

Chapter 7

International Leadership



The United States has both reason and responsibility to develop and carry out global policies that support sustainable development. Because of its history and power, the United States is inevitably a leader and needs to be an active participant in cooperative international efforts to encourage democracy, support scientific research, and enhance economic development that preserves the environment and protects human health.

THE FUTURE OF the United States - its security, its prosperity, and its environment--is inextricably linked to the world. American firms and workers compete in a global economy shaped by global trends. The lives of Americans are increasingly affected by global environmental change. In an era of weapons of mass destruction, savage terrorism, and sophisticated transnational crime, national security is tied to conditions and events around the globe. What Americans do and say affect the rest of the world; and changes in the lives of other peoples--whether positive or negative--affect Americans at home.

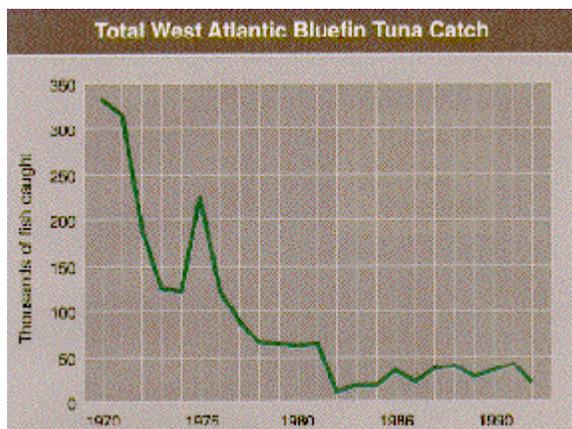
The United States influences other nations by the force of its example, the power of its economy, and the strength of its arms. The model of American democracy and prosperity has shaped the hopes of many millions of people. The demands of U.S. markets and the products of U.S. industries influence the economic course of much of the world. With one of the highest standards of living in the world, the United States is the largest producer and consumer in history: with fewer than 5 percent of the world's population, the nation consumes nearly 25 percent of the planet's resources. This high standard of living and huge economy also have made the United States the world's largest producer of wastes and have given the country cause and capacity to become the world leader in the creation and use of innovative technology to reduce wastes and control pollution.' Many nations seek to emulate the successes of the U.S. system of environmental protection.

The United States is a world leader--often the world leader--whether it chooses to exercise leadership or not. Other nations hesitate to act to address international issues of security, development, or the environment unless the United States takes the lead. And issues of development, environment, and human security are as surely related globally as they are locally. This country will not prosper, nor will freedom thrive, in a violent and unstable world. Poverty, inequity, and environmental destruction corrode the bonds that hold stability and progress

together. The peoples of the world can only achieve their legitimate aspirations for economic betterment within the context of environmental protection and a more equitable distribution of the fruits of that progress. Improvement in people's lives will benefit this country economically, environmentally, and socially by mitigating important sources of global conflict.

There is another reason for U.S. leadership internationally: certain problems can only be addressed through global cooperation. It is easy to understand that the control of nuclear weapons or the creation of conditions for freer trade requires agreement among nations. The same is true of global environmental problems. Previous chapters of this report emphasize the importance of local communities and individual responsibility in moving the United States toward a more sustainable path; some issues affecting individuals and communities can only be solved, however, if nations agree upon common goals and shared responsibilities.

