

FUNDING

To meet the 1995 goal, an estimated US\$14,728,542 will be needed. Approximately two-thirds of this amount will be provided by the Member Countries for their individual efforts and the remaining one-third will be sought from international donor agencies. Nearly US\$2,000,000 has already been committed to the overall EPI effort over the next three years by a combination of resources from the Canadian International Development Agency, through the Canadian

Public Health Association; the U.S. Agency for International Development; the Inter-American Development Bank; and PAHO. The extra resources required will be used mainly to provide vaccines for the "attack phase" (especially during Measles Elimination Month).

PAHO will coordinate with all participating agencies to obtain the necessary funding, and could serve as the coordinating agency for all the financial assistance provided to the effort. It is expected that funding commitments will be identified by June 1990.

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World Health Day 1990: Our Planet, Our Health—Think Globally, Act Locally

The pervasive deterioration of the environment is increasingly in the headlines: acid rain, vanishing forests, croplands turned into desert, polluted rivers and oceans, toxic wastes. The impact of the human species on the world carries untold risks for human health. For this reason, WHO's Director-General, Dr. Hiroshi Nakajima, chose as the theme of this year's World Health Day the global environmental crisis and its relationship to health.

World Health Day is celebrated each year in observances held worldwide to commemorate the date 7 April 1948, when the Constitution of the World Health Organization was adopted. During ceremonies that took place at PAHO Headquarters in Washington, D.C., a number of distinguished speakers addressed many facets of the environmental crisis. Dr. Peter Bourne, President of the American Association for World Health (AAWH), presided over the first part of the program.

In his annual World Health Day message, Dr. Carlyle Guerra de Macedo, Director of PAHO, pointed out that human beings are causing severe damage to the very environment they depend on for food, water, air, and shelter. Environmental destruction, combined with poverty, produces a downward spiral that threatens the health and well-being of many of the poorest people in the Region. Although local environmental degradation has already reached alarming levels, the potential for world-scale changes dwarfs current health concerns. Thus, action is imperative at all levels: local, national, and international. Concern for the environment must be integrated with the achievement of health by all people, especially the poorest, who are often most severely affected by environmental contamination.

Pesticides and fertilizers used in efforts to increase food production for a growing population have contaminated food, water, livestock, and fish, and sickened or

even killed agricultural workers. In many places, water, crucial to life and health, is being heavily contaminated with sewage and industrial wastes, and people downstream have no alternative but to drink the contaminated water. Deforestation contributes to erosion and water pollution, endangers animals and rare plants that might have medicinal uses, promotes the proliferation of disease-causing vectors, and in the long term is less economically sound than preserving the forests for sustainable activities. Air pollution is not only a threat to the health of 50 million people living in urban areas of Latin America and the Caribbean, but also has the potential to cause global warming (the "greenhouse effect") and ozone depletion.

To meet these challenges, Dr. Macedo stated that the health sector must work with communities, private entities, and governmental bodies at all levels. National health agencies must have the authority and resources they need to identify health threats, and must perform epidemiologic surveillance of environment-related diseases so that decision makers and the public can be informed. Health concerns must be integrated into the decision-making process for development, and health institutions must be strengthened so that they can successfully perform the environmental health functions integral to their legal responsibilities. By working together, Dr. Macedo concluded, we can accomplish much, and there is much to be accomplished if environmental threats to the health of present and future generations are to be removed.

Dr. Georges Benjamin, Commissioner of Public Health for the District of Columbia, spoke of the challenge of offering creative, targeted health programs to ethnic minorities, who suffer disproportionately from morbidity and premature mortality. Lifestyle-related diseases, including

those linked to an environmental hazard, are the leading causes of death in the District. He emphasized the need to use aggressive, culturally sensitive, and sophisticated advertising campaigns for health and to bring people into contact with the health services before they are ill, with a view toward preventing problems.

Dr. Anthony D. Cortese, Dean of Environmental Programs at Tufts University (Medford, Massachusetts, U.S.A.), affirmed that the most fundamental way to protect public health is to preserve the ecosystem, and he outlined a series of changes that are needed to accomplish this purpose. Just as the scope of environmental health problems has changed from local to global, so must the idea of cleaning up pollution change to a goal of preventing it, which is also more cost effective in the long run. Long-term sustainable growth must be emphasized in developing countries, which will require a change in the relationship between the developed and developing world, along with innovative financing arrangements. Environmental education must become a prominent feature of school curricula, so that everyone, and especially future political leaders, will have a better understanding of ecology and environmental issues. Public health specialists and environmentalists must recognize that their goals are related and work together, since it is important to bring many constituencies to bear on this issue. In addition to thinking globally and acting locally, Dr. Cortese stated that it is important to "think future and act now."

