

Healing Mother Nature

Environmentalism in Search of the Big Picture

"So you want to save the planet?" As we approach the next millennium, answers to this question involve everyone—from eco-activists to the average weekly recycler. The environmentally conscious are increasingly looking to big picture solutions that integrate local and global concerns, and embrace the Earth's complexity. In the first of an occasional series of articles on the environment, Geoffrey Oxnam provides an overview of the approaches and challenges of the environmental movement.

by Geoffrey Oxnam

Save the whales! Reduce, Reuse, Recycle! Protect the Rain Forests! Don't wear fur! Carpool! Don't eat meat! Think globally, act locally!

For the past three decades, we have been surrounded by slogans from an ever-increasing number of organizations and individuals aiming to save the planet. But with so many different groups offering advice and pointing to their particular cause as the most important, individual citizens often find the quest for appropriate environmental consciousness a bit dizzying. To add to the confusion, the vast array of environmental causes is complicated by the intricate connections between environmental concerns and economic, political, social, cultural and religious issues.

Consensus continues to grow that the environment deserves increased attention. Yet, no one has arrived at a definitive answer to three key questions: What exactly is wrong with the planet? What needs to be done to fix it? How should the implementation of solutions be prioritized? A fourth, and perhaps even more tricky problem also remains: Who should decide?

The roots of global environmentalism

In the two centuries since the onset of the industrial revolution, the combination of industrialization, urbanization, population growth and changing consumption habits have altered planetary conditions at an ever-accelerating pace. Early environmental efforts were by no means absent: most pre-"modern" societies held—and continue to hold—an innate environmentalism as part of their understanding of the workings of the universe. At the turn of the century, naturalists, hunters and fishermen banded together to create organizations such as America's Audubon Society to preserve natural habitats and animal populations. Nevertheless, today's environmental movement took its particular shape only in the decades following World War II.

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The 1962 publication of Rachel Carson's book *Silent Spring* fundamentally changed the path of the environmental movement in the United States. A biologist with a gift for prose, Carson exposed the dangers of the pesticide DDT. The sensation accompanying her work brought environmental questions into the limelight, and North American environmental focus shifted from local issues to national and global problems.

In 1972, the United Nations sponsored the Conference on the Human Environment in Stockholm. There, many of the world's leaders came in contact with their first "big picture" explanation of global environmental hazards. The conference produced a seminal book of the environmental movement. Titled *Our Common Future*, it was most important for its inauguration and discussion of the concept of "sustainable development," now a cornerstone of long-term environmental policy. For the first time, the idea was stressed to policy-makers that environmental problems are not issues separate to humanity, but are tied to population and economic growth.

Our Common Future defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs...A process of change in which exploitation of resources,



Learning to live together?
[Aztech New Media Corp.]

the direction of investments, the reorientation of technology development and institutional change are all in harmony."

In the spirit of *Our Common Future*, several international environmental organizations developed the World Conservation Strategy (WCS) in 1980. WCS offered a single line of attack on global environmental problems based on three principles: maintain species populations so that they do not fall to levels where they can no longer reproduce; conserve the climate, water cycles and soils which sustain all life; and maintain genetic diversity.



[Kirk Anderson]

Blame it on Rio

The United Nations reinforced the messages of Stockholm and the WCS with its Conference on Environment and Development held in Rio de Janeiro, Brazil, in June of 1992. Representatives of governments, non-government organizations, tribes, trade associations and a mass of journalists came together in the hopes of arriving at a single statement about what was wrong with the planet and what needed to be done. The Earth Summit, as it is otherwise known, was the first international meeting to garner substantial popular awareness and support. And it was the first in which developed nations took a proactive stance in broad-scale global policy development.

Two key documents came out of the summit: The Rio Declaration and Agenda 21. The Declaration emphasized that any environmental issue has economic ramifications and that developed nations should commit to help developing economies improve their environmental standards. However, the document neither made reference to concrete problems nor offered specific measures, and was an agreement in theory rather than in practice.

