



World Ecology Report

Critical Issues in Health and the Environment

Knowledge brings new choices. Education brings new knowledge.

SPECIAL FOCUS: *The World's Forests and Human Health*

A SPECIAL REPORT IN PREPARATION FOR THE 1997 SESSION OF THE COMMISSION ON SUSTAINABLE DEVELOPMENT

Economic expansion, population growth and war have altered the quantity and type of forest cover that services Earth. Publicity about the depletion of tropical rain forests has successfully raised awareness about the current causes of deforestation, but it is useful to recall that forests have been cut for centuries. The forests of the United Kingdom and Ireland were depleted in the seventeenth through nineteenth centuries to supply wood for the growing ship building industry. In New Zealand, settled about 1840, almost all of the forests were cleared to make way for the grazing land required to support the lucrative sheep and cattle industry. Lebanon lost 60% of its forests during the first three years of World War I (1914-18). However, despite over thirty years of environmental awareness, the consequences to human health of deforestation are only recently being examined. Rachel Carson's ground breaking book, *Silent Spring*, signaled the alarming connection between environmental degradation and its impact on the health of particular species. As in the case of DDT, health effects of deforestation tend to be indirect and observable only over the long term.

FOREST VALUE

The term forest encompasses a wide



Logging operations, like this one by the Kalimantan Group in an indigenous forest in Borneo, have contributed to Indonesia's having the world's highest number of endangered mammal and bird species.

SOURCE: EDF Letter, January 1997

range of natural and man-made ecosystems similarly noted because they contain trees. Forests include woodlands, open enclosed canopy coverage, forest fallow, shrubs, brushland, and open woodland. Evergreen forests or needle leaf, are found in areas of high elevations while tropical rain forests are found in moist low elevation areas. Middle latitude countries contain forests with deciduous trees such as maple, hickory, oak and other hardwoods.

Forests are homes for indigenous peoples and serve as natural habitats for wildlife. Tropical rain forests contain more than half of the species on earth and provide important sources of national income with products such as mahogany, balsa wood, quinine, cocoa and rubber.

Forests provide an ecological balance to the earth. They protect the land from avalanches, floods, landslides and mud-flows. The trees and green life of the forest act as a "sink" for converting carbon dioxide through photosynthesis into oxygen. The particles of soil sediment are needed to purify flood water to make it a suitable basin in which to grow rice which then feeds hundreds of millions of people in China and southeast Asia.

Wood is retrieved from forests daily to be used for fuel. Women in developing countries gather half of the

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annual forest harvest for fuel. As one area of woodland is depleted, the women walk further and further to retrieve wood for fuel used for cooking and warmth.

Lastly, forests are used for recreational areas and provide refreshing relief especially for urban residents, from air and noise pollution.

FORESTS AND FOOD

Since 1968, at least 200 million people, mostly children, have perished needlessly from hunger and disease related to malnutrition, despite "crash programs" to stretch the carrying capacity of the earth by increasing food production. Each year there are more than 95 million more mouths to feed worldwide. At the same time, there are fewer tons of topsoil and fewer gallons of groundwater with which to grow safe food to feed the global population. In sub-Saharan Africa, food production has fallen far behind population growth. India and Brazil are among many of the countries with growing populations that surpass the food production levels of their respective countries. In addition to drought, rampant deforestation in these countries contributes to a loss in food production.

Forests indirectly contribute to the growth of rich topsoil. Fallen leaves and other particles in the natural environment combine to produce rich humus. This natural product, humus, enriches the topsoil to make it appropriate to sustain plant life and thus crops. No artificial substitute for humus has yet been found, therefore, as forests are depleted so too is potential for regenerating the surrounding soil. The layer of fertile topsoil has been reduced significantly on a global scale.

Nitrogen-containing fertilizers are used almost universally in agriculture. Nitrogen is often detected as a groundwater contaminant. The presence of unacceptable levels of nitrogen in drinking water makes it an

immediate health hazard. The areas containing lakes and rivers with nitrogen present at unacceptable levels also contribute to the contamination of fish and its food source. Soil with too much nitrogen eventually loses its capacity to produce crops and ultimately becomes unusable.

The loss of forests and vegetation, whether by wood cutting, burning, overgrazing, overfarming and erosion poses a severe condition known as desertification. Desertification is land area degraded to the point where it looks like barren wasteland and is unable to be productive for growing. Desertification affects local climate as well. The areas most affected are southern Africa, south-central Asia, Australia, western United States and southern South America.

FORESTS AND CLIMATE CHANGE

Atmospheric conditions have been altered dramatically around the world because of deforestation. Our planet is kept habitable by the presence in the atmosphere of small amounts of greenhouse gases that trap heat close to the earth's surface. The best known of these heat-holding gases are water vapor and carbon dioxide, the lesser known, methane, nitrous oxide and ozone. If the planet had too little of these gases, we would freeze to death. If it had too much, we would burn. The greenhouse effect of these combined gases warms the earth. There is little debate that the earth is warming

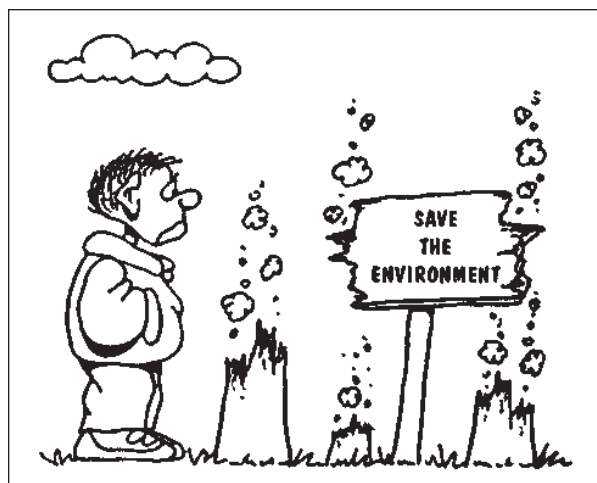
due to the increase of greenhouse gases in the atmosphere. The Intergovernmental Panel on Climate Change in its last report indicated that human activity significantly contributes to the warming trend. One response to global warming is to regenerate forests. However the new forests which replace the old growth forests do not appear to have the same effects on the atmosphere and forest ecosystems. Once ancient forests are cut, they are gone forever along with their influence on the global climate.

There is some debate as to warming of the Earth affecting weather stability. Some scientists observing natural phenomena such as hurricanes and droughts believe that that they were a result of a buildup of greenhouse gases. For example, in 1988 scientists predicted the hurricanes in the Gulf of Mexico the same year. The Philippines were struck by three typhoons in 1989. Early in 1996, the United Nations Intergovernmental Panel on Climate Change (IPCC) issued a lengthy report on the subject of climate change and health. Some of its findings were: a) global warming can bring more heat waves causing death among the elderly and people with heart disease. Higher temperatures add to already unhealthy air pollution and this impacts people with asthma and other lung disorders. b) global warming encourages an increase in mosquito-borne diseases such as malaria, dengue fever and yellow fever which will possibly develop as more areas of the world become wetter.

In addition, deforestation contributes to disease transmission by forcing disease bearing viruses out of their age old habitats and into the mainstream local population. The spread of such disease is enhanced by mass air transportation and unsanitary medical practices.

FORESTS AND AIR POLLUTION

Each year, 50 million acres (21 million hectares) of tropical rain forests are being felled by log-



gers. Trees remove carbon dioxide from the air and thus purify it along with rainfall and wind. The well-known Vienna Woods in Austria were planted to enhance air purification. The planting of parks and trees provide the city dweller with respite from the air and noise pollution of the city. In cities, the constant presence of toxins destroy some levels of plant life and affect those suffering from asthma and other pulmonary ailments.

The National Jewish Medical and Research Center, Denver, Colorado (US) provides the statistics on asthma and other lung disorders. Among 5 to 24 year olds in the United States, the asthma death rate has nearly doubled from 1980 to 1993. The ambient air pollutants (e.g. ozone, sulfur dioxide, nitrogen dioxide, acid aerosols, and particulate matter) indoor pollutants including tobacco smoke and allergens such as dust mites have been associated with an increase in asthma suffering and a decrease in pulmonary function.

