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# World Ecology Report

Critical Issues in Health and the Environment

Knowledge brings new choices. Education brings new knowledge.

## SPECIAL FOCUS

# Production, Consumption and Degradation

This issue contains the final group of papers from World Information Transfer's (WIT's) Ninth International Conference on Health and Environment: Global Partners for Global Solutions held at the UN in April 2000. The theme of last year's conference focused on "Solutions for the Millennium." Examining solutions from the economic perspective evolved into the theme for WIT's 10th International Conference to be held at the United Nations in New York on April 25, 26 and 27, 2001. This year's conference will address the Economics of Health and Environment. As April 26, 2001, marks the 15th anniversary of the Chernobyl Nuclear Disaster, the second day of the conference will be devoted to Chernobyl and its aftermath. The conference papers presented here bridge the themes of solutions and the economic perspective affecting environmental degradation and health. We are reminded that private citizens and public leaders have the power to choose whether to safeguard or squander the natural resources supporting human health.

From the Preamble to Agenda 21 (UN Conference on Environment and Development, Rio de Janeiro 1992)...

*"Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own; but together we can—in a global partnership for sustainable development."*

## **Production, Consumption and Environmental Degradation**

Dr. Johan Schölvinck  
Chief, Policy Coordination  
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and Social Affairs (DESA)

Let me at the outset tell you that I shall approach my topic from the point of view of an economist which may cause some unease among the environmentalists. Environmentalists are suspicious of economists because an economist thinks in terms of costs

and benefits while for a true environmentalist no amount of environmental damage is acceptable. Economists tolerate some damage because the cost of avoiding all damage is simply too high. As long as there are people, there will be production and consumption. When, in addition, there are over a billion people living in abject poverty, production and consumption and, consequently, economic growth will have to increase. Without economic growth, all things suffer in developing countries; what has to change is the content of that growth.

In this presentation, I will touch on three points. First, I will provide some context in which production and consumption behavior takes place by contrasting the quality of life of the poor with the life styles of the affluent. Next, I will address some of the policy options available to Governments to change the behavior of producers and consumers. And finally,



**Kyrgyzstan's goal: Reducing poverty**

**SOURCE:** *Choices*, UNDP, September 2000, pg. 22

I will take up some aspects of the international dimension because as economies grow, environmental problems are becoming increasingly global in nature calling for international cooperation.

**First point:**

More than one billion people live in absolute poverty and suffer a severe lack of access to resources—education, health services, infrastructure, land and credit—required to give them a chance for a better life.

About 1.3 billion people, mostly in developing countries, live in urban areas that do not meet WHO standards for airborne dust and smoke. Globally, one out of five individuals live in cities that exceed WHO standards for sulfur dioxide. One third of the world's population has inadequate sanitation, and one billion people go without safe water.

In many developing countries, indoor air pollution ranks not far behind poor urban air quality as a cause of respiratory ill health. Some 300 to 700 million people, mostly women and children, suffer from severe indoor air pollution from cooking fires.

These environmental problems facing developing countries—unsafe water, inadequate sanitation, indoor smoke from cooking fires and outdoor smoke from coal burning—are different from and more immediately life threatening than those associated with the affluence of rich countries such as CO<sub>2</sub> emissions, depletion of stratospheric ozone, photochemical smog, acid rain, and hazardous waste, issues which impinge on the welfare not only of the current but also of future generations.

For many developing countries, the notion of intergenerational equity is often meaningless. In a poor country, grow-

ing food today may mean leaving a desert for tomorrow. Does that mean today's farmers should starve to leave something for their children or, as one African leader put it some years ago: "To ask us to plan for our survival tomorrow when our society today is in doubt is to demand too much of us, for it is only when we can survive today that we can talk of tomorrow."

Indeed, to leave to future generations the resources to meet their needs is easier to imagine in rich countries whose populations are no longer growing. In the European Union, where the population in 2025 may be smaller than it is today, intergenerational equity may have some meaning; in a poor sub-Saharan country, which will have more than three times as many people, it does not.

The question which now arises is should today's about 6 billion people assume that they leave the almost 10 billion people by 2050 the same stock of resources in absolute terms? Or should it be per person, which means somehow increasing that stock while the demand for resources grows?

It is unrealistic to assume that the poor do not aspire to the lifestyles of the affluent. Many of the products that harm the environment have made life easier for people: washing machines use more water than hand washing but mean less work; plastic packaging preserves food longer and means fewer shopping trips; chemical herbicides kill pests more quickly than endless weeding. Above all, disposable products have frequently brought large increases in convenience, at a cost of extra pressure on the environment. Disposables save labor and, as labor costs rise, disposable products of all kinds will become more attractive. No matter how much environmentalists will lament the "throw-away" society, powerful economic forces will continue to encourage it.

Consumers are strongly influenced by—and in turn influence—advertising and other economic and structural mechanisms controlled by business and government. While there is a growing desire among these actors to move towards sustainable consumption patterns, getting the world onto a sustainable consumption trajectory might none the less take decades. Current capital stock of physical infrastructure in housing, energy, transport and waste management may lock societies into unsustainable patterns of consumption and production over which individual consumers have little influence. Furthermore, cultural habits and value systems may also impede rapid progress in achieving sustainable consumption patterns.

This underscores the need for continuing the traditional emphasis on the supply side, while complementing it with strengthened efforts focused on the demand side. The increasing emphasis on consumers also reflects the conviction that changing consumption habits and lifestyles will eventually persuade manufacturers to develop new products and new production processes.

The inequality in individual consumption levels and living standards between the poor and the affluent will persist for many decades, even on favorable assumptions about economic growth in developing countries. Narrowing

these gaps, while protecting the planet's natural resource base and ecosystems, pose a key challenge to achieving sustainable production and consumption patterns.

Because, as poorer countries industrialize, get richer, and buy cars and refrigerators, their capacity for environmental damage will overtake that of the rich world, simply because they have more people, thus overwhelming efforts to stop the built-up of CO<sub>2</sub> and damage to the ozone layer.

Therefore, achieving sustainable development at a global level will depend critically on the development trajectory followed by the developing countries whose consumption levels are relatively low. It is, therefore, essential that developed countries be able to demonstrate that resource efficient, low pollution lifestyles are both feasible and desirable. At the same time, their efforts to change current consumption and production patterns must not hinder the development prospects of developing countries—for example through the creation of new barriers to trade or new forms of conditionality.

**Second point: Changing behavior of producers and consumers**

The behavior of polluters and resource users can be influenced in two main ways: by stipulating standards and regulations (command-and-control policies) or by pricing additional pollution or additional resource use (incentive-based or market-based policies).

Industrial countries have been slow to adopt market-based strategies, in part, because environmentalists contended that degrading the environment was unacceptable at any price, but more important because corporations feared that they would have to adopt emissions standards and pay charges on the remaining emissions. Most now agree that market-based instruments have been underutilized. They are particularly promising in developing countries, which cannot afford to incur the unnecessary extra costs of less flexible instruments that have been borne by the industrial economies.

The usual way governments have been tackling environmental damage is by prohibiting companies or individuals to conduct polluting behavior. Governments pass laws, set standards, promulgate bans, and enforce regulations. Such policies present a paradox. For although they are popular, because governments know what they want, people know what they are getting and companies know what they are to do, they are rarely the most cost-effective way to clean up. Other policies, for example taxes and tradable permits, provide better environmental protection and at a lower cost.

It is essential that the standards are realistic and enforceable. Many developing countries have set unrealistically high standards but have enforced them only selectively. This wastes resources, facilitates corruption, and undermines the credibility of all environmental policies. It is better to have fewer and more realistic standards that can be implemented.

Another problem with regulation is that it not only sets a floor but also creates a ceiling. There is no incentive to dis-

charge less pollution in, say, a local river than the regulations allow; and no entrepreneur has an incentive to devise technology that brings down pollution below the regulation minimum. Command-and-control often means dictating the technology that polluters must use to clean up. Doing this properly means that emissions standards need to be set in the light of a balance between the marginal costs of the damage caused by the main pollutants and the marginal costs of reducing such emissions. But this knowledge is rare and certainly no better within a government.