Agenda 21

Agenda 21 was a different story. This 900-page document meticulously detailed many of the most pressing global environmental problems and addressed ways to resolve them along six lines: 1) Improving the quality of life on Earth by eradicating poverty, making sound livelihoods available, and altering patterns of consumption; 2) Using Earth's natural resources effectively; 3) Protecting the global commons (atmosphere and

oceans); 4) Managing human settlements; 5) Controlling the use of chemicals and managing waste; and 6) Promoting sustainable economic development. The agreement's suggested price tag for the implementation of policies to achieve these goals amounted to several hundred billion dollars.

While the Earth Summit symbolized a continued and concerted effort to address seriously global environmental issues, it did not build the momentum for which some had hoped. On the U.S. side, the Bush administration voiced reservations about both the Declaration and Agenda 21 and failed to back some of the gutsier measures, including a treaty protecting biodiversity (the variety of different animal and plant species on the planet), and a forest protection agreement.

However, Rio's legacy remains to be seen. The new administration in Washington is already far more active in promoting environmental issues than its predecessor. President Bill Clinton ratified the biodiversity treaty. Moreover, Vice President Al Gore has written one of the more recent lucid texts on the environment, *Earth in the Balance* (1993).

Searching for the big picture

Despite years of research and libraries of books written about environmental concerns, most people are still unsure which problems need most immediate attention. Unless we wade through reams of documents and read dozens of books, it is hard to distinguish the forest from the trees.

Consensus at recent conferences points to a general, four-stage process to delimit the environmental big picture:

Step 1: Understand that environmental studies are a combination of many disciplines, including science, economics, engineering, anthropology, sociology and political science. Any environmental problem has causes and effects in one or more of these areas.

Step 2: Like doctors, environmentalists must understand the patient. The Earth itself is increasingly seen by scientists as a living, self-sustaining organism—usually termed Gaia. Like any living creature, the Earth depends on a variety of internal systems—each composed of a complex and mutually-interacting web of organisms and inorganic matter. All of these systems (with the exception of sunlight, an outside input) are self-contained; i.e. a limited supply of elements circulate within. Everything comes from somewhere, goes elsewhere and then returns. "Recycling"—the use, degradation, and reuse of resources—is the way of the planet. The key question for environmentalists is how much of a resource we can use before it can no longer be replenished.

Step 3: Triage. Doctors in an emergency room are trained to make a thorough check of their patients during triage in order to determine what is wrong with, and how to save, them. While a full understanding of how the planet works is still incomplete, many environmental organizations have begun the same process with Earth. Yet, with so many "doctors" there is a host of opinions. And since environmental problems are intertwined with social, political, economic and religious issues, it is hard for anyone to clearly delineate which of Earth's ills is most severe and deserves immediate attention.

Step 4: Operate to save the patient.

Complicating the steps

Deforestation—both in the tropical rainforests of the southern

hemisphere as well as in the temperate ones to the north—is an apt and well-publicized example of the complex and complicating factors surrounding an environmental issue. Forests serve as habitat for a multitude of species, help regulate global temperatures and weather patterns, control greenhouse gasses by converting carbon dioxide to oxygen, and impact the world's fisheries. Trees of the tropics regulate the flow of water in a rain forest. They act as sponges to soak up rain and then slowly release it. Tropical forest soil is generally nutrient poor and suitable only for those trees.

Local farmers, hoping to make quick money selling cattle to meat-hungry North America often slash and burn the trees to open up grazing land. But without the tree roots to hold the nutrients in the soil, and without the trees to regulate the flow of water, nutrients quickly wash off. Two and half centimeters of topsoil can take anywhere from 100 to 2,500 years to develop or rejuvenate. However, the same 2.5 centimeters can become unusable in less than a decade, even for grazing grasses. The farmer is out of land and out of luck unless more forest is removed. At the same time, run-off topsoil from cleared forest areas chokes waterways, adversely affecting fish populations at the mouths of the river. Another source of income disappears quickly.