From 1987 to the present, epidemiological studies using improved statistical techniques and expanded particle monitoring data have reported significant positive associations between increased daily concentrations of particulate matter and premature mortality in communities across the US, Europe and South America. The degree of declining life span associated with particulate matter exposure in the studies done by the United States Environmental Protection Agency (EPA), 1996, is viewed by many as an important consideration in a public health context.

Research done in the mid-1950's in Scandinavia focused on the fact that many valuable trees in the forests of Scandinavia were dying or damaged. It was found that among the stresses of drying and cold were the large amount of pollutant emissions in the environment. The study also showed that acid deposition on the trees significantly contributed to the forest health problem. It was also found at that time that most US forests were not exposed to

enough ozone and/or acid deposition to cause severe damage.

BIOLOGICAL DIVERSITY AND MEDICINE

Biodiversity is the variation of species, genetic material, and ecosystems or the diversity among living organisms. The Convention on Biological Diversity was opened for signature in 1992 at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. At the Earth Summit, the world's forests were recognized as an economic resource especially for developing countries. Any benefit derived from forests and other natural resources would be the property of the particular country in which they were found. This portion of the convention remains controversial as nations debate the balance of ownership between the country which hosts the resource and the one or ones that develop and market the raw material into an effective drug. Approximately 25% of current prescription drugs are plant extracts, already a (US) \$12 billion segment of the pharmaceutical industry. The following table is an example of forest derived medicines.

PLANT	MEDICINE	DISEASE
Pacific Yew	Taxol	Cancer
Madagascan Periwinkle	Vinblastine	Hodgkins Disease
Curare	Tubocurarine	Muscle relaxer
Yellow Cinchona	Quinine	Malaria
Tobacco	Nicotine	Insecticide
Kava-Kava	Kawaina	Tranquillizer
Cotton	Gossypol	Male Contraceptive
Paradise Tree	Glauucarubin	Amoebicide
Coca	Cocaine	Local anesthetic
Pineapple	Bromelain	Anti-inflammatory
Indian Snakeroot	Ajmalicine	Circulatory stimulant

Around twenty-five percent of current prescription drugs are plant extracts, already a \$12 billion segment of the pharma-industry.

In addition to those already known, researchers are in the jungles and trop-

Desertification

For several decades ecologists have been warning...about the growing pressures being placed on delicate arid environments like that of the Sahel. Their forecasts have not penetrated very deeply into the priorities and working programs of governments and aid agencies.

Programs to control desertification in the past have had limited success and those which succeeded did so only in some areas and only for limited periods...small projects which were successful have seldom been replicable over large areas...we have the knowledge and technical skills to halt these destructive trends. But it is political and economic factors, not scientific research, that will determine whether or not the wisdom accumulating in our libraries will be put into practice...Governments must create the condition of security of tenure and food security, within which...marginalized people can maintain sustainable livelihoods for themselves...Endlessly continuing humanitarian relief after each succeeding crisis...is not the answer. It is in the interest of us all that our governments should act now to help the disadvantaged help themselves. At the 1992 Earth Summit, heads of government unanimously recommended the negotiation of an international treaty...on desertification. The resulting Convention to Combat Desertification has...been signed by 115 countries and ratified by 60...It came into force on December 26, 1996. The sand has reached the bottom of the hourglass. It is now time to move from talk to action.

SOURCE: Excerpted from an article by Elizabeth Dowdeswell, Executive Director, UN Environment Program, which appeared in the *Earth Times*, February 1-15, 1997.

ical forests studying and sampling potential matter to determine antidotes for future illness.

Doctors, Tom Carlson and Steven King, spend a part of each year in the jungles of Ecuador, Borneo and Nigeria. They study the work of the shamans, or tribal healers, who have used tropical plants for centuries to treat diseases in remote parts of the

world. Carlson and King now believe they are on the brink of discovering a diabetes alternative to insulin with human trials expected to begin in 1997.

By causing the loss of biodiversity within forest ecosystems, deforestation destroys the forests' potential to provide pharmaceuticals to cure illness now and in the future.

SUSTAINABLE DEVELOPMENT OF THE WORLD'S FORESTS

The global concern over the health consequences of deforestation has grown since the Earth Summit in 1992. But great gaps in international under-

standing of the social, economic, environmental and political roles of forests around the world continue to support unsustainable practices of development and economic growth. Developing and developed nations with varying economic needs tend to hold different perspectives with regard to the treatment of forests. Moreover, funding for forest management differs widely. It is difficult to project a global policy of sustainable forest management, but two conditions have to be satisfied. Sustainable ecosystems on which the global economy depends must be guaranteed, and a fair and equitable basis for exchange of forest products

and technology must be developed. Any program of sustainable forest management, no matter how limited, needs to address the question of population growth. Human births and deaths have to be in balance; soil erosion cannot exceed the natural rate of new soil formation; tree cutting cannot exceed tree planting; the number of plant and animal species lost cannot be allowed to exceed the rate at which new species evolve.

As the American Daniel Webster said over 100 years ago, "The materials of wealth are in the earth, in the seas, and in their natural and unaided productions." The traditional way in which governments measure their economic health is through the Gross Domestic Product or GDP. Forests appear in the overall GDP when products are extracted and sold, such as the selling of timber and furniture. The value of the forests far exceeds the short term monetary goal of selling timber and is more relevant as an ecosystem spawning future pharmaceuticals. Accounting for forests and their products as a depreciated resource might alter the GDP of some nations. The value of forests especially in protecting human health cannot fully be measured because forests play such a dynamic role in the global environment. Now that forests are on the international agenda, it is possible that forest management programs in individual nations will develop in ways that reconcile all parties and provide the largest health benefit to all. It may be wise to recall the utilitarian principle of the greater good for the greater number as the guiding criteria for resolving those conflicts of forest management that pit the interests of wealth against those of health.

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The Forests of Central Africa

THE FORESTS

Africa's rainforests originally stretched from Senegal, on the west coast, across the vast Congo basin and into Uganda and Kenya. Today, over 75% of the forests along the west coast have been destroyed or degraded. The bulk of the remaining forest—which still covers over a million square kilometres—is concentrated in Cameroon, Congo, Gabon, Equatorial Guinean, Central African Republic, Zaire and Rwanda. These forests make up 20% of the entire planet's rainforest.

Central Africa's rainforests rank alongside those of the Amazon in South America as some of the most biologically diverse in the world. They harbour species such as elephants, chimpanzees, gorillas and bonobos (the primate genetically closest to humans), which are extinct or endangered elsewhere on the continent.

THE THREATS

The biggest threat to central Africa's rainforests is logging. The rainforests of Africa's west coast have almost been completely logged out over the last fifty years. Nigeria and Ivory Coast, for example—formerly major exporters of tropical timber—have lost over 90% of their original forest cover.

This logging is mostly carried out by large, foreign timber companies, often with the financial support of foreign governments and institutions like the World Bank. Only a tiny proportion of the logging companies operating in cen-

tral Africa are actually African. Most are European, a legacy from the days when most of the countries in the region were European colonies. Most of the logs are exported 'raw'—in other words, without being processed in Africa—and most of the profits leave Africa too. Over 85% of African timber is exported for sale to Europe.

Most logging in Africa is 'selective'—meaning that only certain types of tree within any given area of forest are supposed to be logged. This is less devastating than the 'clearcut' logging practiced elsewhere, where whole areas of forest are levelled, but it is still damaging. Up to 30% of the forest canopy is destroyed by selective logging, wildlife is often forced out permanently.

As in other parts of the world where large-scale logging takes place, the timber trade brings other problems in its wake. In central Africa, the opening up of the forests with logging roads and clearings has brought settlers and gold miners into previously undisturbed areas. Logging also brings hunting. The World Society for the Protection of Animals, in a recent investigation, found that endangered species, such as gorillas, chimpanzees and bonobos, were being hunted illegally throughout the forests. The hunters travel into the heart of the forest on logging trucks, shoot as many apes as they can find, and then sell them as food, often to the workers at logging camps.