Figure 13



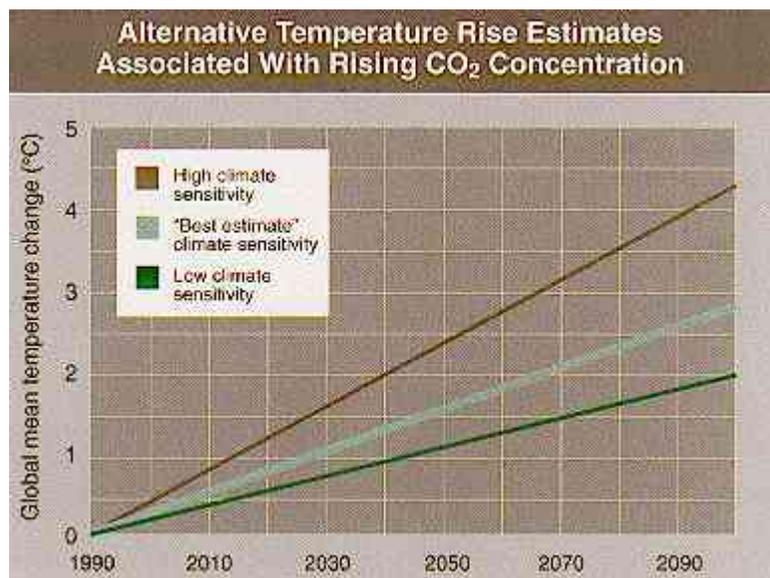
SOURCE: International Commission for the Conservation of Atlantic Tuna, Standing Committee on Research and Statistics, Draft Bluefin Tuna Working Group Report (Madrid, 1993), table 2.

For example, the fishermen of many nations have competed for declining wild stocks of tuna, salmon, cod, and many other fish (see figure 13), a competition that recently flared into violent confrontation and international conflict.^[2] The collapse of some fisheries brought misery to communities in the United States and elsewhere. No single nation can by itself limit catches to sustain the fisheries. All nations must agree to abide by the same rules to save the shared resource.

Forests--particularly tropical forests - play a critical role in maintaining the diversity, productivity, and resilience of global ecosystems.^[3] Forests are also important national resources subject to sensitive issues of sovereignty. In response both to global markets for tropical hardwoods and domestic demand for land and materials, many countries are rapidly cutting their forests. Individual nations understandably resist calls to preserve their forests to provide global benefits. Only cooperative solutions based on global agreements will work.

Cooperation has worked effectively in structuring a phaseout of chlorofluorocarbons, the human-made gases destroying the ozone layer. U.S. industries responded to clear goals and economic incentives with a flurry of successful innovations that put them ahead of the agreed-upon schedule. The issues that demand international action include not only damage to ocean ecosystems and deforestation, but also--most importantly--changes in the atmospheric chemistry and composition that influence the global climate and loss of biological diversity. Each of these changes is proceeding at an accelerating rate with consequences that are difficult to predict with certainty or precision. Moreover, none of these phenomena can be quickly reversed after their consequences have been fully understood.

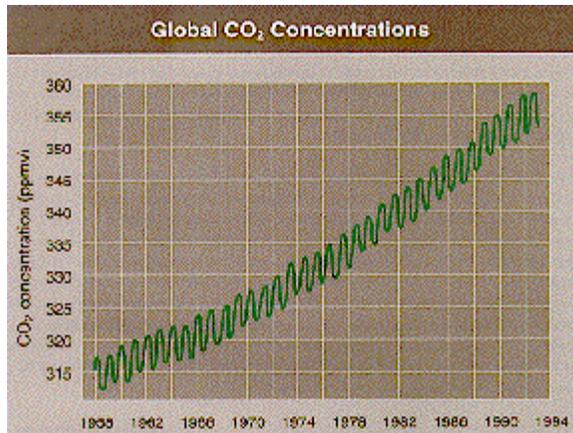
FIGURE 14



The Council heard a set of presentations concerning the science of climate change, the risks, and the uncertainties. Human activities are increasing the concentrations of so-called greenhouse gases. The models used by the Intergovernmental Panel on Climate Change predict a warming of 0.80 F to 3.5 F by the year 2100, although the resulting effects are much less clear.[\[4\]](#) (See figure 14.)

U.S. emissions of carbon dioxide, the primary greenhouse gas due to human activity, make up approximately 25 percent of global emissions of this gas; the per capita U.S. emissions rate is higher than that of any other major industrialized country and many times that of any developing country. In the future, emissions from the developing world will grow rapidly as their economies grow, and atmospheric concentrations of greenhouse gases consequently will rise. Without change, emissions from developing nations will surpass those from industrial nations--but not for several decades.[\[5\]](#) (See figure 15.)

FIGURE 15



SOURCE: Intergovernmental Panel on Climate Change, *Climate Change 1994 - Radiative Forcing of Climate Change*, J.T. Houghton et al., eds. (Cambridge: Cambridge University Press, 1995), p. 43.