Northern countries point fingers at the slash-and-burn farmer, but rarely leave him/her an alternative. Large agribusiness companies can under-price the local farmer in most crops. Significantly, only 11 percent of the earth's soil is suitable for growing food crops, and most of this arable land is located in the economically developed northern hemisphere.

Local farmers chafe at the restrictions which well-off countries wish to impose on their livelihood and economic development. This is especially true as cash-crop farmers tend to be responding directly to market forces.

Comprehensive solutions

To confront the intricacies of environmental problems, we are starting to see environmental measures—often in the form of “comprehensive management plans”—designed to tackle all the hazards afflicting a single ecosystem. The Long Island Sound Study, a plan to clean up the oxygen-poor and polluted waters of the United States' most populous estuary, typifies such big picture environmentalism. Rather than attacking a single polluter, the Sound Study maps out the myriad problems plaguing the entire ecosystem, takes into account the human needs of factories and local inhabitants and then seeks long and short-term solutions to clean and protect the area.

While water contamination and flutable debris mar Long



“Civic responsibility,” not environmental necessity? [BNB Photography]

Island Sound's appearance, the waterway's most serious ecological problem has been hypoxia. This condition, where levels of dissolved oxygen become too low to sustain marine life, results from massive blooms of algae prompted by excessive nitrogen in the water. Point sources like sewage treatment plants and factories have contributed to nitrogen pollution. However, non-point sources, such as storm drain run-off of herbicides, pesticides and fertilizers from lawns, gardens, golf courses and real estate development—often as far as 20 miles inland—have proved the most damaging and difficult to tackle. (Point source pollution is contamination that can be traced to a single origin; non-point source cannot be so traced.)

The management plan has put caps, albeit voluntary, on the amount of nitrogen point sources can emit. Communities in the Long Island Sound watershed are banding together to regulate development and fertilizer use to prevent further harm. Although the Comprehensive Management Plan awaits final ratification, elements have already been enacted and the Sound is enjoying rejuvenated water quality and higher fish stocks. The success of this comprehensive approach leaves hope for other environmental hotspots where big picture solutions will be required.

Population: Roger Madon, an attorney with Green Cross International, labels recycling programs and similar measures as “civic responsibility,” not environmental necessity. Certainly, the expansion of garbage, and the related question of finding places to put it, are problematic. Yet, like a growing consensus of environmentalists, he believes that they are symptoms

of the world's most severe environmental crisis—the proliferation of humankind.

One common misperception about the environment is that it is somehow separate from people. Yet people do form an integral part of the environment—they use its resources and contribute both to its sustenance and degradation. And never have more people inhabited the planet than do today.

In 1798, Thomas Malthus described the interrelation of populations in nature. Malthusian theory argues that populations of different species tend to hold one another in check. Hawks will prey on rabbits until they have eaten most of the available rabbits up. With no rabbits left to eat, the hawks start to starve. With fewer predators, rabbits can replenish their numbers without the threat of getting eaten. The populations of most species tend to fluctuate along a curved line in direct opposition to their most prevalent predator.

Humans have striven to prove Malthus wrong. It took humankind almost 500,000 years to reach a population of one

*“What is man without the beasts?
If all the beasts were gone, men
would die from a great loneliness
of the spirit. For whatever happens
to the beasts soon happens to
man.”*

Chief Seattle, 1854

billion in 1830. But, with advances in medical technology, living conditions and food quantity and quality, human population had doubled one hundred years later. Forty-five years after that, it doubled again. Currently the Earth's population is somewhere in the five billion range and is likely to pass six billion by the turn of the century.

While advances in technology have allowed the planet to keep yielding enough resources to feed and house these people, the planet's ability to sustain this rate is limited. Ironically, the world produces enough food to feed another 1.5 billion people annually, and yet 40 million are starving. In the United States, notes Norman Meyers in *GAIA: An Atlas of Planet Management*, 33 percent of people over age 40 are classified as obese.