Despite all these drawbacks, it is often politically easier to use regulations rather than economic incentives. The reason is that while the costs imposed by switching to such incentives fall on relatively few polluters, the benefits are dispersed across large numbers of people. The former will protest noisily while the latter may not even notice that they are better off.

One alternative to command-and-control is charging, or imposing a tax or levy. In theory, such charges are a way of imposing on polluters the external costs that they otherwise impose on the environment. Polluters can then decide for themselves how far to meet such charges by changing their behavior, and by new investment. Regulations, by contrast, leave these decisions to regulators, who are rarely well informed about the relative costs and benefits faced by users.

Economic instruments have several other strengths. For example, they can affect the behavior of millions of people in a way that may be impossible with standards. That effect will become more important, the more governments realize that pollution is the result of millions of decisions by many individuals and small businesses, rather than by a few large and readily regulated companies. To levy taxes, governments require much less information about the costs of



**The U.S. and Europe disagree on how to count forests, which act as a sink for carbon dioxide released when factories and cars burn fossil fuels.**

**SOURCE:** *Scientific American*, February 2001

curbing pollution. The fact that economic instruments do not require detailed information about the costs facing individual polluters in order to work has another advantage: it means that they are less vulnerable to collusion between regulators and regulated.

Furthermore, in the long run, economic instruments offer companies and individuals a continuous argument for going further than a standard would demand. If companies pay a higher rate for every ton of toxic waste dumped, that will have an incentive to use as little toxic material as possible, and look for new processes that use none at all. If taxes on fuel use are high, individuals have to drive frugally all the time, and to replace their car with one that uses less fuel, whatever the standards say.

Unfortunately, despite the sound theory, in practice, governments usually see charges mainly as an adjunct to regulation, rather than an alternative. Typically, charges are a way to raise revenue to pay for regulators. Moreover, charges are usually set too low to have much effect on the behavior of people or companies. Of course, a charge can always be increased but governments loath having to tax more.

Environmental taxes are also often seen as a new revenue source by governments. But in that there arises a paradox: if a tax successfully reduces polluting behavior on which it is levied, its yield will diminish. So, a pollution tax might give government a vested interest in continued polluting behavior. However, an enlightened government should tax pollution at that point, where the costs of its prevention equals or is about to exceed the benefits of greater environmental protection. Because such taxes might often be levied on basic materials—water or energy consumption, for instance—they could yield a lot of revenue before they reached the point at which people changed their behavior.

But there are bigger problems. The revenue that environmental taxes raise represents an increase in the costs to polluters. For companies, the counterpart of those extra government revenues is a rise in their costs, which inevitably makes them less competitive against companies that bear no such burden. For individuals, the counterpart is also a rise in costs, which is why governments worry about the inflationary impact of environmental taxes. Moreover, since such taxes would generally be flat-rate they would, like all indirect taxes, tend to hurt the poor proportionally more than the rich.

Still, it would seem that many environmental problems can be solved by local and national actions. These include in particular poverty induced environmental stress but also those due to relative affluence such as water and air pollution. However, as economies grow, the initially local problems increasingly become transboundary and even global in nature.

#### **Final point: International Cooperation**

Although by no means simple, it none the less appears that the "easy" environmental problems are those that countries can solve for themselves. The difficult ones will

require international cooperation.

However, the common interest will not be served if international environmental issues that are mainly of concern to developed countries are allowed to divert attention and resources from the problems of lack of development. In addition, if developing countries are to meet the environmental concerns of the developed world, they may reasonably expect to be paid for doing so. The right balance can be achieved, but only if the world leaders are prepared to act responsibly and pragmatically.

Over a billion people in the developing world live in poverty, and poverty both of people and of countries is a major cause of environmental degradation. The developing world fears that elaborate and sophisticated environmental considerations could aggravate present miseries in their countries. In fact, many of them view the current concern about the environment as another form of hidden conditionality. Or worse, developing countries perceive the developed world's environmental concerns as an obstacle to their aspirations of reaching material well being.

For example, the recent emergence of eco-labeling schemes in developed countries, although aimed at increasing consumer knowledge and changing consumer behavior, has caused a number of concerns in developing countries over production, trade and environmental protection. A key feature shared by most eco-labeling schemes is the requirement concerning the producer's use of raw materials and production processes because of the related environmental effects. Given the technological gap as well as different geographical and ecological conditions, producers in developing countries may often find these criteria difficult to comply with, in terms of both technological capacity and adverse effects on cost competitiveness.

An important subject in this area is technology transfer. The need for sharing technological progress arises from both equity concerns and the transboundary nature of global environmental problems, such as global warming and ozone depletion whose solutions call for international cooperation and collaboration. But there is also a longer-run consideration—the ever-widening technological gap between developed and developing countries. With the enactment of new environmental laws and the consequent adoption of new standards in industrialized countries, developing countries are faced with increasing difficulties in maintaining and enlarging access to global markets. In the short-to-medium terms, technological cooperation holds the key to improving the technological capacities of many developing countries. The developed countries, which account for some 90 per cent of the world market in environmental technologies and products, bear special responsibilities in this respect and the need for more rapid diffusion of clean technologies in industrialized countries and their transfer to developing countries is an urgent priority. Transnational corporations in developed countries, both as the principal innovator and repository of environmentally sound technologies, have a unique role to play.

Compared with the developed countries, the developing

world produces only a small fraction of global pollution; but this fraction will increase. Sound policies alone will not be sufficient to counteract this increase particularly in demand for energy. In this regard, developed countries should assist developing countries to adopt energy-efficient technologies. Well-directed aid is one way to achieve that. Far more important though, will be to accelerate the adoption of energy efficient technology in the industrial world. Once industrial countries ensure that their energy prices capture the full weight of environmental costs, then not only their companies but also the companies in the developing world will manufacture products that use energy frugally.

Taxing energy use, however sound from a macroeconomic point of view, has distributional consequences. And it is the distributional consequences of tackling global warming on a national and international scale that will most impede an effective international agreement. The bigger the tax, the wider the range of impacts.

Internationally these impacts are particularly pronounced. A tax large enough to be really effective would have a sizeable effect on trade flows, the structure of production and government revenues. The costs of abating CO<sub>2</sub> emissions vary enormously around the world. Any agreement that set uniform targets for reducing CO<sub>2</sub> would need some provision for countries to trade their quotas for producing the gas. Otherwise, the target would be very expensive for an efficient country but quite cheap for an inefficient one. Trading between such countries would allow the efficient country to pay the inefficient country to make major improvements in its efficiency, rather than trying to make smaller ones at high costs.

This so-called "sharing out the carbon budget" would mean allocating a larger share to the developing world to accommodate its growth. A while ago it was calculated that if under such a regime rights to emit were sold at say \$25 per ton of carbon, the industrial world would have to pay the developing countries about \$70 billion to afford one year's emissions. Such a sum exceeds current total Official Development Assistance or ODA.

There are other ways in which lack of international cooperation can harm the environment, especially in the developing world. When developed countries impose tariffs and quotas on the manufactured goods produced by poor countries, they condemn the poor to more environmental damage. Trade restrictions nearly always fall on labor-intensive goods; hardly ever on noncompetitive unprocessed raw materials. Therefore, trade liberalization is an important ingredient for environmental protection, notwithstanding what the protesters in Seattle were claiming to the contrary.

### Let me conclude by posing two questions

Can countries afford to protect the quality of their environments? For many countries, the proper question is the opposite: can they afford not to? It would seem clear that the answer to the second question has to be: no. But the

answer to the first question depends on the policies pursued not only by national authorities but also especially by the international community. With globalization all pervasive and especially pronounced in the environmental arena, the UN will have to play a central role in answering the first question in the affirmative.

