

HEEDING NATURE'S TUG: AN ENVIRONMENTAL AGENDA FOR INTERNATIONAL RELATIONS

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Concern for the global environment increasingly is demanding fresh approaches to international relations, to the North-South dialogue, to economic assumptions and to global environmental funding. With ominous frequency science continues to warn us of a growing inventory of environmental deterioration. Once within the domain of individual nations, environmental problems have assumed planetary dimensions, demanding unprecedented cooperation and fresh ideas among all countries. The challenges ahead are formidable but options exist for improving international cooperation in environmental affairs.

1987 — TWO WATERSHEDS

In 1987, delegates from developed and developing countries gathered in Montreal for a last round of negotiations to narrow the options available to safeguard the planet's ozone layer. Hardening scientific evidence left little doubt that human activity, concentrated in the industrialized countries, was destroying the ozone layer at alarming rates. The unexpected discovery of the Antarctic "ozone hole" startled the world into realizing that stratospheric ozone, which shields all life from lethal ultraviolet radiation, was being decimated.

In that year, the first truly global environmental agreement emerged from the meetings held in Montreal. Countries agreed to tough cuts in the use of chlorofluorocarbons (CFCs), the main culprit in ozone destruction as well as a prominent greenhouse gas. The Montreal Protocol remains an historic achievement in which nations set aside commercial interests and ideological differences, and together embraced collectivism and the goal of global stewardship.

Nineteen-eighty-seven marked another, albeit less noted, watershed date, a watershed that also has profound implications for the conduct of international relations. In July of that year, the world population surpassed 5 billion. From the mid-18th century until the beginning of this century, annual world population growth remained stable, at approximately 0.5 percent. By mid-century, growth rates doubled to 1 percent, and doubled again in less than

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three decades, to a current global rate of 2 percent. The current population of 5.3 billion consumes, diverts and wastes roughly 40 percent of the planet's entire photosynthetic product. Evidence suggests that in the next century, the human population, exceeding 10 billion, will consume 80 percent of the planet's entire photosynthetic product.

This is a horrifying prospect. And yet despite wide agreement on the need for close, credible global cooperation, global environmental problems overshadow concrete action. Population growth and deteriorating environmental conditions appear to be on a collision course. By the end of this decade, world population will exceed 6 billion. Each year, some 100 million additional people share our earth, and yet some 25 billion tons of productive topsoil is lost through soil erosion. Each year, more than 20 million hectares of forests are destroyed through burning, clearing and air pollution. Each year millions of hectares of productive land are reduced to desert or near-desert conditions.

These growing pressures have produced a flood of international environmental refugees, an increase in conflicts over natural resources, and, more positively, some awareness that political boundaries cannot isolate nations from environmental threats. There is also recognition that as environmental problems transcend the world's borders, so too environmental law must transcend those boundaries.

So far, however, this recognition of the need for a strong body of environmental law has been hesitant — too hesitant. The progress we have made is in danger of being overtaken by events. The world's environmental problems are becoming rapidly more international with each passing year.

One reason for this process of internationalization is the sheer press of human population. By early in the next century China will have more people than the entire population of the developed world. All countries, especially developing countries, are pursuing economic growth and increased industrialization, often to break the strangle-hold of poverty and increase living standards. There is no doubt more economic growth is needed everywhere, more so in developing countries. If, however, the South repeats the pattern of resource gluttony, pollution and conspicuous consumption, then our planetary destruction is assured.

For example, annual sulphur dioxide emissions in China from coal combustion exceed 13 million tons. Between 1981 and 1985, the frequency of acid rain in the Chongqing region increased 85-100 percent, while pH levels dropped from 4.27 to 4.09. If China continues to increase its coal use the impact on acid rain and on global climate are potentially life-threatening.

Of course, China is not the only country whose domestic policies will have a global impact. China, Brazil, India and many other developing countries are pursuing industrial strategies to promote a five-fold increase in economic activity in the next few decades. Economic aspirations of this magnitude represent legitimate and desperately needed development requirements to raise living standards in developing countries. The greatest policy challenge facing this generation is, therefore, to chart economic strategies that promote in-

creased economic growth while intensifying resource conservation, pollution abatement, and a more equitable distribution of wealth.