It is clear that the United States cannot solve the potential problem of climate change alone. But it also is clear that unless the industrialized nations demonstrate the benefits of a different development path, there will be little incentive for the rest of the world to follow.

Threats to the global stock of biodiversity represent another global environmental challenge. Although the risks and implications for the United States (as well as its own contribution to the problem) may seem vague and uncertain, the economic and environmental effects could be profound. Economic benefits from wild species make up an estimated 4.5 percent of the U.S. gross domestic product. Fisheries contribute about 100 million tons of food worldwide. One-fourth of all prescriptions dispensed in the United States contain active ingredients extracted from plants, and more than 3,000 antibiotics are derived from microorganisms. Further, nature tourism generates an increasing percentage of tourism revenues worldwide. Yet, for all its value, biodiversity often takes a back seat in many economic development plans. Tropical forests house between 50 and 90 percent of all species on Earth, but because of forest clearing, 5 to 10 percent of the tropical forest species may be faced with extinction within the next 30 years.^[6] (See figure 16.) Around the globe people who depend on the sea for a living are already witnessing a decline in the productivity of many of the world's most valuable fisheries. As with climate change, one nation cannot solve the problem alone, and the potential for economic harm is huge.

In accepting the challenges of leadership posed by its wealth, strength, know-how, and history, the United States must first adopt effective domestic policies to achieve sustainable development so that it can demonstrate that a better path to progress is possible. Falling short of its own goals may signal to the world the ineffectiveness of free institutions to create environmentally sound economic development that equitably distributes the benefits of growing prosperity. If the United States believes that free institutions are the best means for pursuing human aspirations, it must show that these institutions can respond to the great changes taking place.

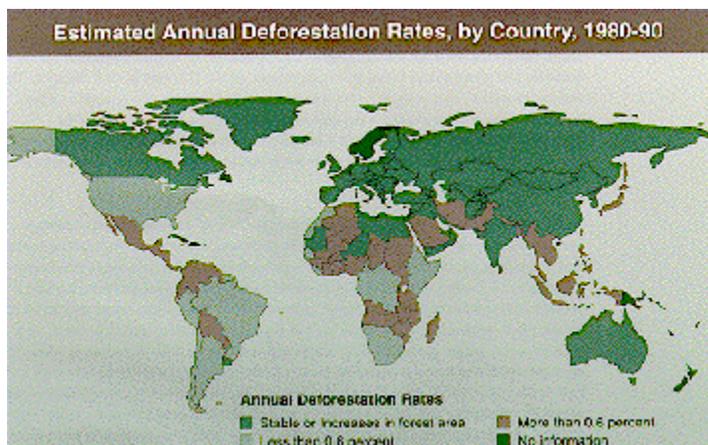
More than 100 nations have established national councils on sustainable development similar to the U.S. President's Council on Sustainable Development; they seek to create consensus and

shape policies to bring together economic, environmental, and equity goals.^[7] Some, like the Canadian and Australian Roundtables, began their work several years before the U.S. Council. Most have been organized in response to the 1992 Earth Summit, the United Nations Conference on Environment and Development. Each of the councils is addressing the relationship of human well-being, economic progress, and the environment within the fabric of the conditions, needs, heritage, and politics of its own country. Their council representatives have said--in many different ways--that if the United States fails, they cannot succeed; but if the United States embraces the idea of sustainability, they believe their own nations will as well.

Because the United States is linked to the world by inter-related economic, environmental, and security interests, it cannot simply turn inward. The nation will achieve much that is in its interest by arguing the case for and assisting the transition to global sustainability. It can create markets for U.S. technology, foster equitable conditions under which U.S. industries and workers can compete, and build fair agreements for action to address global problems that affect the United States and its citizens. International engagement for sustainability is a task for government in its relations with other governments, but it is also a task for other parts of society.