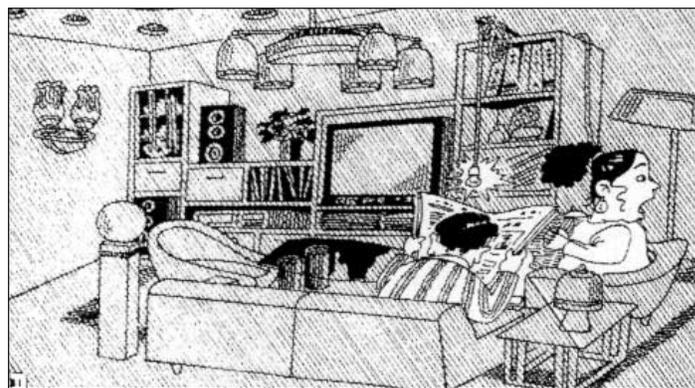
### **Clean, Renewable Energy and Transportation Without Greenhouse Gases**

*Dr. Terry R. Galloway*  
President, INTELLERGY Corporation  
Berkeley, California

In this paper we show a series of demonstration projects underway that will pave the way to future communities that are supplied with clean and efficient energy and have their waste reformed into hydrogen and co-producing useful chemicals. The demonstrations start with salvaging old coal plants and applying new technology breakthroughs where coal can be fully utilized as an important energy and chemical resource without troublesome emissions of carbon dioxide (CO<sub>2</sub>) and without the typical problems of Nox, sulfur, and other particulate emissions. By aggressively retrofitting only 285 of our old [1000 Mwe] coal plants, 15% CO<sub>2</sub> reduction of 200 million tons of CO<sub>2</sub> can be met by 2010—the goal of the European Nations. We calculated typical 3-year paybacks for such plants.

Next we show how solar photovoltaic collectors can be used to drive electrolysis units to produce hydrogen and oxygen to further increase the efficiency of a steam-reforming waste-to-energy plant and where hydrogen can be used to manufacture useful chemical products.

Finally, through the use of steam-reformer/gasifiers that produce hydrogen-rich syngas, the hydrogen can be extracted and stored by metal hydrides; thus, enabling hydrogen fuel cell vehicles that only emit steam from their tailpipe. These technologies are the first steps toward a worldwide hydrogen economy.



*"We can afford the lamps, but we can't afford the electric power."*

SOURCE: World Press Review, July 2000

## CHERNOBYL UPDATE

# Minor Fault in Ukraine Nuclear Reactor Leads to Shut Down

KIEV, Jan. 11 (AFP)\*

A reactor in Europe's largest nuclear plant in southern Ukraine was shut down January 11, [2001] after a minor fault was found in its cooling system. The fault in reactor number five of the Soviet-era Zaporijia nuclear plant was not considered serious and no rise in radioactivity levels was detected. Zaporijia has a total of six reactors that provide around 25 percent of the Ukraine's energy needs.

News stories like the one above send chills up the spines of people concerned that nuclear energy might regain some of its appeal in the United States. The nuclear energy industry remains fraught with known dangers clearly expressed in nuclear accidents like Three Mile Island in the US in 1979 and Chernobyl in Ukraine in 1986, the scene of the world's worst nuclear disaster. However, as time passes, the urgency of nuclear safety tends to be less important than the low cost of fuelling business and home.

The energy hungry American economy is currently experiencing a power shortage as shortages in California demonstrate. Since the US has become dependent on foreign oil supplies governed by OPEC, as the cost of natural gas has risen and as coal emits CO2 and is the least clean energy source although it is cheap, nuclear power might again look attractive in the US.

Current energy shortages result from the end of an energy surplus that had existed for about two decades through the early to mid 1990s combined with an increased demand for power. As American summers have grown hotter in the past decade, seasonal demand for air conditioning has increased and power outages have occurred, for example, in the states of Illinois and New York. According to recent figures from the Energy Information Administration (EIA), energy demand in the United States will continue to increase by about 40 percent over the next 20 years. At the same time, the EIA projects that 25 percent of current U.S. generating capacity will have to be replaced.

After the Three Mile Island accident in March 1979, nuclear power in the US lost public support. The backlash that occurred as a result of that accident made it difficult to construct and license a nuclear plant. It took about 12 years to get a nuclear plant operational in the 1980s, more than twice as long as it took before 1979. The high capital costs,

**CHERNOBYL UPDATE** (continued on page 14)

\*Energy Central News, Jan. 11, Copyright © 2001 by CyberTech, Inc.

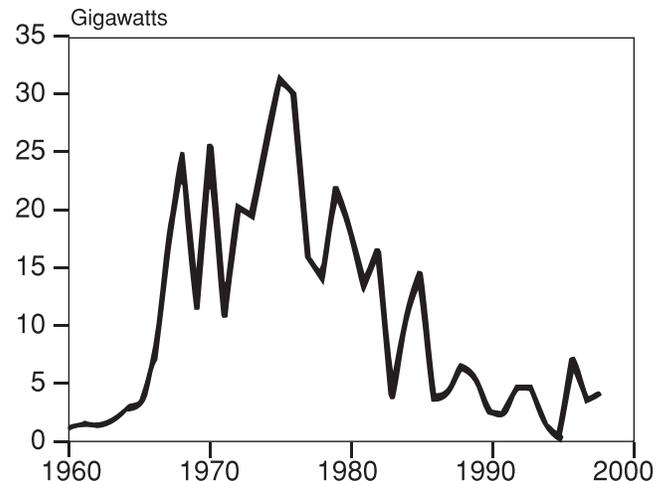
### Leading Nuclear Nations

Country	Capacity (megawatts)	Share of Electricity (percent)	Status
United States	95,728	20	Nuclear orders stopped in 1978. Capacity peaked in 1996. No plants in construction.
France	61,653	78	Just one plant still under construction. Nuclear moratorium adopted in 1998.
Japan	43,269	35	Nuclear construction has slowed, but continues at two plants.
Germany	20,798	32	No plants under construction. Government elected in 1998 plans to gradually phase out nuclear power.
Russia	19,843	14	Nuclear capacity has declined since economic reforms began. Construction has stopped.
South Korea	11,380	39	Six reactors under construction. Public opposition is rising.
China	2,100	1	Eight reactors under construction. Additional plants delayed in early 1999.

SOURCE: World Watch, July/August 1999

### World Nuclear Reactor Construction

Starts, 1960-98



SOURCE: World Watch, July/August 1999

## HEALTH AND ENVIRONMENT

# United Nations Environment Programme on Health and Environment

*Statement delivered by Mr. Ahmed Djoghlaif, Executive Coordinator of UNEP's Global Environment Facility (GEF) Coordination Office, for United Nations Environment Programme (UNEP) during World Information Transfer's Ninth International Conference on Health and Environment: Global Partners for Global Solutions*

The search for effective *Solutions for the Millennium* espouses a desperate sense of urgency when we consider the appallingly number of people afflicted with preventable illnesses and of premature deaths, for which environmental factors are often principal contributing causes. We are all confronted with startling figures: infectious diseases cause approximately 37% of all deaths worldwide, with an estimated 40% of deaths attributable to various environmental factors, especially organic and chemical pollutants; 1.3 billion humans live in absolute poverty; and 2.5 million infants and children die each year from diarrhea.

In our panel discussion this morning, as we consider the *Governmental* aspects of the *Solutions for the Millennium*, I would like to devote my remarks to the intergovernmental actions that the United Nations Environment Programme (UNEP) plays a role in catalyzing, facilitating, crafting and implementing in order to address the critical inter-linkages between human health and the health of our environment.

Clearly, the definition, negotiation and creation of various legally binding conventions and protocols in the field of the environment represents an outstanding achievement of the international community, signaling a collective will and commitment to protecting the environment and, by extension, human health. Through the development of this expanding body of environmental law, we have been able to craft innovative responses, building and enhancing processes to address the most pressing environmental challenges which threaten human health. This body of international environmental law is creating a web of safeguards to protect the environment and human health. Today, I would like to provide you with an overview of recent progress that has been made in these various intergovernmental processes, and through the environmental health-related activities that are infused throughout UNEP's integrated program of work.