THE CHALLENGE

The challenge is enormous, and will certainly require international cooperation on a scale unseen in the world of atomized states. The foundation for this cooperation must be a recognition that Third World peoples, who bear the brunt of the world ecological decline, cannot face these problems alone: even a cursory glance at the problems of the Third World make that clear. For millions, environmental destruction already is a matter of survival. A convergence of factors, including crippling poverty, unjust land tenure systems, low commodity prices, high interest rates, protectionism and corruption, tragically has led to massive ecological decline. Yet such problems are not inevitable. Both domestic and international remedies are available if the will exists to apply them. Experience shows that when poor farmers are given secure land tenure, secure access and adequate resources, they take a longer view to land stewardship, working towards sustainable agricultural development. However, most fertile lands are reserved for large-estate, cash crop production, so that poor farmers struggling to meet subsistence needs have no choice but to clear marginal lands — including mountain slopes — for fuel and crops, and move on after soil and wind erosion have rendered marginal lands useless.

For example, in Guatemala, 40 percent of the productive capacity of the land has been lost through soil erosion. Similar levels are found in other developing countries. The consequences of soil erosion and food insecurity have already been witnessed in sub-Saharan Africa. During the African drought of 1985, 250 million people suffered from chronic malnutrition, and 30 million people were starving.

The World Bank recently warned that a growing list of countries — including Ethiopia, Uganda, Lesotho, Burundi, Somalia and Rwanda — are not expected to be able to feed even half their populations by the turn of the century.

Increased regional food insecurity is exacerbated by unrelenting resource destruction. Nearly one billion people lack a sufficient diet, and the world's grain reserves are at record lows, following three successive droughts in the United States in the 1980s. More irrigated land is being lost every year than is being reclaimed. The once exponential rise in crop yields is approaching a plateau because of the limits of the "Green Revolution," fertilizers and pesticides, while the protein supply from the sea is nearing the end of its sustainable yield because of pollution and overfishing.

FORMING A GLOBAL PARTNERSHIP

In the face of such human tragedies, concern for the environment must be translated into meaningful, coordinated international action. There is hope

that the foundation for cooperation is being strengthened by historic changes underway within and between all societies. As East-West relations enter a new phase, countries are focusing less on overt military threats than on less obvious, less politically motivated threats to global security. Foremost among these threats for the time being is transboundary pollution. These threats have come in many forms: nuclear fallout from Chernobyl; the acid rain that has taken such a heavy toll in Northern Europe and Canada and the toxic chemicals that destroyed almost all life in the Rhine River. In some ways it appears that mutually assured destruction is no longer the exclusive provenance of military commanders, but is also in the hands of industry and the governments which control that industry.

Policymakers, therefore, must ensure that global action includes all countries, with an unprecedented increase in the North-South dialogue, coupled with concrete measures to narrow the widening economic gulf between developing and developed countries. In the last decade, economic conditions in the least developed countries have deteriorated, witnessed by an overall reversal in capital flows by which almost \$50 billion now moves from South to North each year. The World Bank shifted from being a net capital provider to developing countries of \$2.6 billion in 1985, to a net capital taker of \$350 million in 1987.

Such a situation cannot continue if we are to build real hope for the future. Global interdependence extends well beyond the parameters of the marketplace. In fact, economic prosperity ultimately depends upon healthy global ecosystems. Yet implementing resource conservation, increased sustainable agricultural practices, stricter abatement procedures bolstered by the polluter-pays principle, intensified family planning and increased economic development demand political courage. We cannot stop resource exploitation in order to define new approaches. We must work towards shifting priorities in a very real and operational context. Success can no longer be gauged by words of concern or international conventions alone, but by concrete actions backed by clearly delineated funding commitments to increase environmentally sound and sustainable development on a global level. Much of this will have to be done within the framework of international environmental law.

SUSTAINABLE ECONOMIC GROWTH

Development sustainability means pursuing economic development in a way that does not diminish the natural assets passed on to future descendants while meeting the conditions of continuing economic development. The definition of sustainable development in the report of the World Commission on Environment and Development has become widely known. It is "to meet the needs of the present without compromising the ability of future generations to meet their own needs." Progress is underway in elaborating the specific, operational implications of that definition, through such works as the second *World Conservation Strategy*, to be finalized in 1990, and preparations for the United Nations 1992 Conference on Environment and Development.

A precondition of development sustainability is to promote economic policies that will ensure sustainable livelihoods for millions caught in acute poverty. Economic equity is a central component of sustainable development. It must engage both the world's affluent and disadvantaged to work towards a fairer development and distribution of the world's finite natural resources.