SOURCE: *Earth Action*

POINT: *Modern Timbering Contributes to Forest Fires*

The raging wildfires that charred great swathes of the Western part of the United States last summer and fall have sharpened the national debate over the causes of forest fires and how to prevent them. The timber industry claims restrictions on logging degrade forest health by prompting insect and disease outbreaks, and increase both the amount of flammable material and the likelihood of forest fires. Their solutions: more logging of living trees, along with burnt or diseased timber.

Environmentalists and a growing number of scientists argue, however, that logging itself is a major cause of declining forest health—and of the runaway forest fires that have caused so much ecological, economic and human tragedy.

Fire is an essential part of the natural cycle of birth, death and regeneration within healthy forests. By limiting the buildup of flammable materials, smaller periodic fires reduce the intensity of larger burns and limit their spread.

Fire also releases nutrients from the debris on the forest floor into the soil. It clears out undergrowth, allowing existing trees to grow healthy, straight and tall. The seeds of certain valued trees can only germinate when the heat of intense fire opens their protective cones. Forest fires can even help reduce pathogens and insect populations that attack trees.

For decades, however, U.S. Forest Service policy—embodied by Smoky the Bear with shovel in hand—admonish that “only you can prevent forest fires.” The suppression of all fires was central to the government’s forest management practices, with inevitable and unfortunate results. Dense, flammable undergrowth and dead wood accumulated on the forest floor. Many of the nation’s forests, particularly in the West, were transformed into incendiary time bombs that are now exploding.

But factors other than fire suppres-

sion have increased the frequency and intensity of forest fires. One is commercial logging. A recent report on the Sierra Nevada region, published by the Centers for Water and Wildland Resources of the University of California, Davis, concluded: “Timber harvest, through its effects on forest structure, local microclimate and fuel accumulation, has increased fire severity more than any other recent human activity. If not accompanied by adequate reduction of fuels, logging (including salvage of dead and dying trees) increases fire hazard by increasing surface dead fuels and changing local microclimates.”

Logging companies tend to cut the most commercially valuable timber—often the biggest, tallest trees that are most resistant to fire. By opening up the canopy, logging creates an environment that encourages a thick, fire-prone undergrowth of shrubs, saplings and weeds. Many, although not all, loggers leave behind sites filled with brush and other flammable materials. The disappearance of the big trees also has a drying effect on the local climate, making the area more vulnerable to fire.

Increasingly, scientists believe these practices accentuate the risk of forest fire and increase the severity of fires, once started.

Despite these findings, timber industry representatives continue to insist

the answer to the threat of catastrophic fires is more “salvage logging” and are pressing for legislation supposedly aimed at improving forest health by giving such logging top priority in large areas of America’s public forests.

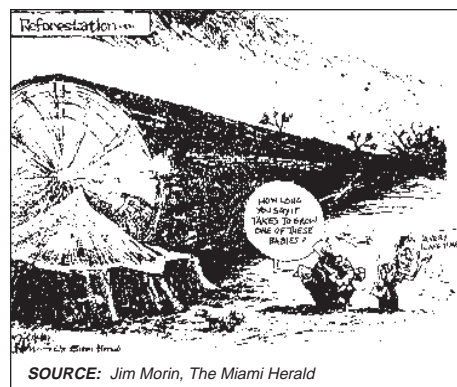
Many environmentalists and scientists, however, content the “forest health” campaign by the timber industry is merely a cynical effort to gain access to otherwise protected public forests, and would actually increase the danger of major fires. What then to do about forest fires?

First, prescribed burning within forests—controlled burns set deliberately to consume flammable debris that could fuel uncontrollable fires—should be employed to prevent catastrophic forest fires, as well as preserve forest health. Fortunately, a new “Federal Wildland Fire Policy” approved last December by Interior Secretary Bruce Babbitt and Agriculture Secretary Can Glickman makes such burning an accepted part of the tool chest of federal land managers. As a result, prescribed burns on federal lands are up 20% this year.

In those areas that already suffer from excessive air pollution, or where “controlled” burns may not be controllable, other solutions exist, including the thinning of underbrush, removal of flammable materials and construction of fire breaks.

Finally, great efforts need to be made at the state and local levels to limit the density of settlement in fire-prone areas in order to keep people out of harms way. In the meantime, however, we should not let the recent rash of catastrophic fires become an excuse to allow unrestricted logging in our national forests. It would be a tragic mistake to take the shovel from Smoky the Bear, only to hand him a chain saw instead.

SOURCE: Joshua Reichert, Pew Charitable Trust; Scripps Howard Service



SOURCE: Jim Morin, The Miami Herald

COUNTERPOINT: *Only the Logging Industry Can Save Our Forests*

The raging wildfires that charred great swaths of the West last summer and fall are only a warm-up to much larger, more costly, and more destructive events that will visit that region.

Four million acres were hit by wildfire in 1996. My analysis of conditions in the West suggest that 4 million acres will be close to the yearly average for the next decade or two. Public costs for fire fighting could average from one-half to \$1 billion dollars a year; property damages will add to that cost.

It cannot be "revented", at least not in the sense of "Prevent Forest Fires". It is, however, possible to reduce damage in the highest-risk areas.

National forests and other federal lands make up much of the forest that is at greatest risk. On those lands, treatment is proceeding far too slowly to reduce the danger. The problem is not a lack of understanding or a failed agency policy, it is adverse economics and political opposition.

The economics result from the huge land areas involved; the remoteness of many places that need treatment; the limited value of the wood that needs to be removed; and the reduced budgets and staff of the federal agencies. Political opposition stems from the growing chorus to end all timber harvesting on public lands, and the bitter controversies over salvaging trees killed in the 1992 and 1994 fires.

While political opponents become entrenched, scientists were taking a hard look at the underlying conditions. The consensus is that many western forests are in terrible condition, vastly overstocked with trees, and subject to large and

intense wildfires. Much of the degradation is due to past management practices—logging, grazing, and fire suppression—that date back to the 19th century.

Without treatment these forests are susceptible to fires so hot that even large trees are killed. In some places the soil will be so heat-damaged that it could lead to the beginnings of desertification (where the land stops supporting much vegetation of any kind). Treatment options are known, but they must be skillfully applied to the highest-hazard areas, and soon.

Effort spent placing blame on the past does little to help answer the critical questions, "what should we do now?" And simplistic answers like "let it burn," "increase salvage logging," or "stop all logging," miss the point. Each forest has its own situation, and treatment needs to be designed to fit. The worst thing would be a "one-size-fits-all" solution from Congress.

Adequately treating high-risk areas will require a lot of work. That work which includes brush and debris removal, prescribed fire, and erosion control in addition to the removal of surplus trees, will nearly all need to be done by the forest products industry.

Who else has the people, skills, and machinery? Environmentalists are skeptical of anything the industry proposes or is involved in, but there aren't many options. Federal agencies aren't equipped for the task—they barely have enough people to plan and administer projects.

If the public wants better forests and fewer disasters on federal lands, there are several things that Congress should be pressed to do, including:

■ Change liability regulations on

the federal agencies. Using prescribed fire is risky business, and even with the new federal promise to do more of it the current liability and reimbursement procedures remain an obstacle.

■ Change timber sale procedures. Selling timber to the highest bidder sounds like a good business, but it is a prescription for having the most valuable trees removed rather than having the forest treated right. Contacts should pay loggers to do what is needed to restore forest health. Anything that can be sold should be sold for fair prices to help pay the costs of treatment. Innovative private foresters do this all the time, but federal regulations make it nearly impossible on federal lands.

■ Encourage other uses for low-quality wood that needs to come out of the forest. Biomass burners can make electricity, conserve fossil fuels, and reduce air pollution, but they can't compete at today's natural gas prices. When the choice is between burning biomass cleanly at a small cost, or letting it burn in major wildfires at a huge cost, and with huge pollution releases and soil damage, the choice seems clear.

■ Shorten the time, paperwork, and legal wrangling in making a federal land decision. That's controversial, as we all cherish our right to participate in decisions that affect public lands. But we have to find a better way to let people be part of the action, and still get some action done. Gridlock is not serving the forests or the people of America well.

SOURCE: Neil Sampson, senior fellow at American Forests, the country's oldest national citizen's conservation organization; Scripps Howard Service



DID YOU KNOW?