In August 1999, recognizing the need to forge stronger partnerships to combat the increasing threat of environmentally linked diseases, UNEP's Executive Director, Dr. Toepfer and Dr. Brundtland, the Director-General of WHO, signed a Memorandum of Understanding (MoU) in the field of Environmental Health, thereby pledging to pool the strengths of both organizations. The MoU serves to cement our already long-standing cooperation through a series of joint efforts in the field of monitoring and assessment of air,

water and food contamination by physical, chemical and biological agents; environmentally sound management of chemicals; and the environmental and health impacts of global environmental change. Collaborative activities are envisaged in the areas of climate change, global surveillance of environmentally caused diseases, environmental health of the people in the Arctic region, environmental emergencies, and health and environmental effects of transport. We will also work to undertake health and environmental assessments of proposed policies and programs, in order to evaluate the relationship between health, environment, development and economics, and integrate environmental health into national economic policies, legislation and management. Cooperation in a number of fields is also being strengthened; such as screening of chemicals before they reach the market, programs that improve water quality, and research on the effect of climate change on human health.

In this regard, UNEP and WHO, along with WMO, will be hosting an International Conference, in July [2000], on *Climate and Health in Small Island Developing States (SIDS)*, to be held in Fiji. SIDS are likely to be among the most vulnerable countries in the world to the effects of projected climate change, with many direct physical and ecological threats that pose significant risks to human health and welfare. The conference will aim to help inform stakeholders in SIDS, particularly in the Pacific region, about the potential health vulnerabilities, as well as measures that can be adopted to reduce the risks from present climate variability (for example, El Niño), as well as risks from sea level rise. It is also worth highlighting that UNEP is working with WHO, and various other partners, to support a project spearheaded by Harvard Medical School's Center for Health and the Global Environment, which aims to produce a comprehensive assessment of the various dimensions of biodiversity's importance for human health.

It is significant to note that at the beginning of this month the Group of Eight (G8) Environment Ministers, at their annual meeting held this year in Japan, which UNEP's Executive Director was able to attend, discussed Environment and Health as one of its four main issues. In their communiqué, they underscored that the protection of human health from the effects of pollution and other forms of environmental degradation is an issue on the forefront of citizens' concerns. They attached high priority to protecting children, pregnant women, the elderly and others, who are disproportionately susceptible to the effects of environmental degradation, as they establish environmental guidelines, criteria and standards. Significantly, they also pledged that their policies should be based on the *Precautionary Approach*, as set forth in Rio Declaration on Environment and

Development, adopted at the Earth Summit in Rio in 1992. The *Precautionary Principle* explicitly recognizes that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

This principle has been embedded in the recently adopted "Cartagena" Biosafety Protocol to the Convention on Biological Diversity (CBD). This is particularly significant from a health and environment perspective, as it is the first global treaty that reaffirms, incorporates and operationalizes the precautionary principle. The protocol outlines procedures to deal with issues arising from the transboundary movement, transit, handling and use of genetically modified organisms (GMOs), and commodities containing them, that may adversely affect the conservation and sustainable use of biodiversity or pose risks to human health and the environment. The precautionary principle is reflected in a key provision of the protocol which states that countries do have not to have complete "scientific certainty" to block imports of a GMO they fear could be harmful to biological diversity and, by extension, human health.

As we are all aware, biotechnology has been one of the most fiercely debated issues over the past year. Public concern about possible health and ecological risks of foods made with biotechnology has intensified in Europe and has spread rapidly to other countries, including the US. Proponents contend that biotechnology could help feed the developing world, cut costs and reduce the need for pesticides. Detractors say the health risks of the fledgling technology are unclear and the environmental hazards potentially alarming. These public concerns were reflected in the long

and often difficult and tense inter-governmental negotiations that led to the conclusion, in January, of the Cartagena Protocol. For while many of the countries with modern biotechnology industries have domestic legislation, no binding international agreements existed to cover Living Modified Organisms (LMOs). Another concern was that many developing countries lack the technical, financial, institutional and human resources to address biosafety, and that they need greater capacity for assessing and managing risks, establishing adequate information systems, and developing expert human resources in this field. The agreed text of the Biosafety Protocol will be opened for signature at UNEP headquarters in Nairobi from 15 to 26 May, on the occasion of the Fifth Session of the Conference of the Parties to the CBD. The Protocol will then enter into force for its members after 50 countries have ratified it.

Significant headway has also been made over the past year with regard to the inter-governmental negotiations, being carried out under the auspices of UNEP, to reach international agreement on a global treaty which aims to ban the so-called "dirty dozen" list of Persistent Organic Pollutants (POPs). The twelve POPs, including DDT, PCBs, and dioxins, are considered among the most dangerous of all toxic chemicals, because they have been linked to an array of adverse health effects, including birth defects, cancers and damaged reproductive and immune systems. POPs have been found even in Arctic species, thousands of miles from the source of the pollution. POPs persist for long periods and accumulate in living species, becoming more concentrated in fatty tissue as they move up the food chain and with time. These toxic contaminants can then be passed on to the next generation through breast milk. Because these POPs endanger human health and the environment from one generation to the next, countries must be compelled to negotiate a treaty that can withstand the test of time, to secure the health of future generations, and the integrity of the chain of life.

The fourth round of inter-governmental negotiations held in March 2000 made important progress on a number of key issues, and reaffirmed the eventual elimination of those twelve POPs as the goal of the Convention. They also stressed, subject to periodic review, the need to include public health exemptions, inter alia, for use of DDT in controlling malaria mosquitoes, as countries adopt alternative chemical and non-chemical strategies and reduce reliance on DDT. Intensive discussions also laid the basis for deciding on technical and financial assistance at the last round of negotiations, to be held in December 2000 in South Africa. While a number of contentious issues are outstanding, it is considered that negotiators are now in a good position to reach agreement on the treaty by the end of 2000, the deadline mandated by UNEP's Governing Council.

UNEP is also undertaking a number of immediate actions against POPs in advance of the treaty, including various workshops at the regional level. For example, despite increasing evidence of the harmful health and environmental effects of POPs, some countries in the Asia-Pacific region

### Public and Private Health Expenditure

	Health Expenditure		Health Expenditure
	Public % of GDP	Private % of GDP	per capita PPP \$
<b>World</b>	<b>2.5</b>	<b>2.7</b>	<b>527</b>
<b>Low income</b>	1.0	3.2	52
<b>Middle income</b>	2.4	2.0	183
Lower middle income	2.2	1.7	119
Upper middle income	3.0	3.1	427
Low & middle income	1.8	2.5	133
East Asia & Pacific	1.8	1.8	118
Europe & Central Asia	3.9	1.0	279
Latin America & Caribbean	2.6	3.7	412
Middle East & N. Africa	2.3	2.4	176
South Asia	0.8	3.8	57
Sub-Saharan Africa	1.7	1.5	82
<b>High income</b>	<b>6.0</b>	<b>3.6</b>	<b>2,280</b>

**SOURCE:** UNFPA, *The State of the World Population 1999*

continue to produce and use significant amounts of the toxic chemicals. As such, last month, UNEP, FAO and WHO sponsored a workshop for South-East Asian countries, which for the first time brought together officials from health, agriculture and environment agencies to discuss the problems caused by using pesticides such as DDT to control disease vectors and crop pests. In this manner, UNEP is able to act as a broker of ideas, bringing together three sectors to identify practical ways of improving crop yields and community health while reducing the use of pesticides, so as to achieve mutual benefits through cooperative strategies that are ecologically sustainable. UNEP is also undertaking direct steps towards establishing national means for managing persistent toxic substances, which pose a danger to human health and the environment around the world, including a project, funded by the Global Environment Facility (GEF), which is assessing national needs for managing persistent toxic substances in representative countries.

Progress has also been made with regard to the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, which was adopted in September 1998 and signed by 73 States. The Convention, for which UNEP and FAO provide the Interim Secretariat, will enter into force when 50 States have ratified it, which is expected in 2002. It is important to recognize that the States that developed and reached agreement on the Rotterdam Convention did so in record time because of their clear concern for health and the environment. For the same reason, they acknowledge that it is vital to start its operation immediately, implementing the PIC procedure in the Convention on a voluntary basis until it comes into effect. Chemicals and pesticides subject to the PIC procedure cannot be exported unless the importing country is made aware of their dangers and gives explicit consent, thereby protecting human health and the environment. Earlier this year, the Interim Chemical Review Committee, which is crucial for the successful operation of the Rotterdam Convention, met to formulate recommendations to guide future action to implement the Convention, thereby offering greater safeguards for the well being of people living today and generations to come. Its purpose is to make recommendations on the inclusion of banned and severely restricted chemicals or hazardous pesticide formulations in the PIC procedure.