There is evidence that individuals in the industrialized world are turning away from unsustainable consumption, and embracing environmentally benign consumer products. Opinion polls indicate that consumption patterns are shifting towards "Green products" promoting environmental protection. The world's largest environmental opinion poll, commissioned by the United Nations Environment Programme and conducted by Lou Harris Polls in sixteen countries, confirmed that the public in developed and developing countries are alarmed about environmental deterioration. They are prepared to accept higher consumer prices, higher taxes and lower living standards for environmental protection. The UNEP poll also confirmed that political leaders are following, not shaping, the global environmental agenda. More action, backed by political commitment, is needed.

Reforming consumption patterns in the industrialized countries should be coupled with significantly increased production efficiency, greater resource conservation, and the promotion of low- or non-waste industrial strategies. However, no matter how far industrialized countries proceed in environmental protection, all efforts will be offset unless developing countries are assisted in making sustainable development work. One approach involves increased funding for global family planning. Family planning needs to be improved and made more culturally sensitive, so that individuals who need planning methods have ready access to them.

Success in policy implementation depends on increased funding. Current annual expenditures of \$3.2 billion on family planning are not enough. The Washington-based Population Crisis Committee recently stated that \$10.5 billion a year is required to stabilize the global population at 9.3 billion by 2095. Without increased family planning, the global population is expected to stabilize at 14 billion by the end of the next century.

Family planning is but one of a growing list of priority areas in urgent need of increased funding. Developing countries, many of which are saddled with crushing debt service obligations, unrealistic military budgets and deteriorating international terms of trade, lack resources for the most basic infrastructure needs.

What is therefore needed are new ideas, incentives and financial modalities to assist developing countries in environmental protection and compensate them for resource conservation. Increased funding cannot succeed through economic limitation strategies. Perhaps the most important conclusion of the World Commission on Environment and Development remains the call for "a new era of growth," in which accelerated economic growth builds the foundation for sustainable development. Forecasts indicate that economic growth will continue to expand at astounding rates. World GDP has increased four-

fold in the last three decades, and is likely to increase another five times in the next century.

The problem, then, is not the scale or scope of economic activity, but its focus. Industrialization has brought untold benefits for millions, in terms of high per capita incomes and living standards. Yet industrialization has also brought our planet closer to the brink of ecological collapse. Unless current economic attitudes undergo meaningful reform, the high living standards of a small minority inevitably will erode because of resource depletion and pollution, while the world's majority will have little hope for the future.

In the United States alone, over 11 billion tons of solid waste were generated in 1986, translating into a per capita production of 1,300 pounds of garbage each year. The United States generates more than 250 million tons of hazardous wastes each year and over one trillion gallons of sewage. Annual global hazardous waste volumes are difficult to calculate, but exceed 400 million tons. Littered throughout industrialized countries are waste landfill sites in urgent need of remedial action to halt toxins leeching into groundwaters and contaminating the human food chain.

Traces of carcinogenic pesticides have been discovered in *all* groundwater reservoirs tested in the United States. In Europe, nitrate concentrations in some major rivers have increased at an annual rate of 0.15 milligrams per liter since 1960; in some cases, nitrate levels have surpassed the World Health Organization's acceptable limit of 11.3 milligrams per liter.

GLOBAL ENVIRONMENTAL PROBLEMS

Compounding the familiar "end of pipe" problems ranging from acid rain and atmospheric pollution to hazardous wastes and fresh water pollution, a new list of ecological problems of planetary dimensions now challenges the resolve of the international community. For example, ozone layer depletion, estimated at 3 percent worldwide and sharply pronounced above the Antarctic and Arctic regions, has prompted a growing incidence of skin cancer and blindness. Recent evidence suggests that ozone depletion may also weaken the human immune system, and decrease plant and marine life productivity.

The effects of deforestation, pollution, wetlands destruction and other activities are causing our planet's heritage of biological diversity to undergo the worst wave of mass extinctions in 65 million years. As many as 100 species become extinct each day, with estimates suggesting one million species will become extinct by the end of the decade. Extinction is forever, such that undiscovered, life-saving medicines from tropical plants and genetic materials essential for natural selection and the success of biotechnology will be greatly reduced.

Of all the global ecological threats ever to face humanity, however, none is more ominous than climate change and global warming. Most recent scientific data suggests that the buildup of greenhouse gases — including annual carbon emissions of 5.6 billion tons, CFCs, methane and nitrous oxides — may cause our planet's average temperature to increase by 2°C to 4°C over the next 40 to 50 years. By comparison, the temperature change ending the last great Ice

Age was 4-5°C. Such changes took place over tens of thousands of years. The rate of change posed by global warming could occur in less than two human generations.