But checking population growth is a dicey issue. It runs into political opposition from countries who do not want to be told how to live. As China has discovered with its one-child-per-family experiment, it can have profound social repercussions as female infanticide rates soared when parents did not want their only child to be a girl. It also touches on religious issues. Recently, in preparation for the United Nations Convention on Population in Cairo, September 5-13, 1994, U.S. President Bill Clinton met with Pope John Paul II to discuss the population question and the Catholic Church's objection to abortion and birth control.

Resource depletion: With so many people going about the business of living, the planet is reaching a state where some environmentalists fear it can no longer provide for daily activities. "Carrying capacity," another key environmental buzzword, describes the ability of resources in an area to sustain the population of that area.

Resources are often grouped into two categories: renewable and non-renewable. Renewable resources are those which can be replenished in a relatively short period of time (like reservoirs). Non-renewable resources are those which often take millions of years to be replenished (i.e. oil or coal).

Key to sustainable development goals will be the managed use of renewable resources. For instance, this means carefully cataloging fish stocks and making sure that they are not driven to extinction; harvesting crops and trees without destroying the soil; and using freshwater at rates where reservoirs can refill themselves before they dry up. Non-renewable resources must be used at a rate where they will not be tapped too quickly. Eventually they will run out. But in terms of energy, for example, it is the hope of environmentalists that alternative sources can be found to replace fossil fuels.

Ozone depletion and the greenhouse effect: The ozone layer shields the planet from much of the sun's harmful

ultraviolet rays. In the past decade, a hole of varying, but ever-increasing, size has been discovered above Antarctica. Fifteen percent of the Antarctic ozone is now gone. Bands of thinning ozone have spread from both poles over the hemispheres.

A variety of chemicals (including chlorofluorocarbons from air conditioners and aerosol sprays, halons, carbon tetrachlorides and methyl chloroform used as flame retardants) have contributed to the depletion. The results have been increased incidence of skin diseases, cataracts and damage to agriculture and certain aquatic life. The thinning of the ozone layer may also contribute to substantive changes in global weather patterns.

The greenhouse effect is the gradual warming of the planet as the amount of insulating carbon dioxide increases in the atmosphere. It results from rising population (and the amount of carbon dioxide they exhale) and industrial output. The burning of fossil fuels is believed to account for two thirds of our carbon dioxide emissions. Canada contributes 1.7 percent of the world's greenhouse emissions, according to the *Environmental Almanac*, and the United States adds 18.4 percent.

The planet has increased in average temperature by more than half a degree Celsius over the past 40 years, and estimates say that the increased warming effects may alter weather patterns. Already the 1980s have experienced more hotter years than any other decade in recorded history. While we cannot attribute this all to global warming, it is a preeminent concern.

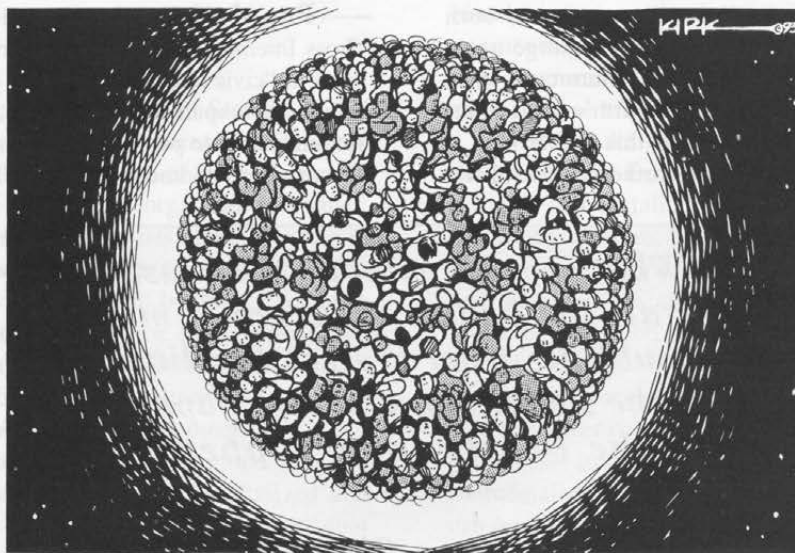
Deforestation: The global population uses 50 percent more wood today than in 1965, and has cut down a portion of

