial support of the FAO for training in water management.
- iii. Increase research efforts to reduce water needs for irrigation.
- iv. Participate actively in international efforts to assure safe drinking water as a major development goal.
- v. Encourage the creation of conflict resolution arrangements to anticipate and help resolve international disputes over water supply or quality.

8. *Global Pollution*

[a.] Problem:

The earth's life support systems are threatened by certain by-products of economic development and industrial growth. Contamination from hazardous substances and nuclear waste, man-induced climate modification from the buildup of CO₂, damage to the stratospheric ozone layer, and acid precipitation could adversely af-

fect virtually every aspect of the earth's ecosystems and resource base and, ultimately, mankind.

[b.] U.S. interests:

As one of the world's most industrialized countries, the United States has already felt the effects of contamination from domestic sources of hazardous substances and from acid precipitation. With increasing trade and industrialization in other countries, contamination is increasingly global in nature. The U.S. interest in protecting and maintaining the health of agricultural systems, natural ecosystems, and human populations in our own country and globally dictates increasing cooperation on the international front. In addition, as one of the largest sources of polluting byproducts, the United States has a special obligation to help prevent pollution in other countries. To act responsibly in this manner protects the reputation and foreign policy interests of the United States.

[c.] U.S. strategy:

The United States has worked actively over the past several years to build an international consensus on the seriousness of certain global pollution problems. This effort should continue as well as efforts to involve and support international organizations, to work toward bilateral agreements, and to institute domestic controls as appropriate.

[d.] Recommendations:

The United States should:

- i. Work toward improving international agreements to control hazardous substances and waste.
- ii. Improve the U.S. system for notifying recipient countries of the export of hazardous substances that are banned for all or most uses in the United States, and, in exceptional cases of extremely hazardous banned substances, provide for control over their export.
- iii. Improve U.S. ability to handle hazardous wastes.
- iv. Develop procedures for regulating the export of hazardous wastes.
- v. Take national and international measures to reduce amounts of nuclear waste and control their disposal and to protect the global commons from radioactive material.
- vi. Analyze alternative global energy futures with special emphasis

on CO₂ buildup and work toward an international consensus on action to reduce CO₂ buildup.*

vii. Support further research on acid precipitation, continue bilateral work with Canada on transboundary air pollution, and intensify legal efforts to control acid deposition.

viii. Support more research on ozone depletion, encourage action by international organizations, and move toward more effective action to protect the stratospheric ozone layer.

ix. Improve national and international climate programs.

9. Sustainable Development

[a.] Problem:

Many of the world's most severe environmental problems are in part a consequence of extreme poverty: deprived people are forced to undermine the productivity of the land on which they live in their necessary quest for food, fuel, and shelter. People who have no other choice for getting their living plant crops on poor, erodible soils, graze their stock on marginal land that turns to desert from overuse, cut trees that are needed to stabilize soils and water supplies, burn dung needed to fertilize and condition agricultural soils.

[b.] U.S. interests:

The U.S. government has long recognized the importance to U.S. national interests of global economic progress and protection of the global environment. Increasing poverty and misery in large parts of the world add to the potential for political instability, depress trade (one-third of U.S. exports are now bought by developing countries), and increase pressures for mass migration. Moreover, if degradation of the earth's renewable resource base continues, the United States, like the rest of the world, will be faced with higher prices for food, building materials, and a host of other materials natural systems provide.