■ Malaria is returning as a deadly scourge resisting medications and expanding to new areas. The World Health Organization (WHO) recently deemed malaria a primary public health enemy. The co-author of the WHO report, Dr. Paul R. Epstein (Associate Director of the Center for Health and the Global Environment Harvard Medical School), indicates that malaria and dengue fever now occur at high altitudes in South America, central Africa and Asia. Cerebral malaria has been identified in Nairobi and dengue fever in the mountains around San José, Costa Rica. He notes that highland malaria and dengue fever have been found within the context of the upward migration of plants.

SOURCE: New York Times, January 8 and 13, 1997.

■ Children around the world work in agriculture-mixing, loading and applying pesticides, fertilizers or herbicides. Exposure to these biological and chemical agents poses a higher risk to children than to adults and has been linked to increased incidences of cancer, neuro-behavioral effects and immune system abnormalities. For example, mortality among Sri Lanka child farm workers from pesticide poisoning is greater than from malaria, tetanus, diphtheria, polio and whooping cough combined.

SOURCE: International Labor Organization (ILO) Press Release, ILO/96/38, Nov. 12, 1996

■ According to UNICEF, the gap

between developed and developing countries is wider for maternal mortality rates than for any other health indicator. An estimated 585,000 women—25% of whom are teenagers—die annually during pregnancy or childbirth. Almost all of these deaths occur in developing nations and result from inadequate health care. In Sub-Saharan Africa, a woman's risk of maternity related death is 1 in 13, whereas in Western Europe the risk is 1 in 3200.

SOURCE: UNICEF Facts & Figures, 1996

■ A report from Demographic and Health Surveys (DHS) by Dr. Alex Ezih found that in West Africa and Pakistan men indicated that they had no intention of ever using contraceptives, except for Ghana where total fertility rate declined 14 percent. Non-use of contraceptives for religious reasons is also more common among men than women, particularly in Bangladesh, Egypt, Pakistan, Rwanda and Senegal. However, in many other developing countries family planning programs are on the rise and the ideal family size is declining

SOURCE: Newsletter, Vol. 5 No. 1, 1996 DHS, Calverton, Maryland

■ Forest cover in Mexico has declined by 50 percent over the last forty years. Current laws have been used to exploit lumber-quality wood while guaranteeing a supply of prime resources. This discourages forest owners from developing themselves as forestry producers. Peasants, also see forests as a nuisance, which discourages forest renewal and promotes unfavorable deals with industrialists and the use of slash and burn techniques to create areas for livestock or agriculture. According to official estimates 1,482,000 acres of Mexico's forest cover are lost annually.

SOURCE: International Dateline, January 1997 Population Communications International

■ Canada's Environment and Energy Ministers conceded that Canada will not meet its years 2000 greenhouse gas reduction goal of stabilizing emissions

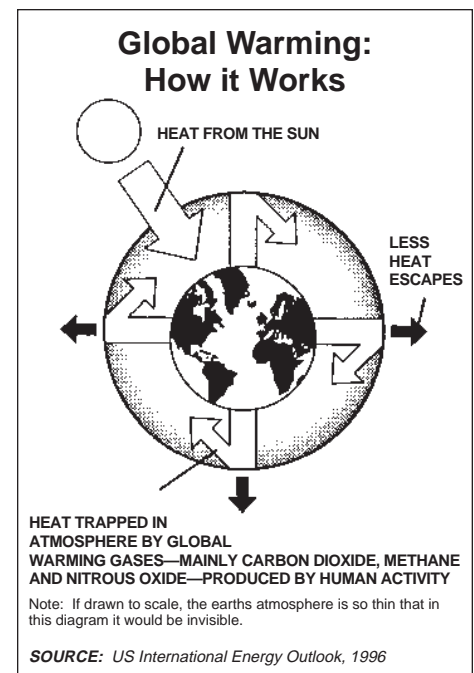
at 1990 levels. A report found that Canada's 1995 emissions were already 9.5 percent higher than 1990 levels—higher than previous federal forecasts of an 8 percent hike by 2000 that helped shape a 1995 action plan. The report also said that emissions will decline over the next five years, but will soar over the next two decades. By 2010, greenhouse gas emissions in Canada will be 16.5 percent over 1990 levels. Given its northern orientation, Canada will be one of the countries most seriously affected by climate change.

SOURCE: International Dateline, January 1997 Population Communications International

■ Groundwater accounts for 98% of the drinking water supplies in Denmark, 96% in Austria, 94% in Portugal, 90% in Hungary, about 50% in the US.

SOURCE: UNEP, Our Planet, Vol. 8, No.4 1996

■ The ICPD'S (International Conference on Population and Development) broader "reproductive health/reproductive right" approach to family planning programs is embraced by "almost all" countries according to Dr. Nafis Sadik, Executive Director of the U.N. Population Fund (UNFPA) in her



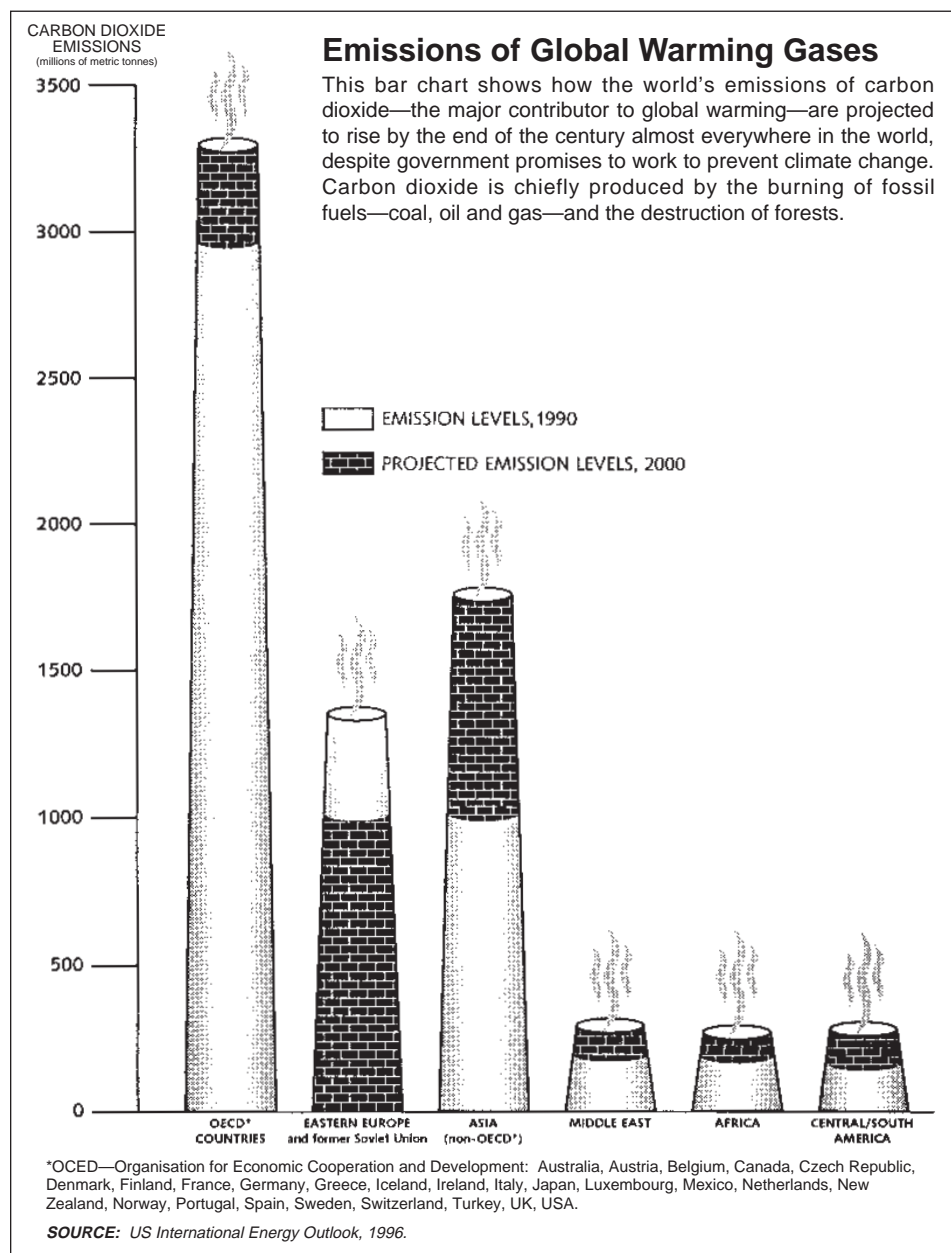
report to the U.N. General Assembly in New York. She noted that among high priority issues are women's empowerment, quality care giving, meeting the special needs of adolescents and involving men in reproductive health. Because the Program of Action specifies that two-thirds of the resources required to meet its goals should come from domestic funding, UNFPA is working to strengthen countries' capacity to track their financing of ICPD-related activities. The report also highlighted the 20/20 initiative—based on the idea of allocating 20 percent of official development assistance and 20 percent of national budgets to priority based social programs.