UNEP has also been continuing its work to combat the effects of lead exposure on human health. There is a firm consensus among Governments, the lead and automotive industries, and health experts that gasoline should not contain lead. This consensus began to build in the 1970s, when the first health effects from exposure to airborne lead were suspected. Since that time, additional studies have confirmed that any absorption of lead into the body has detrimental effects, particularly on the early development of nervous systems in children and fetuses. With the knowledge of potential health effects, many Governments have established programs to completely eliminate the use of lead as a gasoline additive. In 1999, unleaded gasoline accounted for 80%

of total worldwide sales. In a significant portion of the remaining 20%, the lead content has been reduced, generally at very low cost. The benefits, however, have been substantial, as lead can be removed from gasoline without harm and with net economic benefits. Still, millions of people in Asia, Latin America, and particularly Africa are still exposed to unacceptable levels of airborne lead. In response to this, UNEP and the Organization for Economic Cooperation and Development (OECD) recently released a publication entitled, *Phasing Lead out of Gasoline*, which aims to help policy makers select the best options and programs for reducing and eventually eliminating the use of lead in gasoline. It provides guidance on the various policy options available, including fuel distribution, vehicle manufacturer approaches, and the importance of correct tax or pricing policies, highlighting experiences from different countries.

UNEP has also undertaken a number of activities over the past year to help protect human health in environmental emergency situations. For example, in May 1999, UNEP's Executive Director set-up a joint UNEP/UNCHS (Habitat) Balkans Task Force (BTF), to assess the environmental and human settlement consequences of the Balkans conflict. In its assessment report, *The Kosovo Conflict—Consequences for the Environment and Human Settlements*, released October 1999, the BTF concluded that pollution detected at four environmental "hot spots" in Serbia is serious and poses a threat to human health. As such, as part of the second phase of BTF, a group of international scientific experts recently worked on detailed environmental clean-up feasibility studies, and conducted an analysis of the specific activities and technical requirements at the four sites. An important development worth highlighting in this context is that urgent environmental problems have been recognized and tackled as part of the overall humanitarian assistance operation in the region. In this regard, in November 1999, as part of the UN Office for the Coordination of Humanitarian Affairs (OCHA) consolidated inter-agency appeal for 2000, a US\$17 million appeal for environmental priority emergency projects in the Federal Republic of Yugoslavia was launched.

Through the work that UNEP is undertaking, with our partners, under the guidance of the decisions that are taken by the Governments that serve on our Governing Council, and through the various inter-governmental processes that are serving to weave a web of safeguards to protect the physical environment, and by extension, human health, we are working towards an effective set of Governmental Solutions for the Millennium. However, progress can only be made if we strive together, the UN system, the non-governmental community and the private sector, to foster inter-sectoral cooperation at the local, national, regional and international levels to promote environmental health. As we witness the unprecedented pace of development underway throughout much of the world, we must seize opportunities to reduce environmental risks, save resources, and protect public health, so as to lift the unacceptably high—and preventable—environmental health burden, and move towards a development that is truly sustainable.



## GOOD NEWS!

■ Indonesian children should benefit from two initiatives. The Netherlands announced a \$1.2 million grant for child protection programs through Unicef. Six million Indonesian children ages 7 to 15 dropped out of school following the 1997 economic crisis. About 70,000 of them, mostly girls, were pushed into prostitution, according to Unicef. The grant allows

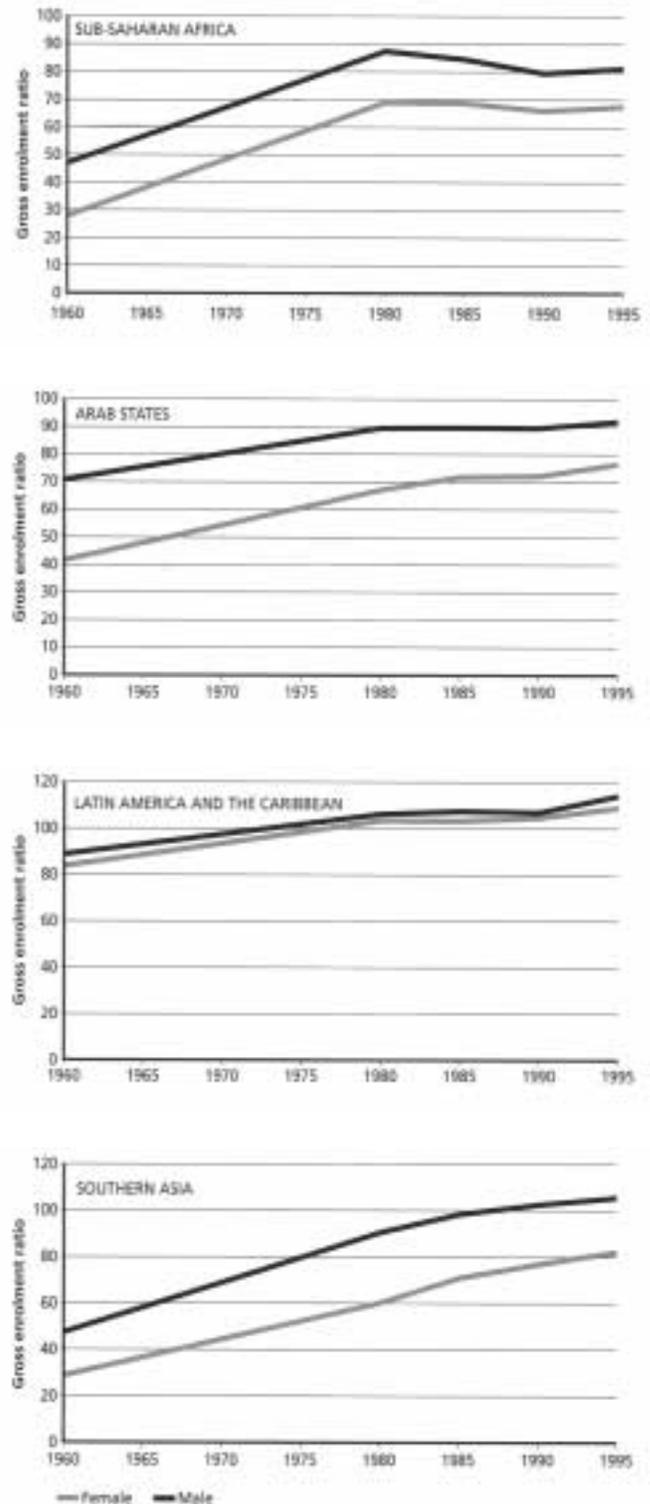
the creation of child protection bodies in several cities, provides funding for programs to assist children and enables Unicef to organize a publicity campaign to inform children of their rights and where to seek help. The Ministry of National Education and the ILO launched a program titled "Integrated Approach of Non-Formal Education to Combat Child Labor" to provide 19.2 million children with improved basic education. The ministry data from 1994-1999 shows that at least 11.7 million of the country's children are not yet completely provided with education, formal or non-formal, with many of them ending up in the work force. ILO estimates about six million children, between the ages of seven and 15, work in the labor force. The objective of the project is to make the non-formal education system more suited to the needs of the working children. The program will first start in the three provinces of West Java, East Java and South Sulawesi.

**SOURCE:** Child Labour News Service Release, January 1, 2001

■ Chemical companies that created the world's largest DDT dump—100 tons of the highly toxic and persistent pesticide—will pay \$73 million to help restore the ocean floor off the Palos Verdes Peninsula in Southern California, according to a court settlement filed in December. In addition, the companies and local governments agreed to pay a total of \$8.6 million to the EPA for onshore contamination around the Los Angeles plant where Montrose Chemical Corp. manufactured the DDT. In addition to Montrose, the companies are Chris-Craft Industries, a 50% shareholder in Montrose, Aventis CropScience, USA, and Atkemix Thirty-Seven, which were owners and operators of the plant. Because removing the DDT from the ocean floor could create additional ecological problems, the EPA is expected to cap part of the deposit with a layer of sand dredged from the nearby harbor probably beginning in 2002. Some biologists and engineers maintain that the best and least risky solution is to leave the deposit alone. People who eat local bottom-dwelling fish, such as white croaker, increase their risk of cancer from the DDT deposit.