the world's tropical rainforests the size of Washington State. While many people are pointing fingers at the South American and Asian nations for this deforestation, Canada and the United States have carved out larger percentages of their own natural hardwood forests than any other country.

Air pollution: Acid rain was one of the first major environmental issues to capture the North American imagination in the 1970s. While much has been done to clean up factory and transportation emissions, more work is left. Innovative taxation schemes and

smokestack "scrubbers" (whose efficiency many call dubious) are being developed to curb air pollution.

Endangered species: One of the most dangerous losses of non-renewable resources is in biodiversity. Species are disappearing, some estimate, at a rate of one per day. Each of these species, many of which we have yet to catalogue, is a potential medical cure or a source of insight into life's complexities. To sustain themselves, ecosystems require a variety of different organisms who compete for similar food sources



OUR BIOLOGICAL CLOCK IS TICKING

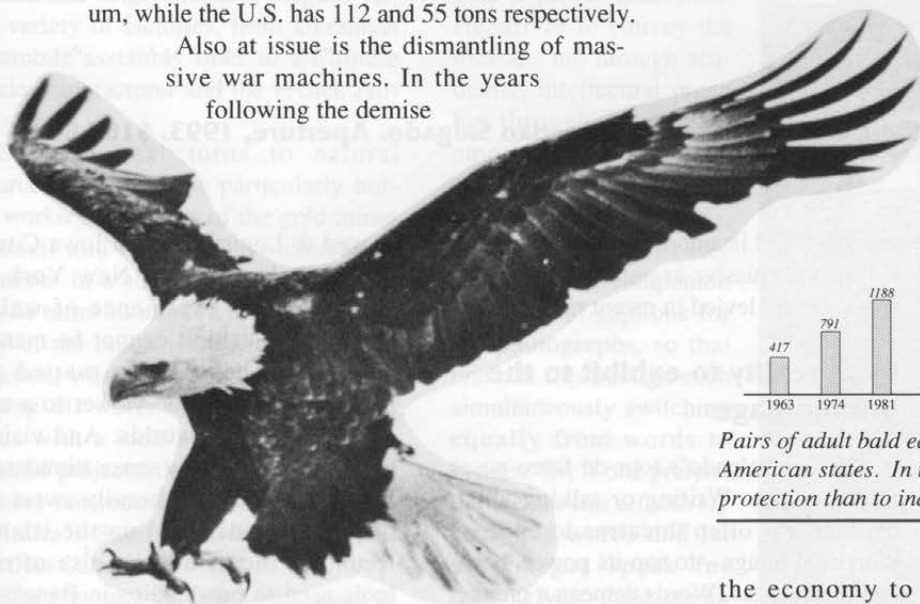
[Kirk Anderson]

and perform different functions in the food web.

Perhaps the first broad-scale effort to address endangered species came in the late 1960s with Greenpeace's Save the Whales effort. Worldwide, a host of other organisms have been categorized as endangered species. In the U.S., they are protected under the 1972 Endangered Species Act. Many have enjoyed comebacks, such as the American bald eagle. Others have disappeared. The Endangered Species Act is up for renewal this year.

Post-Cold War waste: A nuclear threat still remains in the form of the disposal of spent weapon-grade nuclear fuel. Roughly speaking, the states of the former Soviet Union have 125 tons of Plutonium and 720 tons of Highly Enriched Uranium, while the U.S. has 112 and 55 tons respectively.