The keynote address was delivered by Dr. David P. Rall, Director of the National Institute of Environmental Health Sciences, located in Research Triangle Park, North Carolina (U.S.A.). He emphasized the need for research in order to form a solid base of scientific knowledge about environmental problems, both old and new. The risks of lead poisoning, for ex-

ample, have long been known, but new discoveries have shown that blood lead levels once thought harmless in fact can adversely affect children's mental development. Little is yet known about the health consequences of global warming: climate change may give rise to famine, leading to mass migrations and expanded disease problems. New technologies will have to be developed to replace environmentally unsound ones, and will bring with them new potential impacts on the environment and on health that must be investigated. Thus, improved environmental monitoring and epidemiologic studies are needed. Many national and international organizations, including PAHO, the U.S. National Institutes of Health, and the International Program on Chemical Safety, are contributing to the knowledge base. Dr. Rall asserted that it is necessary to steer a course between protecting the environment and protecting economic development, but it is the responsibility of organizations such as WHO and PAHO to strongly promote health and the environment, because many other voices will be promoting economic interests.

The ceremony also included presentation of the 1990 World Health Day Awards. The recipients were the Town of Goodrich, North Dakota, which was holding a day-long health fair on World Health Day to involve its citizens in the important issues surrounding health and the environment; the George Washington University (Washington, D.C.) Master of Public Health Program, which every year organizes a World Health Day colloquium on campus; and the International Chiropractic Association, one of about 250 nongovernmental organizations that sponsors World Health Day, for its outstanding support this year.

Dr. Bourne announced that, in honor of PAHO's Director, the AAWH had estab-

lished the Macedo Award for leadership of an individual or institution in public health. The first award was then presented to the New Jersey State Department of Health for research on the subject of chemical sensitivity, an emerging environmental health problem. Studies have found that some people develop extreme sensitivity to a chemical following their initial exposure, so that subsequent exposures to levels previously thought safe cause a wide range of health problems.

The program also included a video montage, created by PAHO's Office of Public Affairs from its video library, which starkly depicted environmental health problems in the Americas.

PANEL DISCUSSION

World Health Day activities at PAHO concluded with a panel discussion. Dr. Anthony Cortese of Tufts University served as the moderator. Five panelists spoke on diverse aspects of the topic of man's relationship to the environment.

Overview of Environmental Health in the Americas

Mr. Fred Reiff of PAHO's Environmental Health Program reviewed some of the trends in environmental health problems in the Americas. He stated that the water supply goals of the International Drinking Water Supply and Sanitation Decade are being met, but much of the water that is being supplied is not safe. Although about 60% of the population has sewerage service, less than 10% of sewage is treated before disposal. A large number of bacterial and parasitic diseases, causing a substantial burden of illness, are transmitted via water. Other diseases, such as dengue, malaria, and schistosomiasis, are related to water through the dependence of their vectors or intermedi-

ate hosts on that medium, and their incidence has increased due to environmental changes such as deforestation. Economic constraints to household spraying and concerns over insecticide use in the 1970s have also contributed to the reemergence of malaria.

About 7,000 chemical substances were in use in 1985, and 500 to 1,000 new ones are introduced each year. This rapid rate of introduction makes it difficult to evaluate all the hazards they pose or to determine how risks can be mitigated. International cooperation is essential in risk evaluation and the elaboration of safety measures. The International Program on Chemical Safety is involved in such research.

Two other areas included in PAHO's Environmental Health Program are solid waste and occupational health. Mr. Reiff stated that people in the Americas are starting to pay attention to the difficulty of disposing of vast amounts of solid waste, but little has been done to remedy this problem. Likewise, workers' health is a subject of concern. People often have an economic incentive to expose themselves to risks in their work environment, or have no choice if they are to earn a living. For example, miners working in Amazonia use mercury in a process to extract particles of gold from rivers and streams. In doing so, they not only risk mercury poisoning for themselves, but contaminate the water and the food chain.

Global Warming

Ms. Jodi Jacobson, Senior Researcher from Worldwatch Institute, spoke on the impacts of global climate change. She stated that global warming is the major issue of the 1990s, since corrective changes must begin to be made in this decade. The computer models used by

scientists to predict climatic change vary in details of the timing and extent of warming, but they all foresee change as a result of human activities. Prospects for action are bleak, however, because no political consensus exists on the issue.

The "greenhouse effect" is caused by the buildup of gases in the atmosphere that trap the sun's heat and do not allow it to reradiate into space. Some of these gases are carbon dioxide, which has now reached a concentration 25% higher than in preindustrial times; nitrous oxide, which has gone up 19%; and methane, which has risen 100%. Chlorofluorocarbons (CFCs), the compounds that cause ozone depletion, are also potent greenhouse gases. Much of the increase in these gases results from industrial activities and energy production, but other human activities are also implicated. Deforestation is not only reducing the amount of vegetation available to remove carbon dioxide from the air, but is also contributing carbon dioxide through the burning and decay of forests.

If the world's temperature does rise 2.5 to 5.5°C by the end of the next century, as some models predict, the consequent rise in sea level would displace millions of persons. Higher average temperatures will lead to significant changes in precipitation patterns, affecting the supply of water for cities and agriculture and increasing desertification. The productivity of some of the world's most important agricultural areas can be expected to decline.