For decades, and with considerable success, America has provided aid to nations to encourage development, fight disease, build democracy, and reduce environmental damage. The majority of that aid has come from government, but U.S. philanthropic organizations also have channeled billions of dollars of voluntary contributions into national and global efforts to meet human needs and protect the future. Leading U.S. companies have been influential in moving their industries toward openness and the application of consistent codes of responsible global stewardship. Nongovernmental organizations have helped to spur the creation of strong independent voices in debates on development, environment, and social policies around the world. Both official and unofficial roles are essential to the process of international change.

FIGURE 16



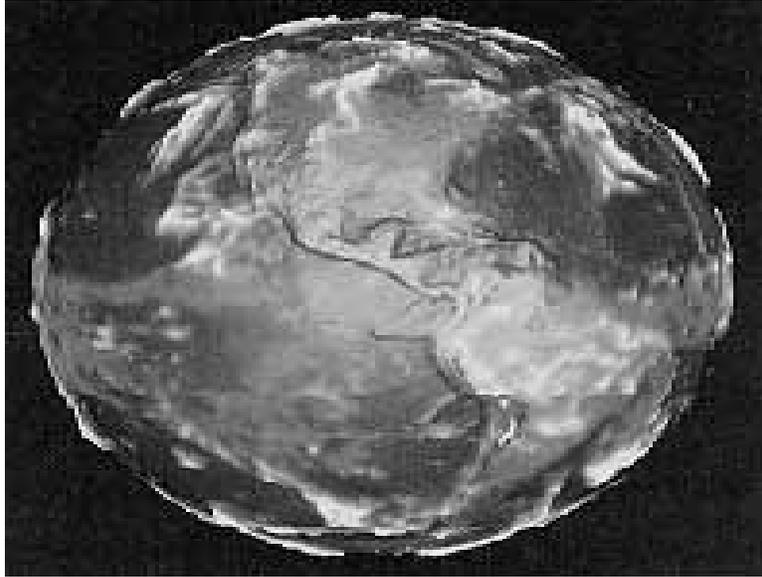
There must be several elements to this national engagement. One element is having strong and effective bilateral and multilateral development assistance agencies. Through organizations such as the U.S. Agency for International Development, the United Nations, the Global Environment

Facility, and the various international organizations charged with helping implement the international environmental accords, the United States can demonstrate its commitment to global development paths that make sense for both this country and the rest of the world. The United States can also continue to play a key role in helping developing countries confront the critical problems this nation has already solved at home, such as the removal of lead from gasoline and the development of environmental assessment techniques. Financial support is one way for the United States to make credible, substantive, and analytical contributions to the work of multilateral institutions and encourage broader participation by other countries.

Second, the United States is a signatory to the international conventions or treaties that are designed to promote common actions to reduce the risks of climate change and biodiversity loss--two of a growing list of international accords to address global environmental concerns.^[8] Yet, the United States has not ratified the U.N. Convention on Biological Diversity--the only major industrialized country that has not done so--even though ratification was supported by a broad cross section of U.S. industry and environmental groups. As a result, the United States faces the risk of not being able to participate in the treaty or help shape the treaty's evolution. Further, the United States may forgo potential economic benefits from the import of genetic resources. The international environmental treaties may not be perfect from many different perspectives, but they do offer a framework for nations to use to move forward together when there is little incentive to move alone. America will derive the greatest benefit in support of its economic and environmental interests by participating in these treaties as well as in the full range of international development assistance processes.

Third, this nation must not diminish either the importance of scientific research for domestic and international fronts or the importance of the U.S. role in such research. To develop treaties to deal with new concerns and issues effectively, the scientific understanding of the problems and the possible responses to them must continue to be improved. Therefore, the United States should continue to support research and encourage other nations to participate more in international research on critical issues relevant to health and the environment.

Finally, but no less importantly, this nation should continue to promote and encourage global trading systems that mutually reinforce environmental protection and other social development goals. In recent years, initial steps have been taken to incorporate environmental provisions into regional and multilateral agreements designed to reduce trade barriers and improve equitable access to global markets. These agreements may serve to enhance U.S. economic well-being as well as that of other nations and to promote, in a broader sense, greater global stability. Much still needs to be done, however, in reconciling trade and environmental objectives in an increasingly integrated world economy. This is not just a job for governments, but requires the resources and commitment of the industrial community and the private sector as a whole. Improved economic health and political stability can provide greater resources for environmental protection and a more effective coordinated global approach to the challenges that the nations of the world face together.