SOURCE: UN General Assembly, November, 1996

■ At the 1990 World Conference on Education for All in Jomtien, Thailand, 155 governments vowed not only to promote child education, but to dramatically reduce adult illiteracy by the year 2000. Using findings midway to the target date, the International Consultative Forum, a United Nations interagency watchdog found that progress has been made in all regions of the world and four out of five children aged 6 to 11 now go to school.

However, in regional surveys the results are mixed. In South Asia, although India has doubled its education budget, Bangladesh is trying to boost girls' enrollment and Nepal will open 300 new schools in areas where the enrollment of girls is lowest, only three countries—Bhutan, Iran and Sri Lanka have increased adult literacy rates. The greatest problem, according to the report, is the rapid population growth which outstrips any gains. Of the estimated 37 million children out of school in South Asia, eight out of ten are girls.

In East Asia and the Pacific region, although 90 percent of school age children are enrolled in primary school, women's 76 percent literacy rate still lags far behind the 90 percent for men. However, new educational technologies promulgate in the region; Mongolia has launched educational



radio programming for nomadic women, South Korea is opening 30 television channels for education and China is training school teachers via correspondence courses.

In Arab states, funding for education has increased slightly and 8 million children are still out of school, and only 44 percent of women are literate compared with 68 percent of men. Similar situation exists in Latin America where the educational quality is very poor and the teacher morale is so low, due to poor salaries, that instruction is

frequently interrupted by strikes. Finally in Africa, education is burdened by crushing foreign debt that makes it impossible for the poorest countries to make any progress.

The "Education for All" Forum has published a press information kit which can be obtained by contacting: Michael Lakin, EFA Forum Secretariat, UNESCO, 7 place de Fontenoy, 75352 Paris 07SP, France. tel: (33-1) 45680890; fax: (33-1) 40659406; e-mail: efa@unesco.org

SOURCE: Education for All Forum, UNESCO, 1996

CHERNOBYL UPDATE: *Turning Nuclear Swords Into Hazardous Plowshares*

The Comprehensive Nuclear Test Ban Treaty approved by the United Nations General Assembly in September, 1996, was hailed as an advance on behalf of peace. However, treaties that ban nuclear weapons pose a daunting problem to nuclear nations: what does a nation do with its plutonium when it dismantles the warheads. In responding to this immediate issue, the US Department of Energy (DOE) is planning to recommend 1) the making of plutonium/uranium fuel (called mixed oxide fuel—or MOX fuel) to be used by commercial power reactors; and 2) the balance to be immobilized through vitrification—or mixed in molten glass. The goal of both programs, MOX and vitrification, is to render the plutonium unusable for nuclear weapons. Vitrification is a technique just being developed. However, MOX is no less experimental when it comes to putting it in light water reactors that were not designed for it.

MOX would have profound impacts on the operation of civilian nuclear power reactors and the discharges and waste that result. Use of plutonium fuel increases the amount of both plutonium and fission products in both so-called “low-level” and “high-level” radioactive waste. The routine emis-

sions to air and water would also contain a higher level of plutonium and fission products. The nuclear physics of plutonium fission suggests that MOX fuel would accelerate aging of reactor core components—already a factor in early reactor shutdowns. Because of the increased fission products, the irradiated fuel would have a greater heat load, complicating all waste storage and disposal options currently available or contemplated. It would also contain about five times more plutonium than uranium fuel.

The use of MOX fuel has international ramifications in terms of supporting an international “plutonium economy” which would allow reprocessing and essentially turning plutonium into a commodity. Converting military plutonium into a useable civilian product might create a business partnership economically strong enough to dominate the energy industry and effectively eliminate competition by other alternative fuel companies including natural gas. Putting plutonium in American reactors would require national-security-level protection of the reactor site and the transport of the unirradiated fuel, as well as the MOX fuel production sites, since the unirradiated fuel is a proliferation risk. This program

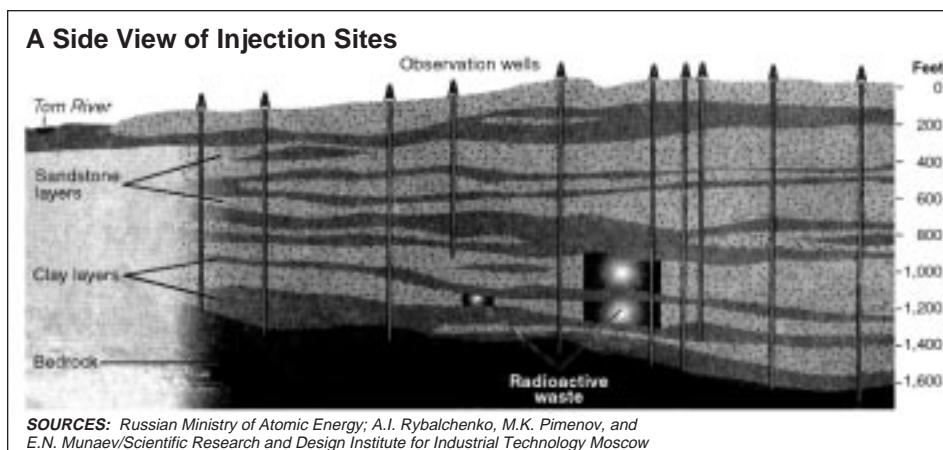
would require the building of a new MOX fuel fabrication site, though there have been some suggestions that initially some fuel would be produced by MOX fabrication facilities in Europe and shipped across the Atlantic. Several European nations, most notably France, are actively pushing the US to adopt the MOX option. The US government argues that it is choosing the MOX option in part because of international (especially Russian) support for MOX.

Coupled with the MOX idea is a second idea: the use of one or more civilian reactors to produce tritium for maintaining the remaining nuclear stockpile, or building new nuclear weapons. The proposed cost of maintaining nuclear reactors is greater than their former production cost. Each reactor would have to be relicensed, there could be new public utility commission issues, there certainly would be radioactive waste transportation and storage issues.

It is important for business, military and political leaders of the nations who depend heavily on the nuclear industry to recall that a nuclear explosion in a power plant designed for civilian use in peace time has the same consequences as a nuclear warhead dropped on that civilian population during a war. The intention may be different but the result is the same—if not worse. The Chernobyl explosion in 1986 emitted more radiation than the nuclear bombs dropped at the end of World War II, in 1945, on Hiroshima and Nagasaki combined.

SOURCE: Nuclear Information & Resource Service
1424 16th St. NW, Suite 404, Washington, DC 20036
voice (202) 328-0002; fax (202) 462-2183
e-mail: <nirsnet@igc.apc.org>
web: www.nirs.org

RESOURCES: Check out the following Websites (the NIRS Site will be growing in information on MOX) www.nirs.org and Nuclear Control Institute's www.nci.org/nci/ ALSO: dynamite MOX newsletter published by Yurika Ayukawa, Scoville Fellow at Physicians for Social Responsibility available at the NIRS Website, or via e-mail by contacting Yurika <yayukawa@igc.apc.org>.