Uncertainties persist concerning climate change. The best available science — at the time of writing being coordinated by the International Panel on Climate Change (IPCC) — suggests that impacts will vary widely from region to region. Impacts could include average sea level rises of between approximately 30 and 120 centimeters, altered weather patterns and rainfall conditions, more frequent and severe tropical storms, coastal flooding and droughts.

One report suggests that as many as 50 million people could become “environmental refugees” because of climate change. Already, environmental refugees may represent the largest single group of displaced persons anywhere. Continued environmental decline will increase human suffering, and increase tensions.

It has been suggested that human understanding of the greenhouse phenomenon is still incomplete, and that the community of nations should wait before moving towards a treaty that would prepare for global climate change. The first statement — that our knowledge of climate change is incomplete — is true; the second statement is both false and misleading. There is every need to address the question of global climate change within the framework of international law as soon as possible. Human activity now has the potential to disrupt the earth's biosphere totally, either deliberately or unwittingly. Given that the world's nations have this extraordinary power, caution — including legally-binding constraint — is called for.

It is now true that uncertainty is not a signal to advance; it is a signal to move prudently. Until the modern era it could be argued that uncertainty was no obstacle to development. If one forest or one lake was destroyed, then there was always one more forest and one more lake. Now, however, we have the capacity to disrupt massively not only a few forests and lakes, but the entire biosphere. We have the capacity to destroy this world if we are not careful, and therefore we *must* be careful.

It is a simple principle of risk analysis that a risk-averse player will be certain that he is safe before proceeding. Given that we have only one planet to work with, that principle must now be translated into international law. To a certain extent it already has. We moved to protect the ozone layer before *every* scientist was 100 percent certain that the ozone layer was in danger, and events are proving just how right we were. The same logic must be applied now to the question of climate change. We must continue to improve our understanding of the global climate, and we must show caution until we are sure that we are safe. That caution is best manifest in an environmental treaty, binding in international law. UNEP, in cooperation with the World Meteorological Organization, is already working towards such a treaty.

BUILDING THE PLATFORM FOR REFORM

In the face of environmental problems that transcend national frontiers and the North-South economic divide, stop-gap measures and national regulations

alone are insufficient. What is urgently needed are policy tools and funding mechanisms that coordinate national, regional and global action; that neither infringe on the national sovereignty nor create roadblocks to development; that clarify the costs of remedial and preventive action and that instigate operational reforms focusing on the underlying *causes* of continued environmental destruction.

From *Limits to Growth* and *Global 2000 Report to Environmental Perspectives to the Year 2000 and Beyond* and *Our Common Future*, global policy prescriptions have not kept pace with descriptions of accelerating environmental decay. Warnings certainly have endeavoured to assess the reasons why we destroy our planet. There are no easy answers. Some twenty years ago, Jay Forrester in *World Dynamics* warned that economic practices that viewed our planet as an infinite resource, solely at the disposal of human activity, would prompt a global backlash from nature. Humans use air, water, lands and forests as a garbage can, and consider them to be resources created solely to fuel economic activity.

Such attitudes reflect not isolated operational problems, but systemic flaws linked to perceptions of economic value confined to commercial exchange. While the environment is embodied in all goods and services exchanged in the marketplace, it is rarely itself exchanged, and therefore, eludes objective values that promote its conservation and protection. Accordingly, vital resources like air and water are viewed as free goods, and pollution is ignored as a market externality.

This is, however, being challenged. Market mechanisms increasingly are being adjusted so that the value of natural resources and costs of pollution are integrated into exchange. Better valuation techniques are needed, so that irreplaceable or scarce natural assets, from endangered species to groundwaters, are valued and conserved. The challenge of global stewardship of our environment and its resources may demand, in the longer term, a more probing assessment of liberal economic assumptions, the demand of an orientation of all societal functions towards the single goal of maximized production and the philosophy of maximized wealth production via the interplay of labor, land and capital.

A century ago, Ralph Waldo Emerson observed that "nature is tugging at every contract to make the terms of it fair." No doubt, Adam Smith and most economists (despite warnings of Malthus and Ricardo) never envisioned that the resilience of a natural system as vast as our planet would be threatened by too much or too little economic activity. And yet, it seems clear that innovative solutions must emerge to re-establish "nature's tug" in order to protect planet earth.

TOWARDS A NEW AGENDA

There is an urgent need to integrate environmental factors into *all* dimensions of private and public sector decision-making, from energy and agricultural policies to research and development funding linked to national industrial policies. There is a need to understand the full direct and indirect costs borne

by society in the production of goods and services, such that final prices are adjusted to internalize environmental factors. Familiar tools like cost-benefit analyses, input-output analysis and environmental impact assessments, coupled with fresh approaches like environmental accounting, environmental auditing and reforms in the calculation of national income accounts, are helping us to understand the long-term implications of fast-track economic growth based on ecological deficit financing.