GLOBAL CLIMATE CHANGE

The Earth has a blanket of gases that keeps its temperature at an average of about 600 F.^[9] Without this natural greenhouse effect, the Earth's average temperature would be about 0 F, and the Earth itself would be frozen solid. Life as we know it would not be possible.

The greenhouse effect is the result of naturally occurring gases in the atmosphere, principally water vapor, carbon dioxide, methane, and nitrous oxide. These gases trap some of the Earth's outgoing infrared radiation and, like a vast blanket, keep the Earth warmer than it otherwise would be. With the industrialization that has occurred over the past 150 years, the atmospheric concentrations of greenhouse gases have increased, and new greenhouse gases (such as chlorofluorocarbons that deplete the ozone layer) have been added to the atmosphere. The most important greenhouse gas influenced by human activity is carbon dioxide. Concentrations of carbon dioxide have increased by about 30 percent over preindustrial levels. Buildup of this gas results primarily from the burning of fossil fuels and deforestation.

The buildup of greenhouse gases in the atmosphere is expected to lead to an enhanced greenhouse effect popularly referred to as global warming. Carbon dioxide accounts for the great majority of global warming; because of the enormous complexity of the Earth's climate system, it is not possible to predict with certainty the temperature rise or other effects that will occur as concentrations of greenhouse gases increase. Generally though, models predict that global warming will lead to higher surface temperatures and to a rise in sea levels. They also suggest more severe droughts and/or

floods in some places and the possibility of more extreme rainfall events. The Earth has warmed by about 10 F since preindustrial times, and the international scientific community now believes that the balance of evidence suggests a discernable human influence on global climate.

Efforts to reduce the risks of global warming include initiatives to reduce man-made emissions of greenhouse gases domestically and through cooperative efforts with other countries. One such initiative is the recently developed pilot program, the United States Initiative on Joint Implementation.[\[10\]](#) In addition, efforts should be pursued to mitigate potential effects of global warming and to adapt to those effects. Since the world depends on fossil fuels (which account for most carbon dioxide emissions) for 90 percent of its energy, the implications of global warming could be profound. If the risks of warming are judged to be too great, then nothing less than a drastic reduction in the burning of coal, oil, and natural gas would be necessary.

PROTECTING A FITE OF AUTUMN

As days grow colder and shadows longer, ducks and geese fill the skies of North America on their migratory journey south. For some, it's a very long trip. The tiny blue-winged teal, for example, starts from the northern plains of Canada, passes over wheatfields and cornfields of the United States, crosses the Gulf of Mexico, and comes to rest at wintering grounds in Mexico and parts of South America.

This rite of autumn may not be witnessed by future generations if important wetlands habitats along migratory routes continue to be drained and developed. Ten years ago, North American waterfowl populations had plummeted to record lows. More than half -- and by some estimates much more -- of 215 million acres of U.S. wetlands habitat within the lower 48 states had disappeared since the arrival of the first European settlers. Across Canada, estimates of wetlands losses for different areas range from 29 to 71 percent over the same period.

Because efforts to safeguard migratory waterfowl cannot succeed without international cooperation, the governments of the United States, Canada, and Mexico have been working on a strategy to protect, restore, and enhance waterfowl habitat. In 1986, Canada and the United States established the North American Waterfowl Management Plan, which recognizes that the recovery and sustainability of waterfowl populations depend on maintaining wetlands and associated ecosystems throughout the North American continent. Mexico became a participant in this plan in 1994.