Mitigation of the impact of global warming will take massive diversion of already scarce funds. It will also require fundamental changes in energy use patterns, since emissions from fossil fuels must be cut to a fraction of their present level in order to merely stabilize the climate. The changes resulting from past and present activities are irreversible.

Health of Agricultural Workers

The next speaker, Ms. Valerie Wilk, represented the Farmworkers Justice Fund, a nonprofit organization that promotes the interests of migrant and seasonal farmworkers in the United States. She pointed out that farmworkers are essential for agricultural productivity, but that they remain an invisible population group in the minds of most consumers. The U.S. Public Health Service estimates that there are about three million farmworkers in the United States, and about 25% of this work force is made up of children. Even when they are not actually working, the children of farmworkers are often in the fields—and thus exposed to the same occupational risks as their parents—for lack of child care facilities.

The labor is hard and hazardous. Work days are 10 to 12 hours long and involve bending, stooping, carrying heavy loads, and climbing ladders. Surveys have found disabilities in 40% to 60% of farmworker families. The U.S. Safety Council estimated 179,000 disabling injuries per year, while a University of Iowa study indicated that the number may be 50% higher. The death rate from work-related accidents is also higher in agriculture than in any other occupation.

When housing is provided by employers, it is often not well maintained or is overcrowded. Some workers have no housing at all and live exposed to the elements. Sanitation facilities are often inadequate, giving rise to infectious disease problems. Since housing is located adjacent to the fields, workers and their families are constantly exposed to agricultural chemicals. The chronic health problems of farmworkers that stem from pesticide exposure include cancer, birth defects, nerve damage, and behavioral and cognitive problems. Acute pesticide poisoning

from direct exposure or wind drift of the chemicals is also a danger.

Employers are now required by law to guarantee access to a drinking water supply, toilets, and hand-washing facilities on farms with 11 or more workers, but this law covers only 36% of the farmworker population. The rest are usually only provided with drinking water, and it is often of poor quality. Ms. Wilk reminded the audience that the problem of field sanitation directly links farmworkers to consumers, because unsanitary conditions can lead to contaminated produce.

Public Policy and the Environment

Dr. Nicholas Ashford of the Massachusetts Institute of Technology said that a new public policy model is needed to replace the present philosophy of preventing increases in toxic substance pollution and energy use with the goal of reducing them. He suggested four steps toward this end:

- The agendas of environment, public health, energy, and economics should be in accord instead of in competition. In striving to solve a problem, the goal must be to achieve "co-optimalization" rather than compromise. Currently, one problem's solution too often creates another undesirable condition. An example is indoor air pollution, a problem which emerged as a result of sealing buildings more tightly to save energy.

- Policy must be shifted toward "life-cycle costing," in other words, a broader approach to evaluating technologies that takes into account long-term impacts. For example, incinerating hazardous waste solves the immediate problem of where to put it, but adds to air pollution, which has long-term impacts on health and global climate.

- The limits of economics for driving

public policy must be recognized. The search for short-term economic payoffs will not lead to the design of environmentally sound policies, whose returns on investment are received in the future. Policy makers, rather than being trained to think in economic terms, must have a "transdisciplinary" background and approach to problem-solving.

- A shift must be made from an approach based on risk-assessment and epidemiology to one that examines technological options. The ability of science to supply solutions must be maximized.

Pollution Prevention

Mr. Bill Walsh, representing Greenpeace, made the point that controlling pollution implies evaluating how much is acceptable, based on nature's assumed capacity to assimilate it. However, since the natural world is so complex, this approach is doomed to failure because the environment can react differently than anticipated. For example, the large-scale ozone destruction that has appeared over Antarctica was unexpected; an unforeseen interaction accelerated the predicted impact of CFCs.

Although hundreds of chemicals have been evaluated to determine their potential carcinogenic risk to humans, risk-assessment studies cannot measure real-world exposure. Such studies generally compute risks posed to a prototypical 30-year-old healthy white male subject, but risks may be much greater for less healthy individuals. In addition, synergistic effects of chemicals are not usually taken into account.

Mr. Walsh stated that the existing paradigm of the assimilative capacity of the earth must be replaced with the "precautionary principle," that is, "do no harm," and that all technological options should be explored before toxins are put into the environment. One reason this is not currently done is that decisions on options are made at high levels, by governments and companies, without input from the public. Life-cycle costs are not factored into the price consumers pay for products that contribute to pollution. Communities must become aware of the problems and exercise their right to determine the quality of their environment. Public pressure is important. Participation of the public health profession in the environmental movement will provide both increased public awareness and political influence.

Conclusion

In summing up the proceedings, Dr. Cortese added that it was necessary to stop thinking of environmental education as a specialty. It is a subject that must be taught to all people at all levels, including engineers, business people, physicians, and grade-school students, which will require retraining existing faculty and educating parents. The lack of education about the environment thus far has sent the message that it is not important. The techniques that have been used successfully in other public health campaigns, such as the antismoking campaign, must be applied to bring about environmental awareness.