Adjusting economic attitudes to integrate environmental values is a first step to achieving sustainable development. Water and air can no longer be regarded as free goods, and economic incentives, user's fees and other financial mechanisms must become operational in the short term to meet the cost of global environmental management.

To bind these strategies we must strengthen international environmental law. UNEP has shown — and will continue to show — that law is a vital and growing tool for managing the earth's biosphere. International environmental law has shown itself to be an effective aid for cleaning up the Mediterranean Sea, for controlling the international trade in endangered species, for curbing sulphur emissions in Europe and now for protecting the ozone layer.

COSTS OF ACTION

Recent estimates suggest that \$5-\$10 billion will be needed each year throughout the 1990s to combat world hunger. That amounts to roughly \$25 per person each year, including 57 cents for annual vitamin A and iodine supplements to save the health and eyesight of 280 million exposed children. While that seems like a lot, \$10 billion represents only *four* days of world arms spending. Accelerated demilitarization presents a golden opportunity to redirect even a small fraction of military budgets towards strengthening national security through increased financing to protect our planet.

UNEP estimates that \$4.5 billion annually would halt global desertification and land degradation. By strengthening agro-forestry projects, irrigation, mixed and traditional cropping and other approaches, rangeland in Africa and the Near East could produce sustainable yields instead of present threats of desertification.

The costs to eliminate virtually all ozone-destroying chemicals will likely fall between \$2 and \$7 billion over the next decade, in terms of incremental costs in retrofitting and retooling factories, and more expensive CFC alternatives. While such costs are high, the cost of inaction is much, much greater. Each percent reduction in the ozone layer is expected to increase the number of blind persons by 100,000, and increase the incidence of non-melanoma skin cancer by 3 percent. Estimates suggest that more than 60 million cases of skin cancer — resulting in 1 million deaths — could occur in the United States alone by 2075, if continuous CFC use is allowed.

Saving the earth will not be cheap. While exact estimates are elusive, we are facing financing obligations that will run into the hundreds of billions of dollars.

Defining the costs, however, will not ease the hardship of agreeing on how, and by whose account, the bill for global environmental protection should be paid. The threat of a cyclic downturn in the global economy that could spur a recession should not deter developed countries in efforts to finance measures towards environmental protection. Time is running out. Procrastination will inflate costs. Burdens will not fall evenly between the North — responsible for most global environmental problems — and the South — still struggling to break the vicious circle of debt and disease.

Costs to developing countries in controlling ozone-depleting substances, conserving tropical forests, deploying environmentally benign energy technologies to reduce greenhouse gases and other measures will be substantially higher relative to their past responsibilities and present incomes.

Strategies are emerging to devise financial modalities necessary to develop and apply energy-efficient technologies that reduce greenhouse gases, CFC alternatives, non-renewable energy sources and production processes that “close” the production gap while increasing the production possibility curve. They include *additional* bilateral and multilateral assistance to integrate environment and development strategies, the implementation of user’s fees to act as pricing disincentives to environmental deterioration and incentives to increase research and development and funding for technology transfer in developing countries and the possible creation of an “international fund,” which could act as a “safety-net” to ensure environmental protection. Revenue procedures for such a fund could be based on a percentage of the GNP, per capita income or pollution intensities.

TOWARDS ENVIRONMENTALLY SOUND AND SUSTAINABLE DEVELOPMENT

International agencies are working to define new mechanisms and approaches, bringing nations together in forceful, cooperative action. International law is one such area in which UNEP is particularly interested. As well as the international agreements mentioned in this paper, UNEP is working with non-governmental organizations — such as the International Union for the Conservation of Nature — to put together an international agreement for the conservation of biodiversity. This agreement, as well as the treaty on global climate change, should be finalized by the time of the United Nations Conference on Environment and Development, to be held in Brazil in 1992.

At that Conference countries are expected to come up with specific commitments for specific activities over specific time-frames — with costs and resources defined. This is the only way to move sustainable development from a familiar phrase to an everyday operational priority. We no longer have time to delay. The environment has become, in a real sense, a *force majeure* that is building bridges of confidence between developed and developing countries. The world’s public is demanding more action. Political leaders now face a test of their conviction: to cross those bridges and move towards equity and intergenerational responsibility.