**SOURCE:** US EPA; Los Angeles Times, 20 December 2000

## Educational Attainment by Gender, Region



Note: Gross primary enrollment ratios indicate the number of students per 100 individuals in the appropriate age group. Ratios over 100 are due to late starts, interrupted schooling or grade repetition.

**SOURCE:** UNFPA, The State of the World Population 1999

■ World Resources Institute convened the Creating Digital Dividends Conference, Oct. 16-18, 2000, in Seattle, Washington and produced a report which includes various business models and innovative approaches now in use to apply information technologies in the developing world.

- GrameenPhone of Bangladesh, [www.grameenphone.com](http://www.grameenphone.com). Rural women rent out mobile phones in their villages. This initiative enables farmers to check the latest crop prices and helps women maintain contact with their husbands who work overseas.

- Little Intelligent Communities (LINCOS) of Costa Rica, [www.lincos.net](http://www.lincos.net). Digital community centers that give villagers access to telemedicine, the Internet and electronic trading.

- Argentina's national student portal, [www.educ.ar](http://www.educ.ar), which will provide the country's 10 million students with internet access. Students comprise one-third of the country's population. Half of the internet start-ups in Latin America originate in Argentina.

- By using digital technologies, Viatru, a company, [www.viatru.com](http://www.viatru.com), links local artisans to global markets.

- PRIDE AFRICA, [www.prideafrica.com](http://www.prideafrica.com), operates micro-finance programs in six East African countries from their headquarters in Nairobi, Kenya. It is estimated that serving as little as 20 percent of the global market for small loans can generate \$15 billion annually.

- The Development Alternatives Group developed TARAhaat, [www.tarahaat.com](http://www.tarahaat.com), as the first major internet portal designed from the ground up to meet the needs of rural villagers in India.

**SOURCE:** WRI, [www.wri.org/wri/media](http://www.wri.org/wri/media)

■ In India, a National Movement in the form of 'Shiksha Yatra' (Education March) being organised by the South Asian Coalition on Child Servitude (SACCS). This will be the first march of its kind on an issue like education in history of the country. The main objective of Shiksha Yatra is to ensure immediate passage and implementation of the long due 83rd constitutional amendment bill guaranteeing free, compulsory and meaningful education for all children, especially girls, up to the age of 14 years. Creation of an 'Education Army' to provide education to the needy is another unique feature of the march. It strives to tap the spirit of volunteerism and during the course of the march will enroll over 100,000 volunteers. The 'Education Army' is expected to educate over 50 million children during the next five years. Further information is available by contacting RS Chaurasia, General Secretary, SACCS; Tel.: (91 11) 622 4899, 647 5481; Fax: (91 11) 623 6818; e-mail: [saccs@ndf.vsnl.net.in](mailto:saccs@ndf.vsnl.net.in)

**SOURCE:** Child Labour News Service Release, January 1, 2001

■ According to a World Bank study on air quality and foreign investment in China, Mexico and Brazil and in selected industrialized countries, researchers found that air pollution concentrations fell in the last decade as foreign investment increased.

**SOURCE:** [www.worldbank.org/nipr/work\\_paper/RaceWP1.pdf](http://www.worldbank.org/nipr/work_paper/RaceWP1.pdf)

## POPS Treaty

Diplomats from 122 countries have finalized the text of a legally binding treaty that will require governments to minimize and eliminate some of the most toxic chemicals ever created. The treaty sets out control measures covering the production, import, export, disposal, and use of Persistent Organic Pollutants or POPs. Governments are to promote the best available technologies and practices for replacing existing POPs while preventing the development of new POPs. They will draw up national legislation and develop action plans for carrying out their commitments. POPs Review Committee will consider additional candidates for the POPs list on a regular basis. This will ensure that the treaty remains dynamic and responsive to new scientific findings.

A financial "mechanism" will help developing countries and countries with economies in transition meet their obligations to minimize and eliminate POPs. "New and additional" funding and technical assistance will be provided.

Most of the 12 chemicals are subject to an immediate ban. However, a health-related exemption has been granted for DDT, which is still needed in many countries to control malarial mosquitoes. This will permit governments to protect their citizens from malaria—a major killer in many tropical regions—until they are able to replace DDT with chemical and non-chemical alternatives that are cost-effective and environmentally friendly.

Similarly, in the case of PCBs, which have been widely used in electrical transformers and other equipment, governments may maintain existing equipment in a way that prevents leaks until 2025 to give them time to arrange for PCB-free replacements. Although PCBs are no longer produced, hundreds of thousands of tons are still in use in such equipment. In addition, a number of country-specific and time-limited exemptions have been agreed for other chemicals.

Governments agree to reduce releases of furans and dioxins, which are accidental by-products and thus more difficult to control.

The December 2000 meeting in Johannesburg was the fifth and final POPs negotiating session and was attended by some 600 participants. The treaty will be formally adopted and signed by ministers and others plenipotentiaries at a Diplomatic Conference in Stockholm on 22-23 May 2001. Governments must then ratify, and when 50 have done so the treaty will enter into force; this process normally takes several years.

The 12 initial POPs include eight pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, and toxaphene), two industrial chemicals (PCBs and hexachlorobenzene, which is also a pesticide), and two unwanted by-products of combustion and industrial processes (dioxins and furans).

**SOURCE:** UNEP News Release 00/138, Nairobi, 11 December 2000



## DID YOU KNOW?

■ Chemical manufacturer Cheminova recently decided to voluntarily cancel all uses of its insecticide ethyl parathion (trade names: Parathion, Folidol). The announcement came after a concerted campaign led by American Bird Conservancy, in partnership with Defenders of Wildlife, Pesticide Action Network of North America and World Wildlife Fund, to pressure the U.S. Environmental Protection Agency (EPA) and Cheminova to end all U.S. uses of this highly toxic insecticide. Ethyl parathion is generally considered to be one of the most toxic pesticides currently in use worldwide and has been documented as responsible for thousands of birds killed including ducks, geese, raptors, gulls, martins and songbirds as well as domestic mammals and even humans where applicators have mishandled the treatment. Its toxicity prompted the EPA in 1991 to restrict ethyl parathion usage to nine crops in the U.S. (alfalfa, barley, corn, cotton, canola, sorghum, soybean, sunflower, and wheat) but even this measure was insufficient. The withdrawal, effective immediately, will still permit use of the chemical on eight of the nine crops until stocks are used up, because of the hazards of storing and disposal of large volumes of the chemical. However no new chemical will be manufactured and all U.S. application must cease by October 31, 2005. The agreement also halts the use of ethyl parathion as a component in other pesticides, effective December 31, 2000.

**SOURCE:** American Bird Conservancy: 202-778-9705; web site at: [www.abcbirds.org](http://www.abcbirds.org)

■ Over 80% of wild chinook salmon females spawning in the Hanford Reach of the Columbia River are genetic males that have been feminized. According to the scientists who discovered this, the most likely causes are either (1) increased temperatures caused by upstream water management in dams or (2) endocrine disrupting chemicals. Whichever is true, this unexpected discovery adds a completely new dimension to efforts to restore this endangered species.

**SOURCE:** [www.ourstolenfuture.org/NewScience/wildlife/200101chinooksexratio.htm](http://www.ourstolenfuture.org/NewScience/wildlife/200101chinooksexratio.htm)

■ For the first time in history, a majority of adults in some societies are overweight. In the United States, 61 percent of all adults are overweight. In Russia, the figure is 54 percent; in the United Kingdom 51 percent; and in Germany 50 percent. For Europe as a whole, more than half of those between 35 and 65 years of age are overweight. The number who are overweight is rising in developing countries as well.

In Brazil, for example, 36 percent of the adult population is overweight. Fifteen percent of China's adult population is overweight. Juvenile obesity is rising rapidly as well. In the United States, where at least 1 out of 10 youngsters 6 to 17 years of age is overweight, the incidence of obesity among children has more than doubled over the last 30 years. Obesity is concentrated in cities. As societies urbanize and people adopt sedentary lifestyles, obesity increases. In both China and Indonesia, the share of people who are obese in cities is double that in the countryside. In the Congo, obesity is six times higher in cities. A Worldwatch Paper, *Underfed and Overfed*, reports that the number who are overnourished and overweight has climbed to 1.1 billion worldwide, rivaling the number who are undernourished and underweight.