The strength of the North American Waterfowl Management Plan lies in the partnerships it encourages among federal, state, provincial, and local governments; businesses; conservation organizations; and individual citizens. To date, this wide array

of public and private partners has undertaken 12 joint ventures involving habitat and two directed toward individual species -- Arctic nesting geese and black ducks. None of these projects has been mandated by or subject to regulation and participation is voluntary. Since 1986, over half a billion dollars has been invested in plan projects. More than 2 million acres of habitat have been protected, and 2.5 million acres restored or enhanced.[\[11\]](#)

"Migratory birds are a natural resource we share," says Francisco Flores Verdugo, a professor at the National University of Mexico and member of Mexico's plan committee. "They have an impact on the economic and cultural aspects of all three countries and have to be managed multinationally for optimal conservation." Says Frank Dunstan, vice president for wildlife sanctuaries at the National Audubon Society, "One of the great successes of the plan is that its conservation impact expands beyond just waterfowl and protects all sorts of wetlands wildlife and species."

POLICY RECOMMENDATION 1

INTERNATIONAL LEADERSHIP

Promote economic and national security by actively participating in and leading cooperative international efforts to encourage democracy, support scientific research, and enhance economic development that preserves the environment and protects human health.

ACTION 1. The federal government, assisted by nongovernmental organizations and private industry, should maintain scientific research and data collection related to global environmental challenges. Credible, complete, and peer-reviewed research and data are central to guiding U.S. policy and international deliberations.

ACTION 2. The federal government should cooperate in key international agreements -- from ratifying the U.N. Convention on Biological Diversity to taking the lead in achieving full implementation of specific commitments made in international environmental agreements to which the United States is a party.

ACTION 3. The federal government should increase support for effective and efficient bilateral and multilateral institutions as a means to achieve national sustainable development goals.

ACTION 4. The federal government should ensure open access for, and participation of, nongovernmental organizations and private industry in international agreements and decision-making processes.

ACTION 5. The private sector should continue to move toward voluntarily adopting consistent goals that are protective of human health and the environment in its operations around the world.

ACTION 6. All sectors can promote voluntary actions to build

commitments and incentives for resource efficiency, stewardship, information sharing, and collaborative decision-making processes.

ACTION 7. The federal government should continue its efforts to ensure that international trade agreements do not threaten the validity of scientifically supported domestic health, safety, or environmental standards; and that they encourage the parties to improve their environmental and labor standards in fostering trade and in attracting foreign investment.

ACTION 8. Government at all levels should work with industry to increase U.S. exports of environmental technologies, with the aim of supporting and creating new (high-paying) U.S. jobs and contributing to the development of technologies to clean up or prevent pollution and monitor the environment for better warning of natural disasters and climate change.

ACTION 9. The United States should support the U.N. Commission on Sustainable Development as a forum for nations to report on their progress in moving toward sustainability.

MADE IN THE USA: EXPORTING ENVIRONMENTAL TECHNOLOGIES

Environmental technologies are of growing worldwide interest, creating a vast market that U.S. firms are eager to tap. The U.S. Department of Commerce estimates that the global market is currently \$400 billion, a number it projects could grow to \$600 billion by the year 2070. In the United States alone, 1994 environmental spending was approximately 2-5 percent of the gross domestic product, or more than \$165 billion. According to one private research firm, U.S. exports of environmental products and services are worth about \$10 billion each year, supporting 170,000 domestic jobs here.^[12] While this is a substantial start, the Commerce Department and other U.S. government agencies see environmental technologies as a prime candidate for greater U.S. export opportunities and are working to help U.S. businesses sell their technologies overseas.

Underpinning the financial and employment opportunities are the important societal gains that can come with more worldwide trade in environmental technologies. The world's poorest countries are in desperate need of more modern technology to help solve such urgent human health problems as unsafe drinking water and inadequate sewage treatment systems. Rapidly developing countries face growing environmental and human health risks stemming from dirty air and uncontrolled wastes. Finally, the most developed countries continue to look for innovative technologies that allow for

more cost-effective and efficient pollution protection and resource use.

Already, U.S. business and federal government partnerships have an impressive track record, even in hard-to-penetrate markets such as Asia. Hazardous wastes in Korea will be cleaned up by IT Corporation, a California-based company that recently won a \$3.5 million contract with the Halla Corporation based in Korea. Many of Jakarta's canals and waterways -- or kolis -- are to be skimmed of debris and pollution, thanks to a \$ 10 million contract between the Indonesian government and Aquatics Unlimited of California. Thailand is soon to have a new \$2.5 million air pollution tracking system built by the Radian Corporation of Texas. And in China, two American wind turbine manufacturers, FloWind and Zond, have sales agreements totaling \$312 million.