Also at issue is the dismantling of massive war machines. In the years following the demise



of the Soviet Union, foreign observers have had their first look at Soviet fleets scuttled in their harbors. The rusting hulks spew a host of toxic substances into fragile ecosystems. In the United States, the public has become increasingly aware of scores of toxic waste sites created by the U.S. government.

Human waste: In consumption-oriented societies, environmental concern focuses increasingly less on waste reuse, and more on new waste production. Currently, humans generate waste at a rate greater than recycling efforts. And we are running out of places to put it all. The United States, for example, has mandated municipal programs to cut the waste stream back to pre-1990 levels. Innovative techniques of composting and separation, as well as radical changes in assessing costs to haul garbage, will also help cut down on land used for waste dumps and will save energy and financial costs. Reduction in the amount of unnecessary packaging being used in consumer products remains a goal. Even Japan, one of the world's worst overpackagers, is tackling this tough issue.

Towards an environmental future

"A one thousand mile journey begins with one step," reads an old Chinese saying. Too often, those who are concerned about improving their environment, try to begin the journey many steps down the road. We pitch millions of dollars into various environmental organizations without knowing what their programs are doing to solve the most immediate difficulties.

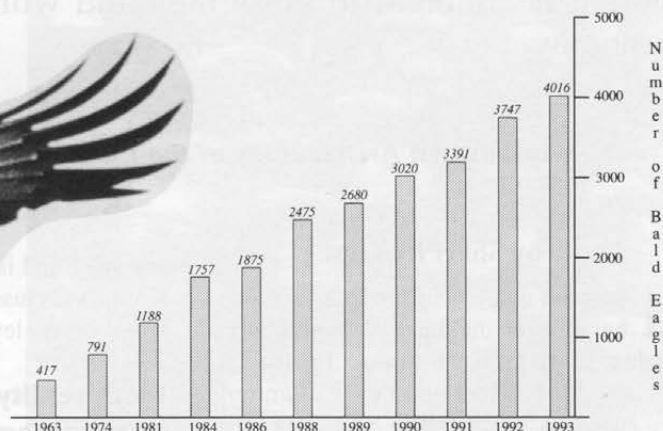
With an understanding of the big picture, tackling environ-

mental issues becomes much clearer. And by understanding how the various systems of the planet work, both on a global and a local scale, it is far easier to plan activities (from recreation to industry) which will keep from further damaging the planet.

But even the most moderate environmental policies do have their opponents who are quick to point out the potential effects on our accustomed standard of living.

"Taken to its logical end, environmentalism would bring

THE RESURGENCE OF THE BALD EAGLE



Pairs of adult bald eagles in nesting areas in the 48 contiguous American states. In the future, more attention will be paid to habitat protection than to individual species. [U.S. Dept. of the Interior]

the economy to standstill, and then reverse it," wrote Llewellyn H. Rockwell Jr. in an article for *Insight Magazine*. "Environmental regulations are why it costs so much to get your air conditioner repaired, why your car can't pass emissions inspection even though it's only a few years old, why you are forced to collect old newspapers so the city can recycle them at tremendous expense, and charge you for it. That trees are a crop, like asparagus, and can be grown again and again, is inadmissible. There's no science or logic to the bulk of their claims, whether it's global warming, holes in the ozone layer, acid rain, or any of the other Mother Green fairy tales."

But for many of the world's policy-makers, the concept of sustainable development has become an important guiding principle in economic development and international relations. And, they are coming to realize that the time to take substantive action is here. As the population continues to expand, Mother Nature's clock is ticking faster and faster. ●

Suggestions for Further Reading

- Lester Brown et al., *State of the World 1994*. (Worldwatch Institute, 1994).
- Rachel Carson, *Silent Spring*. (Houghton Mifflin, 1962).
- Al Gore, *Earth in the Balance*. (Plume, 1993).
- Norman Meyers, ed. *GAI: An Atlas of Planet Management*.
- World Resources Institute, *The 1994 Information Please Environmental Almanac*.