**SOURCE:** [www.worldwatch.org/alerts/indexia.html](http://www.worldwatch.org/alerts/indexia.html)

■ Experts from the Scientific Committee for Food, in a report prepared for the European Union, said fish both from fish farms and from the region's seas are regularly contaminated by dioxins and similar toxins. According to the new report, fish meal and fish oils of European origin have dioxin levels up to eight times as high as similar products from nonindustrial regions, like the waters off Peru and Chile. The fish meal and fish oil also contain up to 10 times more dioxin than is found in meat and eggs. This is troubling because the fish meal is used in the diets of farmed fish and other food animals like chickens and pigs. Dioxins are also found at higher levels in carnivore fish, like salmon, eel and trout, than in herbivores, the scientists said.

**SOURCE:** *New York Times*, December 17, 2000

■ The Environmental Investigation Agency (EIA) is stepping up its campaign to eliminate US wood imports illegally taken from the Indonesian rainforests which provide the last refuge of the orangutan. Fewer than 25,000 orangutans remain on the islands of Borneo and Sumatra where illegal logging is rife. Large volumes of Indonesian ramin, a rare tree species, are imported annually into the US after illegal logging in Indonesia's national parks. The hardwood is manufactured into furniture parts, dowels and broom handles and sold to the public by home improvement stores. In the past ten years, Indonesia's orangutan population has declined by 50%, principally as a result of forest loss through logging. Unlike their African cousins, gorillas and chimpanzees, orangutans are highly dependent upon trees for food, nests and mobility. They also breed slowly. According to EIA, wood procurement policies by US government agencies and major companies will largely determine whether the orangutan and many other endangered species survive or become extinct.

Indonesia contains 10% of the world's remaining tropical forests. Over 70% of its original forest cover has been lost. The World Bank estimates that over 1.5 million hectares of forest are lost every year. Around 60 million people in Indonesia depend on the forests for their livelihood.

**SOURCE:** Environmental Investigation Agency web site: [www.ecocrimes.org](http://www.ecocrimes.org)



## VOICES

■ **World Information Transfer (WIT) will hold the 10th International Conference, Health and Environment Global Partners for Global Solutions on the theme, "Economics of Health and Environment." The Conference will be held at United Nations Headquarters in New York from April 25 to 27, 2001. Co-sponsored by the Governments of Greece and Ukraine, the conference will coincide with the 15th anniversary of the Chernobyl Nuclear Disaster on April 26, 2001 which will be devoted to Chernobyl and its aftermath, the consequences of the disaster and the need for preventive measures in the future. The April 25 afternoon session will cover a range of topics on health and globalization. The Friday morning session, April 27, will, as previously, focus on youth and media. The conference is co-chaired by the Children of Chernobyl Relief Fund. Further information will be posted on the Internet at WIT's web site: [www.worldinfo.org](http://www.worldinfo.org)**

■ A new report titled *In Harm's Way* links toxic exposures during early childhood to lifelong disabilities including attention disorders, reduced IQ and poorly-controlled aggression. The report was written by physicians Ted Schettler, Jill Stein, et al, and was published by Greater Boston Physicians for Social Responsibility in partnership with the Clean Water Fund. *In Harm's Way* reviews scientific and medical information on a range of toxins to which most or all American children are exposed, and draws links to the rising number of children diagnosed each year with abnormal brain development or function. The number of children taking the drug Ritalin to combat attention deficit hyperactivity disorder (ADHD) has approximately doubled every four to seven years since 1971.

See *Rachel's Environment & Health Weekly* #712,-November 23, 2000, for a full review. *In Harm's Way: Toxic Threats To Child Development*, Ted Schettler, Jill Stein, Fay Reich, Maria Valenti, and David Wallinga, (Cambridge, Mass.: Greater Boston Physicians for Social Responsibility [GBPSR], May 2000). Available on the web at [www.igc.org/psr/](http://www.igc.org/psr/) or as a paper copy from GBPSR in Cambridge, Mass. by telephone 617-497-7440.

■ The UNESCO Training Centre is the organizer of the Distance Course for the Training of UNESCO Leaders (CDFAUN). An individual in this distance system can enroll in the CDFAUN any time of year and receive the subjects of Course by post at home or by internet in the web page of UNESCO Leaders. The Course promotes the creation of UNESCO Associations, Centers and Clubs, the participation in UNESCO programs as well as the World Association of UNESCO Professional Leaders (AMUPRAUN). For more information contact UNESCO Training Center, P.O. Box 1703, E-20080 San Sebastián, Spain, Tel.: +34-943 42 70 03; Fax: +34-943 42 70 03, e-mail: [unescoeskola@retemail.es](mailto:unescoeskola@retemail.es), Web Site: <http://personal5.iddeo.es/unescoeskola/>

■ The *West Africa Newsletter* is a new source for reporting on human rights, democracy and development. It is produced weekly and distributed free of charge by the International Center, in Washington, DC, and the Liberia Institute of

Journalism, in Monrovia, Liberia, West Africa. Its goal is to be a source of information for people that work in human rights, democracy and development in West Africa, and to those who work on West African issues around the globe. To subscribe to the newsletter, please follow the direction at the bottom of the page. Further information may be obtained from the International Center in Washington, DC, and Liberia Institute of Journalism, Corner of Broad and Johnson Streets, P.O. Box 2314, Monrovia, Liberia, West Africa. Telephone: 011-231-227-327; e-mail or contact the editor: [Vinnie.Hodges@hotmail.com](mailto:Vinnie.Hodges@hotmail.com)

■ According to a new report commissioned by the Pew Center on Global Climate Change ([www.pewclimate.org/](http://www.pewclimate.org/)) global climate change may exacerbate health risks for the elderly, the infirm, and the poor—although there is substantial capacity to reduce these risks. In the United States, climate change raises the possibility that elevated temperatures, air contaminants, and changes in precipitation patterns could pose increased health risks. This new study, written by public health experts Dr. John Balbus of George Washington University and Dr. Mark Wilson of the University of Michigan, sifts through the evidence of climate-related health concludes that government officials the world over need to maintain and strengthen public health systems, including increased surveillance and improved hygiene. A complete copy of this report and other Pew Center reports can be accessed from the Pew Center's web site, [www.pewclimate.org](http://www.pewclimate.org)

■ The United Nations Environment Programme (UNEP) in Nairobi and an international team of water experts in Kalmar, Sweden, launched a web site devoted to global water assessment and information on aquatic ecosystems for both freshwater and oceans. The project, known as the Global International Waters Assessment (GIWA), represents the cooperative efforts of UNEP, the Global Environment Facility (GEF), the University of Kalmar, the Swedish Government and more than 100 water quality centres around the world. The GIWA web site will support informative maps that allow citizens to access data and informa-

**VOICES** (continued from page 13)

tion about the Earth's major water systems. Web site: [www.giwa.net](http://www.giwa.net). For more information, please contact: Mr. Goran Rudbock, Liaison Officer, Global International Waters Assessment, Kalmar, Sweden, tel: (46-480) 44-7352, fax: 44-7355, e-mail: [goran.rudback@giwa.net](mailto:goran.rudback@giwa.net) or [info@giwa.net](mailto:info@giwa.net), or Beth Ingraham, Information Officer, UNEP, Nairobi, Kenya; tel: (254-2) 62-4299, fax: 62-4269, e-mail [beth.ingraham@unep.org](mailto:beth.ingraham@unep.org). Visit the web site at [www.giwa.net](http://www.giwa.net)

■ Last November the African Center for Technology Studies (ACTS) organized a discussion panel in which the World Resources Institute (WRI) presented a report on the conditions of the world's ecosystems including those from the African continent. The report, undertaken by the United Nations' Development and Environmental Program, the World Bank and the World Resources Institute (WRI), explains the critical conditions and the accelerated degradation process of lakes, forests, meadows, tropical forests, among others, located mainly in Africa. This report emphasized the relation between human beings and ecosystems and it is the first time that this type of results are published on the African continent. It analyzes the production capacity of these ecosystems to produce the necessary goods and services for the world including food production, sufficient drinking water provision, bio-diversity maintenance, atmospheric carbon storage, and the provision and recreation of tourist opportunities. Further information is available at [www.wri.org](http://www.wri.org)

■ Twenty-four new articles on water were transferred this week into the KeyWATER matrix, the information for WATER, with six themes (Education/Training/Mobility/Calls for Proposals, Vacancies/RTD and Dissemination/Cluster) and six tools (Centre/Kiosk/Forum/Library/Showcase/Glossary). Presently the matrix contains 696 articles, retrievable by title, by date, by country, and by keyword. Web site: <http://keywater.vub.ac.be/chessboard.aspx>

**CHERNOBYL UPDATE** (continued from page 6)

long construction time, strict government oversight, and the overriding preference and lower costs of natural gas, deterred expansion of the nuclear energy industry in the US.