Worldwide, the Commerce Department, in conjunction with the U.S. Department of Energy, the U.S. Environmental Protection Agency, and other federal agencies, has helped U.S. companies win more than \$1.6 billion in environmental contracts over the last 18 months. Commerce Secretary Ronald H. Brown, a member of the Council, says of these global trends, "New environmentally sound technologies for products, processes, and services create jobs and growth without environmental harm. Expanding world trade brings the benefits of these technologies and knowledge to the rest of the world. Together, they create a reinforcing cycle of sustainable development."

[1] World Resources Institute, *World Resources 1994-95*, prepared in collaboration with the U.N. Environmental Program and the U.N. Development Program (New York: Oxford University Press, 1994), p. 268, table 16.1 (for population numbers). The United States has the largest domestic product in the world. See U.S. Department of Commerce, *Statistical Abstract of the United States 1994* (Washington, D.C.: Government Printing Office, 1994), p. 862, table 1366.

Close up estimates of the U.S. share of the world resource consumption range from 20 to 30 percent. In 1993, the United States consumed approximately 24 percent of world energy. See U.S. Department of Energy, Energy Information Administration, *International Energy Annual 1993*, DOE/EIA-0219(93) (Washington, D.C.: Government Printing Office, 1995), p. vii. U.S. consumption of raw materials in 1993 equaled nearly 30 percent of the world total. See U.S. Department of the Interior, Bureau of Mines, "Changing Minerals and Material Use Patterns" (presented at the Annual General Meeting of the Academia Europaea, Parma, Italy, 23-25 June 1994), figs. 5-1 and 5-2. Waste consumption data are from *OECD Environmental Performance Reviews - Netherlands* (Paris, 1995), p. 78, fig. 4.2.

[2] U.N. Food and Agricultural Organization (FAO), Rome Consensus on World Fisheries (presented at FAO Ministerial Conference on Fisheries, Rome, Italy, 14-15 March 1995).

[3] World Resources Institute, *Global Biodiversity Strategy: Guidelines for Action to Save, Study and Use Earth's Biotic Wealth Sustainably and Equitably*, prepared in collaboration with the U.N. Environmental Program and The World Conservation Union (Washington, D.C.: World Resources Institute, 1992), p. 7, citing C.D. Thomas, "Fewer Species," *Nature* 347 (1990): 237.

[4] Intergovernmental Panel on Climate Change (IPCC), *Climate Change: The IPCC Scientific Assessment*, J.T. Houghton, G.J. Jenkins, and J.J. Ephraums, eds. (Cambridge: Cambridge University Press, 1990), p. xi. In addition to the 1990 report, IPCC issued reports in 1992 and 1994 and is drafting a 1995 update. See IPCC, *Climate Change 1992: The Supplementary Report to the Scientific Assessment*, J.T. Houghton, B.A. Callander, and S.K. Varney, eds. (Cambridge: Cambridge University Press, 1992); and *Climate Change 1994: Radiative Forcing of Climate Change*, J.T. Houghton et al., eds. (Cambridge: Cambridge University Press, 1994).

[5] G. Marland, R.J. Andres, and T.A. Boden, "Global, Regional, and Natural CO₂ Emissions," in T.A. Boden et al., eds., *Trends '93: A Compendium of Data on Global Change* (Oak Ridge Tenn.: Oak Ridge National Laboratory, 1994), pp. 505-84; and *World Resources 1994-95*, p. 202, table 11.7. Future projections are from International Energy Agency, *World Energy Outlook 1995* (Paris: Organization for Economic Cooperation and Development/International Energy Agency, 1995), pp. 48-49.