FOOD FOR THOUGHT: *A Hopeful Future for the United Nations Under Kofi Annan*

The United Nations has been subjected to a great deal of criticism over the past few years, mostly in the United States. Much of the criticism is directed at what is perceived as bad administration, inefficiency and a "bloated bureaucracy". These charges in fact go back to the days of the Reagan Administration when the United States began to arbitrarily withhold part of its assessed contribution to the United Nations budget.

Over several years, US arrears accumulated to some \$1.4 billion. Adding arrears by the Russian Federation and few other member states, the UN financial situation reached a crisis dimension which has continued for several years.

UN reform, including significant personnel reduction, largely through attrition, has been going on for several years. A number of divisions, offices and programs have been eliminated despite the fact that legislative bodies continue to pass additional mandates to the Secretariat. This fact was acknowledged by the US administration, which agreed to schedule payment of US arrears over a period of five years.

However, this commitment remains unfulfilled as a result of continued opposition in Congress, especially by the Chairman of the Senate Foreign Relations Committee.

In recent months, Washington came to blame former Secretary-General Boutros Boutros-Ghali for insufficient progress in reforming the UN. This in fact was the reason given in explaining the US veto in the Security Council against Mr. Boutros-Ghali's nomination for a second term. It should be stated however, that progress in UN reform has been repeatedly defended by the UN Under-Secretary-General for Administration and Management, him-

self a highly respected American who was nominated to the post by Washington.

This of course, is not to say that all is well at the United Nations. Indeed, several restructuring exercises over the past few years had failed to produce significant progress and, in some cases, produced the opposite results. An example of such failure is the costly restructuring of the Department of Public Information in 1988 which was crafted by external consultants with no previous experience or knowledge of the United Nations. In fact, much of what they recommended was reserved in subsequent years.

The UN opens the new year under the leadership of a new Secretary-General. Kofi Annan of Ghana is a distinguished international civil servant with thirty years of outstanding service to the UN. He has served in various senior capacities, notably as Under-Secretary-General for Peace-Keeping Operations, Special Representative of the Secretary-General to the former Yugoslavia and Special Envoy to the North Atlantic Treaty Organization. Having also served as Assistant-

Secretary-General for Program Planning, Budget and Finance and Controller of the UN, as well as head of the Office of Human Resources Management, Mr. Annan is in a great position to energize the reform process, improve the image of the UN, and lead the Organization into the twenty-first century. In addition to having such wide knowledge and experience in UN affairs, Mr. Annan also enjoys the respect of members States and the trust and goodwill of the staff.

Another important constituency of the UN with which Mr. Annan is well acquainted with are the non-governmental organizations (NGO's) who have played a very important role in recent UN Conferences. Mr. Annan has addressed their Conferences and meetings, especially on UN peace keeping issues and objectives. As supporters of the UN since its founding, the NGO's certainly look forward to enhance their cooperation with the UN under the leadership of Secretary-General Kofi Annan.

SOURCE: Farouk Mawlawi, Former UN Senior Advisor and NGO Liaison Coordinator, Habitat II

Income Ranges With Life Expectancy at Birth and Infant Mortality Rate

Income Range (per capita GNP in US\$) 1992	Life Expectancy at Birth (years) 1993	Infant Mortality Rate 1993
15,000 and above	70-79	5-26
10,000-14,999	72-78	7-22
5,000-9,999	63-77	9-68
1,000-4,999	51-76	10-93
500-999	45-72	24-133
100-499	43-71	27-158

SOURCE: The State of World Health, 1996

HEALTH AND ENVIRONMENT: *Environmental Health Policies: A View From Africa*

We have developed a mistaken notion that environmental health factors play an important role in setting global policies. This presentation examines the strengths and weaknesses of the voices of the health community. Although environmental health factors are considered pertinent to setting general policies within the health sector itself, and to a lesser extent, for environmental policies, as a whole, current research seems to accentuate pollution abatement, and be going ever inward instead of looking at the multidisciplinary dimensions of most problems. The main conclusions are that the current emphasis on pollution control may be giving a false sense of security of achievement in global environmental health improvement, at the cost of lack of attention to traditional environmental health factors that are so common throughout the developing countries.

How can we redress the imbalance of an excessive focus on pollution? An ongoing World Bank study, "Bridging Environmental Health Gaps", is a first step. It's no secret that most causes of disease, injury and death in developing countries—inadequate sanitation, poor personal hygiene, road accidents, tobacco smoke, pollution—lie outside the control of the health sector. Yet, the policies of sectors that exert these direct health impact are not set by health criteria. The study helps identify opportunities to improve health in World Bank operations outside the health care system, namely, through infrastructure interventions (i.e., water supply, sanitation, drainage, housing, urban development, transport, telecommunications.)

Each of the three volumes has a separate message based on its emphasis.

1) *The Main Report* (Volume I) is directed toward project management, based on 203 Sub-Saharan Africa (SSA) infrastructure projects (1984-94) and 300 Bank documents. It contains background on environmental health and a checklist

on how projects can help relieve the burden of disease. 2) Volume I reveals that consideration of environmental health in Bank projects has been minimal to date.

2) *Volume II* is a cross-sectoral literature review of about 2,000 works. Where Volume I summarizes infrastructure lessons, Volume II discusses each sector. The literature indicates the "limited role health has actually played in determining policies outside of the health sector".

3) *Volume III* looks at the role of environmental health in sustainable development and contains recommendations. It identified significant issues that have not yet been resolved within the Bank, and cites the possibility of going against the first dictum of public health—that remedial measures do not harm—even for well intentioned projects;—cut and paste science inevitably leads to cut and past priorities;—unclear sectoral responsibilities lead to incomplete solutions;—sustainable development notions are confused with sustainable pollution abatement.

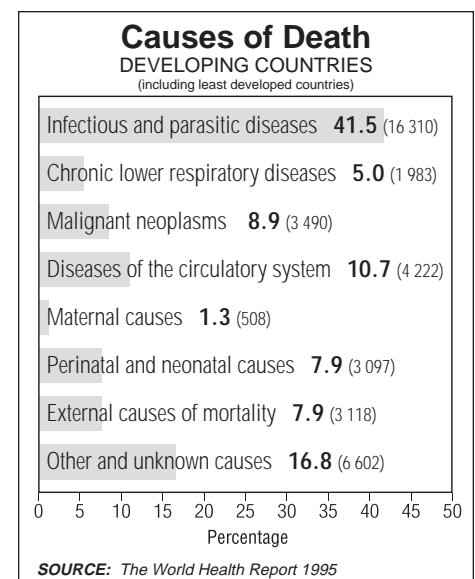
Leaving the door open for potential negative health repercussions is not sustainable development, even though it might be an admirable attempt at sustainable pollution control. In economic terms, to overlook environmental health is equivalent to setting national energy policies based exclusively on agriculture/industrial uses, coupled with their elasticities and externalities.

An innovative feature of the above study was to base the analysis on potential for solutions, as opposed to the more traditional approach of the incidence and prevalence of the problems. Thus the study showed the untapped power of interventions outside the health sector at improving health. In Sub-Saharan Africa, the top five burdens of disease are malaria, injuries, respiratory illness, diarrheas, tropical cluster (i.e., vector-related diseases), and the childhood cluster (mainly perinatal conditions). Collectively, these account for nearly

half of the total burden of disease, as measured in Disability-Adjusted Life Years (DALY), a socioeconomic measure of human suffering combining morbidity and mortality factors. In fact, thumbnail calculations showed that about 44% of the total burden of disease is amenable to infrastructure improvements. In other words, for all but the childhood cluster, infrastructure project interventions potentially could have a substantial impact, perhaps even greater than health sector interventions.

A wide range of potential interventions exists for targeted collaboration among the ministries of health and agencies which provide various public and private services. These areas of collaboration should be explored. In addition, the economic impact equivalent to the thumbnail of 44% for infrastructure interventions should be applied to other sectors, particularly agriculture and energy. Their potential repercussions are also potentially enormous, but the linkages to environmental health have been poorly studied. It is hoped that further study on such linkages will allow us to speak of an "estimate" rather than a "thumbnail calculation".