[c.] U.S. strategy:

The United States is committed to measures that will improve prospects for economic growth in developing countries, including an open international trading system, international financial assistance

* [See COUNCIL ON ENVIRONMENTAL QUALITY, GLOBAL ENERGY FUTURES AND THE CARBON DIOXIDE PROBLEM (1980), *reprinted in part in* 9 B.C. ENV. AFF. L. REV. 1 (1980).]

for poorer countries hard hit by oil price rises, and international development assistance. The close relation between sustainable economic growth and protection of the global environment is added reason for a strengthened long-term U.S. commitment. The proposed U.S. strategy is, first, to increase considerably our present level of development assistance, targeting the increase to the key needs of food, energy, and population and health and carefully coordinating the whole program with programs of international organizations and other countries. A second strategic element is to concentrate our technical assistance in areas where we are strongest: scientific and technical know-how, resource management, and institution building. Private sector as well as government talents should be put to better use. Finally, U.S. and international development assistance should be explicitly planned to contribute to long-term sustainable use of the natural resource base of developing nations.

[d.] Recommendations:

The United States should:

- i. Make up its overdue obligations to the World Bank and other development funds and contribute its share to the World Bank's general capital increase.
- ii. Provide a major expansion in U.S. development assistance targeted to food, energy, population and health and coordinated with programs of other countries and international organizations.
- iii. Urge the World Bank and other international organizations to integrate resource and environmental considerations more fully into their planning.
- iv. Increase resource management expertise in AID programs and encourage all U.S. agencies with significant activities abroad to integrate resource and environmental considerations further into their decisionmaking.
- v. Develop ways to use the scientific, technical, resource management, and environmental expertise of U.S. government agencies more effectively, both in AID programs and in other international cooperation programs.

*10. Institutional Changes: Improving Our National Capacity
To Respond*

[a.] Problem:

The U.S. government currently lacks the capacity adequately to project and evaluate future trends; take global population, resource,

and environmental considerations into account in its programs and decisionmaking; and work with other countries to develop transnational solutions to these problems.

[b.] U.S. interests:

As detailed in previous chapters, global population, resource, and environment problems have the potential for serious adverse impacts on the domestic and international interests of the United States. As a large consumer of world resources and, at the same time, repository of scientific know-how, the United States should act in concert with other countries to resolve future problems. To do so effectively, the U.S. government must have the capacity to project long-term global problems and to act on them.

[c.] U.S. strategy:

To date, U.S. strategy on long-term global population, resources, and environment problems has been formulated largely on an ad hoc basis. The proposed U.S. strategy is to create a stronger capability in the federal government to: project and analyze global trends, coordinate policymaking on long-term global issues, put into place action-forcing mechanisms such as budget review procedures, encourage involvement of the private sector, and increase public awareness.

[d.] Recommendations:

The United States should:

- i. Establish a government center as coordinator to insure adequate data collection and modeling capability as the basis for policy analysis on long-term global population, resource, and environment issues.
- ii. Improve the quality of data collection and modeling for global issues and promote wider access to data and models.
- iii. Establish a Federal Coordinating Unit, preferably in the Executive Office of the President, to develop federal policy and coordinate ongoing federal programs concerning global population, resource, and environment issues. Activities should include coordinating data and modeling efforts described above; issuing biennial reports; assessing global population, resource, and environment problems; and serving as a focal point for development of policy on long-term global issues.
- iv. Adopt action-forcing devices, such as budget review procedures, a Presidential message, creation of a blue-ribbon commission,

establishing an office in each federal agency to deal with long-term global issues, or passage of legislation formalizing a mandate to federal agencies to address long-term global issues and creating a federal coordinating unit and hybrid public-private institute.

v. Create the Global Population, Resources, and Environment Analysis Institute, a hybrid public-private institution, to strengthen and supplement federal government efforts on long-term global analyses.

vi. Improve the budget process to make technical expertise of U.S. agencies more readily available to other countries.

vii. Assure environmental review of major U.S. government actions significantly affecting natural or ecological resources of global importance; designate tropical forests, croplands, and coastal wetland-estuarine and reef ecosystems as globally important resources.

viii. Continue to raise global population, resource, and environment issues in appropriate international forums; work with and support appropriate international organizations and other countries in formulating solutions.

ix. Enlist the business community in formulating responses to long-term global problems.

x. Increase public awareness of global population, resource, and environment issues.