[6] Data on economic benefits of biodiversity are from *Global Biodiversity Strategy*, p. 2, citing C. Prescott-Allen, < First>(New Haven: Yale University Press, 1986); U.N. Food and Agriculture Organization (FAO), *FAO Yearbook Fisheries Statistics 1993*, vol. 76 (Rome, 1993), p. xi, "World Catch"; Walter V. Reid et al., *Biodiversity Prospecting: Using Genetic Resources for Sustainable Development* (Washington, D.C.: World Resources Institute, 1993), p. 7; *Global Biodiversity Strategy*, p. 4; and The Ecotourism Society, *Ecotourism Statistical Fact Sheet* (N. Bennington, Vt., 1995), citing Fern Filion, "Economics of Global Ectourism," in Mohan Munasinghe and Jeffrey McNeely, eds., *Protected Areas -- Economics and Policy* (Washington, D.C.:World Bank, 1994).

Extinction projections are from *Global Biodiversity Strategy*, p. 7, citing Walter V. Reid, "How Many Species Will There Be?" in T. Whitmore and J. Sayer, *Tropical Deforestation and Species Extinction* (London: Chapman and Hall, 1992), p. 63; and Paul R. Ehrlich and Edward O. Wilson, "Biodiversity Studies: Science and Policy," *Science* 253 (1991): 759-62.

[7] The Earth Council, *Directory of National Councils for Sustainable Development*, 2nd ed., directory compiled with assistance from World Resources Institute, Natural Resource Defense Council, and U.N. Department of Policy Coordination and Sustainable Development (San Jose: The Earth Council, 1995).

[8] The United States signed the Climate Convention on 15 June 1992, ratifying it on 15 October 1992; and signed the Biodiversity Convention on 4 June 1993. See U.N. Office of Legal Affairs, *United Nations -- Multilateral Treaties Deposited With Secretary-General, Status as of 31 December 1994 With Supplements*, ST/LEG/SER.E/13 (New York: United Nations, 1994).

[9] The discussion of climate change is based on the Intergovernmental Panel on Climate Change studies listed in note 4. In addition, there are other major studies on global climate change. See National Research Council (NRC), *Energy and Climate* (Washington, D.C.: National Academy of Sciences, 1997); NRC, *Carbon Dioxide and Climate: A Scientific Assessment* (Washington, D.C.: National Academy of Sciences, 1979); NRC, *Changing Climate: Report of the Carbon Dioxide Assessment Committee* (Washington, D.C.: National Academy Press, 1983); NRC,

Global Change and Our Common Future: Papers From a Forum (Washington, D.C.: National Academy Press, 1989); NRC, *Ozone Depletion, Greenhouse Gases, and Climate Change* (Proceedings of Joint Symposium by the Board on Atmospheric Sciences and Climate and the Committee on Global Change, Commission on Physical Sciences, Mathematics and Resources) (Washington, D.C.: National Academy Press, 1989); National Academy of Sciences, *Policy Implications of Greenhouse Warming: Mitigation, Adaption, and the Science Base* (Washington, D.C.: National Academy Press, 1992); U.S. Congress, Office of Technology Assessment, *Preparing for an Uncertain Climate -- Volume I*, OTA-O-567 (Washington, D.C.: Government Printing Office, 1993).

[10] For more information on joint implementation, see President William J. Clinton and Vice President Albert Gore, Jr., *The Climate Change Action Plan* (Washington, D.C.: The White House, 1993), pp. 26-31.

[11] U.S. Fish and Wildlife Service, *North American Waterfowl Management Plan*, fact sheet (Washington, D.C., 1995); Council on Environmental Quality, *Environmental Quality: The Twenty-Fourth Annual Report* (Washington, D.C.: Government Printing Office, 1993), pp. 96 and 99; and U.S. Fish and Wildlife Service, *1994 Update to the North American Waterfowl Management Plan -- Expanding the Commitment* (Washington, D.C., 1994), p. 2.

[12] U.S. Department of Commerce, International Trade Administration, citing estimate by Environmental Business International, Inc., *Environmental Business Journal*^R, August 1995: pp. 1-5. *In 1993, the environmental industry generated \$133 billion in revenues or about 2 percent of the gross domestic product. The industr employed over 1 million people. See Statistical Abstract of the United States 1994, table 373; and p. 446, table 684.*