SOURCE: Jim Listorti, World Bank





GOOD NEWS

■ A fascinating new book on environmental security titled *If You Can Keep It: A Constitutional Roadmap to Environmental Security* (Westfield, New Jersey: Brass Ring Press, 1996), by Michael Diamond, who is both a lawyer and a poet, has been recently published for the American public. The author argues that the domestic violence clause in Article IV, Section 4 of the US Constitution can be used by American citizens to demand that the federal government protect the population from the harm caused by environmental degradation. The relevant clause from the Constitution reads as follows: "The United States shall guarantee to every state in this union a republican form of government, and shall protect each of them against invasion: and...against domestic violence." Diamond argues that the current environmental conditions within the United States constitute a "condition of domestic violence." The constitutional discussions are the most exciting part of the book. Unfortunately the examples of environmental degradation cited to illustrate the condition of domestic violence do not provide sufficient evidence to support this very interesting and potentially fruitful viewpoint. One wonders if the clause could have been invoked in specific situations by the victims of, for example, contamination by the Hanford nuclear power plant; or if overdevelopment of a natural resource such as wetlands consti-

tutes a breach of domestic security within a particular state. It appears that the author has taken on an almost impossible task in trying to prove that environmental degradation is so severe that a national condition of domestic violence exists. While this is an important drawback of the book, the basic premise remains engaging and certainly the book is worth reading. (Brass Ring Press, PO Box 2697, Westfield, NJ 07091 or 800-777-8145)

■ Small, portable clay cooking stoves can reduce by up to 30 to 40 percent the amount of firewood needed for daily cooking on open fires. The use of these simple and effective devices not only saves time for the rural women who collect the firewood, but also reduces the amount of smoke produced by traditional methods of cooking which in turn reduces the incidence of respiratory and eye problems. The charitable group Intermediate Technology runs a program in Kenya and Sri Lanka to teach potters how to make the clay cooking stoves and trains people in establishing small food processing businesses which includes the sale of foods cooked on the clay stoves.

SOURCE: *British Overseas Development, Issue 48, Sept./Oct. 1996*

■ The Jerusalem initiative is an attempt to develop indicators for monitoring and comparing the well-being of children in more economically advanced societies. The initiative which plans to make its recommendations in 1998, is sponsored by several national organizations including the National Council for the Child (Israel), the European Center for Social Welfare (Austria) and the International Youth Foundation (US). 35 experts from various child-related disciplines met in early 1996 in Jerusalem to begin the difficult task of formulating those indicators using the principles outlined in the Convention on the Rights of the Child. Some of the possible indicators are mental

well-being, risk behaviors, use of time, residential stability, crime by and against juveniles.

SOURCE: UNICEF, *Progress of Nations, 1996*

■ London's double-decker buses puff out clouds of carbon monoxide and nitrogenoxides, laced with minute particles of unburned fuel and soot from their aging diesel engines. This particulate matter has been blamed for as many as 10,000 deaths a year in Britain. The ideal way to reduce the emissions is a combination of low sulphur diesel fuel and a catalytic particulate-trap fitted to the exhaust pipe. Unfortunately, low-sulphur diesel costs 5 cents more per litre.

However, the solution comes from a Pinmore electronic oil-recycler which has a secondary filter controlled by a microprocessor. This filter consists of a pyramid of stainless-steel discs, the top one heats to 160°C and brings the oil to 120°C. As the oil trickles down, the light fractions evaporate, the oil's minerals stay behind and even an ancient bus can run for 60,000 kilometres without an oil change—six times the normal interval.

Tests run at Leeds University have indicated that emissions of pollutants such as particulates can fall around half in engines fitted with the filter which is going into mass production in China.

SOURCE: *Economist, Nov. 23, 1996*



Voices

■ *Environmental Heroes: Success Stories of People at Work for the Earth.* Kevin Graham and Gary Chandler, Boulder, CO: Pruett Publishing Co., 1997. One approach to examining environmental problems is to investigate the organizations and individuals working to solve them. This latest book on environmental issues, which focuses on the US for the most part, takes a look at some of the organizations and individuals who have dedicated themselves to protecting the environment and have reaped successful results for their endeavors. The book is divided into six thematic sections each organized into particular topics: recycling; people power which includes a chapter on youth, building political power, ecotourism and environmental education; natural resources; alternative energy; natural products which addresses environmentally friendly clothing, coffee production, business ethics, and medicines; and wildlife containing discussions of Indonesia and Africa. Each section ends with information on how to contact the organizations mentioned. World Information Transfer is one of the organizations that attracted the attention of the authors. The book not only serves to inform its readers about the successful efforts of the individuals and organizations discussed, but will likely enhance cooperation among groups to work together in continuing to solve environmental problems.

■ **World Information Transfer (WIT)** will hold its Sixth International Conference on *Health & Environment: Global Partners for Global Solutions*, United Nations Headquarters, New York City, April 17 and 18. The conference is co-sponsored by the Government of Chile. This year's theme is: *Environmental Degradation: Its Effect on Children's Health*. Because of United Nations security requirements, all participants must pre-register. For further information, please

contact WIT at 444 Park Ave South, Suite 1202, New York, NY 10017, USA; tel: 212-686-1996; fax: 212-686-2172; e-mail: wit@igc.apc.org

■ Commission on the Status of Women and Commission for Social Development

The 41st session of Commission on the Status of Women (CSW) will take place at UN Headquarters in New York from March 10-21, 1997. There will be an NGO consultation/briefing about the 41st session of Commission on the Status of Women on March 9, 1997, organized by the New York NGO Committee on the Status of Women, to which all participating NGOs are cordially invited. For further information contact the International Women's Tribune Centre, 777 United Nations Plaza, New York, NY 10017; tel: 212-687-8633; fax: 212-661-2704; e-mail: <iwtc@igc.apc.org>

The 35th session of the Commission for Social Development will take place at UN Headquarters in New York from February 25-March 6, 1997.

The following information on accreditation applies to both meetings announced above: On November 14, 1996, ECOSOC took the following decision (ECOSOC Res.1996/31): Those NGOs accredited to the Fourth World Conference on Women (1995), or the World Summit for Social Development (1995), must show that they have started the process of applying for consultative status no later than one month prior to the respective session, to be able to attend the 41st session of Commission on the Status of Women (March 10-21, 1997) and/or the 35th session of the Commission for Social Development (February 25-March 6, 1997). All inquiries regarding application for Consultative Status must be directed to the Chief, NGO Unit, Department of Policy Coordination and Sustainable Development, Room DC1-1076, United Nations, New York, NY 10017, USA; fax: 212-963-4968.

■ Commission for Sustainable Development (CSD)

The Intergovernmental Panel on Forests will meet at United Nations headquarters from February 10-21. Contact Mr. Jag Maini: tel: 212-963-3160; fax: 212-963-3463; e-mail: maini@un.org

The Ad Hoc Intersessional Working Group of the CSD will meet at UN Headquarters in New York, February 24-March 7.

The Fifth Session of the CSD will be held at UN Headquarters in New York, from April 7-25.

The special session of the General Assembly to review the CSD will be held from June 23-27.

Information on the work of the CSD is available on the World Wide Web at <http://www.un.org/DPSCD>

For further information contact the CSD secretariat at tel: 212-963-8811; fax: 212-963-1267.