Renewable solar and wind energy sources are not yet cost effective to replace coal, gas, or oil but offer a supplement to other power sources. Recent reports strongly suggest that wind power may be reaching competitive cost levels with natural gas. Arguments in favor of expanding development of renewable energy sources along with environmental opposition to domestic drilling for oil and gas may have the unintended effect of contributing support for nuclear energy in the US. In line with the Kyoto Protocol guidelines and US EPA regulations, nuclear power releases no significant emissions—unless there is an accident.

Then the release of radioactive emissions and their contamination to land, air and water are potentially worse than any oil, coal or gas disaster. Nuclear accidents have the unique distinction of being able to contaminate the environment for generations. Most important is the indelible damage that a nuclear accident can have on children. Children born five years ago to women exposed as children to radioactive emissions from Chernobyl continue to have birth defects in the form of severely distorted or missing arms and legs, elevated risk for thyroid cancer as well as genetic impairment. This is the result of damage to their parents' reproductive systems from the radioactive emissions of Chernobyl. It is not known when the genetic damage will end.

Whether nuclear accidents are inevitable is also not known. Modern nuclear energy plants have less risk associated with them than did (and do) the RBMK Soviet style reactors, the type built at Chernobyl. Although these reactors lacked the safety features of the facility at Three Mile Island, both accidents were caused by human error.

There are currently 103 nuclear reactors in the United States. Further development of wind and solar energy would be a safer energy alternative than constructing a new nuclear plant.

**SOURCE:** *Energy Central News, Jan. 11 and 10, 2001*

**Disasters in the Making: How human actions amplify nature's disruptions**

Natural Disasters—Floods, Fires, Storms, Droughts

**Destruction of Wetlands:**

Wetlands destruction is undermining the ability of rivers to cope with flooding because these sponge-like ecosystems help control floods by absorbing water.

**Climate Change:**

Rising sea levels and a warming atmosphere—connected to the release of greenhouse gases—may be exacerbating storms by accelerating atmospheric weather patterns and allowing storms to reach further inland.

**Deforestation:**

Deforestation curbs the soil's ability to absorb rainfall, causing erosion and leaving thinned and fragmented forests vulnerable to flooding, droughts, and fires.

**Development Choices:**

Decisions to build in disaster-prone areas (flood plains, sensitive coasts, earthquake faults, etc.), whether on purpose or due to a lack of alternatives, can amplify disasters by placing more people in harm's way.

**SOURCE:** *World Watch, July/August 1999*

**World Information Transfer is a Non-Profit, Non-Governmental Organization in Consultative Status with the United Nations, Promoting Health and Environmental Literacy.**

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**MISSION STATEMENT**

*We have not inherited the world from our forefathers...we have borrowed it from our children. -Kashmiri Proverb*

World Information Transfer, Inc. (WIT) is a not-for-profit (501c3) non-governmental organization in consultative status with the United Nations, promoting environmental health and literacy.

In 1987, inspired by the Chernobyl nuclear tragedy, WIT was formed in recognition of the pressing need to provide accurate actionable information about our deteriorating global environment and its effect on human health to opinion leaders and concerned citizens around the world.

WIT exercises its mandate through:

1. The publication of the *World Ecology Report*, a quarterly digest of critical issues in health and environment, published in five languages and distributed to opinion leaders around the world, and for free in developing countries.

2. Our annual conference on *Health and the Environment: Global Partners For Global Solutions* held at United Nations headquarters in New York since 1992. The world's leading authorities in the field of environmental medicine share their latest findings and discuss possible solutions with leaders in governments, business, organizations and the media.

3. Since 1995, WIT has been providing and promoting humanitarian relief to areas devastated by environmental degradation. Supplies and equipment have been sent to schools, hospitals and orphanages and assistance programs developed in areas contaminated by the Chernobyl fallout. These programs have been rapidly expanding since their inception.

4. Centers for Health & Environment providing centralized scientific data pertaining to health and sustainability issues. The objective of the Centers is to provide continuous monitoring, ongoing research, education and implementation of corrective programs. The first center was opened in Kiev in 1992 and moved to Lviv in 1996. The second center opened in Beirut, Lebanon in 1997.

WIT currently operates from headquarters in New York City with regional representative offices in Australia, Austria, Canada, China, Colombia, Egypt, Germany, Holland, Honduras, India, Iran, Israel, Lebanon, Nigeria, Pakistan, Philippines, Russia, Switzerland, Ukraine.

WIT is on the Executive Board of CONGO (Conference of Non-Governmental Organizations in Consultative Relationship with the United Nations).

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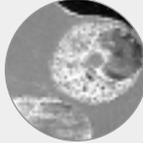
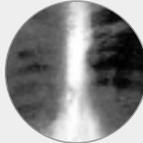
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# POINT OF VIEW: Nasty, Brutish, and Dirty

Ecologist David Pimentel and his graduate students at Cornell pulled together statistics from the World Health Organization in Geneva, the Centers for Disease Control and Prevention in Atlanta, and other sources to analyze the

effects of population growth and environmental degradation on human disease. Overall, they report, some 40 percent of all deaths can now be attributed to various environmental factors. A few of their findings:

Human Actions	Environmental Effects	Disease Incidence
Building Egypt's Aswan High Dam.	Expanded the habitat for snails that host the flatworm <i>Schistosoma mansoni</i> , second only to the parasite that causes malaria in the number of people it kills worldwide.	Proportion of people in the Nile Valley with schistosomiasis increased from 5 percent in 1968 to 77 percent in 1993.
 Deforestation and doubling of some African populations every 20 years.	 More people living near areas favorable for breeding mosquitoes.	 From 1970 to 1990, malaria incidence in Rwanda increased eightfold. Malaria kills about 2.7 million people each year.
Global use of pesticides increased from 110 million pounds a year in 1945 to 5.5 billion pounds in 1995. Most modern pesticides are ten times more toxic than those used in the 1950s.	Increased contact with toxic chemicals.	There were 3 million cases of pesticide poisoning in 1992. In California, 40 percent of children working in agricultural fields show signs of pesticide poisoning.
 The number of automobiles is growing three times faster than the human population. Fossil-fuel emissions and industrial pollutants are also increasing.	 Air pollution levels in the world's 20 largest cities exceed WHO guidelines. Fewer than 1 percent of 500 Chinese cities surveyed have clean air. Depletion of ozone in Earth's atmosphere.	 Respiratory diseases are the leading cause of death in China. The incidence of skin cancer in the United States jumped from 10,000 cases in 1975 to 40,000 in 1996.
Global population expansion.	Less cropland per person.	More than half the world's population suffers from malnutrition.
 Suburban expansion.	 Close contact with white-tailed deer populations and thus the deer tick, which carries the bacterium <i>Borrelia burgdorferi</i> .	 Lyme disease, discovered in 1976, now affects 12,700 people a year in the United States.

SOURCE: Discover, February 1999



**HOW YOU CAN HELP:**

WIT is a non-profit, international, non-governmental organization, in consultative status with the United Nations, dedicated to forging understanding of the relationship between health and environment among opinion leaders and concerned citizens around the world. You can help us with your letters, your time, and/or your donations.

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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