■ An International Conference on AGRICULTURAL PRODUCTION AND NUTRITION will be held in Boston, Massachusetts, USA, from March 19-21, 1997, organized by Tufts University School of Nutrition Science and Policy and the Henry A. Wallace Institute for Alternative Agriculture. This conference will examine all aspects of the relationship between the quality/safety of food and the production systems used to raise it. Speakers from 15 countries will offer a total of 50 presentations. The conference is intended for researchers, farmers, consumer groups, the food processing and marketing industry, and agencies concerned with agricultural policy and public health. The proceedings volume from the previous conference, "Environmental Enhancement through Agriculture," is available. For further information contact: School of Nutrition Science and Policy, Tufts University, Medford, MA 02155, USA, or send an e-mail message to wlockertz@infonet.tufts.edu

■ The Galilee College, Israel, is offering full tuition scholarships to senior environmental officers and planners from developing countries and East European and CIS to our Environmental Management 3-week training program which is being held in English. Candidates should hold at least a B.A. degree and be fluent in English. Once admitted, the candidate will be granted a full tuition scholarship and thus, only the return airfare and the local living expenses are to be covered. This intensive program is being held 6 times a year. Interested candidates should write to: Coordinator, Admission Committee International Department, Galilee College, Tivon Israel 36000. fax: 972-4-9830227; e-mail: galilcol@netvision.net.il

■ The First European Conference on Sustainable Island Development will be held in Minorca, Spain, April 23-26, 1997. The conference is a cooperative endeavor between UNESCO, INSULA, the Spanish Ministry for Environment, the Minorca Island Council and the Government of the Balearic Islands. The goal of the conference is to design a permanent forum for effective inter-island cooperation for sustainable development. For more information contact the INSULA web site: <http://www.insula.org>; www.insula.org/conf/htm; cmarin@insula.org

■ The GAIA Project, in conjunction with Variations on a Wave production House, has produced a worthwhile video on sustainable development in El Salvador titled, *Trees, Toilets and Transformation: Inspirations from El Salvador*. This off beat and charming video takes the audience on a trip with Lorenzo, the Canadian narrator, to El Salvador to learn how Salvadorans are improving their environment. After learning about composting toilets, solar ovens and reforested land, Lorenzo returns to Canada inspired to become involved in sustainable development project in Canada. The video supports the notion that sustainable development efforts in the developing world can teach new ideas to individuals from

developed countries. The charm of the video comes from the wide eyed, bicycle-riding narrator who is refreshingly open to the initiatives taken by citizens of El Salvador. Produced in 1995, the video is 28 minutes long and available from The GAIA Project, 406 Vancouver St., Victoria, B.C., Canada, V8V 3T5; tel/fax: (250) 384-1534.

■ Hunger Relief and Development, Ukrainian-American Veterans Association and World Information Transfer have continued their shipments in December 1996 and January 1997 to Ukraine and Belarus with the assistance of Ukraine's Ambassador to U.S.A., H.E. Dr. Yuri Shcherbak. Hospital and medical supplies for neonatal and children's hospital divisions, and clothes and toys for orphanages were provided by VA Hospital and St. Raphael's Hospital in West Haven, CT, and donors who continue to aid the victims of the Chernobyl nuclear disaster of April 1986. The populations in the affected regions have seen dramatic increases in thyroid cancer and other malformations including birth defects. For further information contact: Dr. Christine Durbak, World Information Transfer, 212-282-1996; Mr. Julian Helbig, Adopt a Hospital Project, Ukrainian-American Veterans Association, 201-652-1511; Mr. Vito Mazza, Hunger Relief and Development, 203-936-3501.

■ The Washington based Worldwatch Institute has recently published its 1996 edition of the *State of the World: A Worldwatch Institute Report on Progress Toward a Sustainable Society*. The Worldwatch report points out that the "magnitude of human population growth" along with "spiraling human demands" for resources are outstripping the earth's renewal capacity. The report recommends environmental taxes on such damaging activities as mining and the burning of fossil fuels, recycling programs, and ending subsidies to ecologically destructive enterprises as a way to reorient our throwaway economies. The 250 page report ranges in topics from climate change to the

link between environmental justice and human rights. The book is also available as the 1996 Worldwatch Database Disk. For further information contact: Worldwatch Institute, 1776 Mass. Ave. NW, Washington DC 20036, USA.

■ *World Resources 1996-97: A Guide to the Global Environment* is a study put together for the first time by the collaborative efforts of World Resources Institute, the UN Environment Programme, the UN Development Programme and the World Bank. Leaders of the four organizations conclude in this report that if sustainable development is to be achieved, more urgent action is required in the areas of energy, climate change, urbanization, water resource management, equity and most importantly, financial commitments. The report notes the backsliding on the commitment to reduce carbon dioxide emissions is a "troubling retreat" from governmental pledges, and states, "Inaction speaks louder than words." The report can be obtained from The World Resources Institute, 1709 New York Ave. NW, Washington DC 20006, USA.

■ Society for Occupational and Environmental Health's 1997 annual Conference on Global Climate Change and Environmental Health: Implications for Interdisciplinary Research and Surveillance will be held March 6-7 at the Natcher Center, National Institutes of Health, Bethesda, Maryland. The conference will focus on the potential effects of climate change and ozone depletion on the current and future incidence of disease, heat stress, food and water supplies, air pollution, global health surveillance systems, disease prevention, medical and public health community educational, international cooperation, improving R & D strategies and public outreach to address these potential effects. Inquires: Society for Occupational and Environmental Health, 6728 Old McLean Village Drive, McLean, VA 22101; tel: 888-770-0900 or 301-496-0066; fax: 301-480-5982.

POINT OF VIEW *continued from back page*

[US Warner and UK: Bantam) is a world wide bestseller. The popularity among Americans of the book and movie, *Jurassic Park* by Michael Crichton has been interpreted as a psychological response to Americans' fears of HIV/AIDS and other egregious threats for which there is no known scientifically demonstrated defense.

What is required is the recognition that the greatest fear of all is the fear of change. Change requires flexibility and adaptability, characteristics which depend on the questioning of ideas—a central feature of both scientific reasoning and democratic process. These qualities have been important elements of the American character. Change in and of itself is insufficient. Making the dreams of human dignity, democratic ideals and environmental sustainability come true can only happen when the fears that paralyze are seen for what they are. If we recall Shakespeare's words from the *Tempest*, "What is past is prologue," we are reminded to build on the strengths of the current millennium by maintaining the primacy of scientific reasoning.

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**WIT'S
World Ecology Report**

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(ISSN #1080-3092)
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POINT OF VIEW: *Faith and Fear of the Future*

For those of us who operate on the Gregorian calendar, the second millennium is just three years away. The most important development of the current millennium soon ending is the ascendancy of scientific thought based on reason. Over the past thousand years, science gradually replaced beliefs in magic, superstition and divine intervention thus allowing for all of the theoretical and applied achievements in medicine, mathematics, the social and physical sciences, engineering, and the arts that have increased the human potential for development. Slowly over the same period, the authority of the individual gradually replaced the supremacy of god and the practitioners of magic. Scientific thinking is in a sense based on the individual's capacity to look at the world with wonder and skepticism, as the recently deceased eminent scientist Carl Sagan remarked in his last book, *The Demon Haunted World: Science As A Candle in the Dark* (New York: Random House, 1996).

It seems anachronistic that now in the last decade of the twentieth century, angels are making a come

back. To the believers, angels are appearing more and more in the every day lives of ordinary people. In a recent book *Omens of Millennium: The Gnosis of Angels, Dreams and Resurrection* (US: Riverhead Books, UK: Fourth Estate), the American literary scholar Harold Bloom refers to a survey showing that over 66% of Americans believe in angels and about one third claim to have had direct experience with the divine. According to the *Economist* (Dec. 7-13, 1996), Bloom interprets the US as a "nation of prophecy" with strong tendencies towards a belief in the direct experience with God.

In NYC in 1995 scientists and defenders of the scientific approach to knowledge convened a conference titled, *The Flight from Science and Reason*. Spurred by the growing arenas of belief in magic, including experiences with the angels and other representations of the supernatural, extraterrestrial encounters, and the growing respect for anti/or pseudo science, this conference looked at the various assaults on scientific thinking and recognized that science's approach to the acqui-

sition of knowledge and truth is linked to democratic processes. Conversely, one could argue, anti-science is associated with autocracy. Why now at the approach of the millennium are more and more people around the world embracing non-scientific modes of thought and beliefs in magic as their means to knowledge?

The answer may lie in the fears that grip individuals by a feeling of helplessness. The world is challenged by frightening problems so overbearing that many have lost a sense of hope in the future. Hope is psychologically required to prevent depression; therefore, belief systems which offer easy answers to events as yet unexplained by science fulfill the emotional need. One's belief can function as the means to manage otherwise overwhelming trepidation about future survival. The angels will give me guidance, while the ancient manuscripts contain the answer to our nightmarish world. *The Celestine Prophecy* about the search for an ancient Mayan document that contains insights into the secret of life, by James Redfield

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"Never doubt that a small group of thoughtful committed citizens can change the world. Indeed it's the only thing that ever has."

Margaret Mead
