Industrial and Vehicular Contamination in Central America

Environmental health protection activities have traditionally concentrated on basic sanitation, especially with regard to drinking-water quality, excreta disposal, and refuse collection. Although this focus is fully justifiable owing to the impact of pathologies associated with poor sanitation, other environmental health problems have emerged with the increases in industrial processes and vehicular congestion. If control measures are not adopted in time, pollution from these sources will constitute a serious threat to human health, do significant harm to ecosystems, destroy valuable natural resources, and cause a decline in people's standard of living.

Within the context of growing worldwide concern over environmental quality, PAHO has launched a Program on Environment and Health in the Central American Isthmus (MASICA). One of its main objectives is to promote awareness of the indispensable nature of clean air, water, soil, and food for human life and well being. This is of great importance in Central America, where prompt action is critical to protect the large amounts of natural resources that remain unaffected by industrialization and urban growth. One of the projects within this broad effort involves environmental protection activities against industrial and vehicular contamination in order to maintain air and water quality and avoid the appearance of new health risks for the present generation and those to come.

Source: Pan American Health Organization; Subregional Program on Environment and Health in the Central American Isthmus ("MASICA"); Project on Industrial and Vehicular Contamination in Central America; Managua, Nicaragua, April 1991.

NATURE AND MAGNITUDE OF THE PROBLEM

The subregion's limited restrictions on sources of contaminating emissions is not unique, but is instead part of a widespread development pattern that has led to the deterioration of the environment in many parts of the world. Concern has been growing worldwide for stricter regulation of chemical products and industrial processes, safe disposal of hazardous wastes, and protection of air and water quality.

Industrial Effluent

Industrial effluents are important contributors to environmental contamination. The chemical quality of important bodies of water around cities and industries is threatened by elevated levels of many substances, some highly toxic like mercury and other heavy metals. These pollutants may prevent use of the water sources and often reach levels at which they affect a variety of aquatic species. Despite concern among the public, this situation continues to worsen in places already contaminated and is encroaching on previously unspoiled water resources. Quantitative measurements of water pollution from industrial sources have rarely been made in Central America, and there is a need for better legislative instruments and for technologies to fight pollution, since industrial liquid discharges contribute significantly to the chemical pollution of bodies of water, leading to health risks and economic losses. The recovery of important water resources in the subregion will be possible only through strict control of industrial ef-
fluents. Evaluation is urgently called for to establish policies and determine appropriate control measures.

**Toxic and Hazardous Wastes**

Safe disposal of toxic and hazardous wastes is one of the most complex and important components in the area of environmental health. Currently, there are few procedures, provisions, or systems for the suitable disposal of these wastes in the subregion’s countries. Although the modest attention given to controlled disposal of hazardous industrial and nonindustrial wastes may be explained at least partially by the fact that the main production activities are agricultural, the uncontrolled disposal of chemical wastes produced, imported, and transported in unspecified amounts within and between countries is not acceptable. Thus far, the greatest interest in hazardous wastes has been generated by the public’s reaction to news of the introduction of waste from developed countries into developing countries. A system for regulating this situation is needed. Assessment of this problem’s magnitude by the MASICA project will doubtless be highly important in prompting the governments to adopt appropriate legislation and control measures. Therefore, this project seeks to develop a comprehensive plan that will cover issues from classification of wastes and identification of sources to systems for international cooperation.

**Air Pollution**

Deterioration of air quality in urban centers due to vehicular and industrial emissions is a problem whose nature and severity have been barely analyzed but which warrants prompt assessment. Atmospheric monitoring in some of the countries in the late 1970s and early to mid-1980s indicated that concentrations of \( \text{SO}_2 \), \( \text{NO}_2 \), and CO were generally not at dangerous levels, but quantities of suspended particulates exceeded WHO recommended guidelines. There is a need to evaluate the current situation.

Geographic, meteorologic, and climatologic conditions in most of the subregion’s main cities favor dispersion of pollutants and have helped prevent the haze that makes deterioration of the urban atmosphere conspicuous; however, some cities, such as San José, Costa Rica, are seriously affected during thermal inversions. The levels of pollutants not directly related to visibility problems, such as lead and ozone, may reach relatively high values.

About 14 million people, or half of Central America’s population, already live in urban areas, and the demographic trend is toward greater urbanization. This population distribution will doubtless contribute to increased urban air pollution as well as augment the number of persons affected. Other factors that favor increased vehicular emissions are the inadequacy of public transportation, poor mechanical condition of many vehicles, and shortcomings in the highway systems that lead to higher energy consumption.

Fuel quality is also a problem, since leaded gasoline is still used. Thus, urban populations, especially children and persons engaged in outdoor activities, are exposed to atmospheric lead. In time, the lead is deposited on the ground and carried by surface water into the food chain and water supply, affecting the general population.

Indoor air pollution is another problem whose severity and magnitude have not yet been quantified. It is produced by the use of wood fuels, which give off large amounts of particulates, carbon monoxide, and other gases. Studies in various parts of the world have shown that this source of pollution contributes substan-
ially to various respiratory pathologies, especially among children and in particular nursing babies, who, along with their mothers, spend much of the day inside the home. The magnitude of this problem, which is unlike the indoor air pollution in industrialized countries, must be assessed.

Another local air quality problem concerns the large-scale forest and grassland fires that occur in the subregion in April and May. Their impact on public health has not yet been fully determined.

It should be borne in mind that acute respiratory infections are among the main causes of general morbidity and mortality, especially affecting children and the elderly. These two population groups are the ones at greatest risk from exposure to air pollution. Widespread smoking also contributes to air pollution and health problems. The struggle against air pollution can at the same time alert the population to the serious risks associated with smoking.

Exposed Population

The residents of urban centers are the most exposed to both vehicular and industrial contamination, since the main industries are generally concentrated in or around cities. Some segments of the population living around polluting industries have potentially hazardous levels of chronic or acute exposure. In nearly all the subregion's principal cities there have been complaints from such population groups. Exposure to hazardous effluents and wastes tends to occur indirectly through pollution of drinking water and contamination of the food chain.

Impact on Health

The lack of systematic data regarding atmospheric pollution, chemical contamination of water and food, and exposure to hazardous substances hampers reliable risk assessment and explains why health risk studies have not been done nor epidemiologic surveillance systems implemented to evaluate potential effects on the health of the general population or high-risk groups. Evaluation of health impact is one of the most urgent aspects to be developed under this project.

Impact on the Environment

As indicated above, such evaluation is in its early stages, and therefore another of this project's basic purposes will be to evaluate levels of industrial air and water pollution and the impact of uncontrolled disposal of hazardous wastes. Other topics of great interest that are pending evaluation are the impact of acid rain, the effects of ozone on vegetation and agricultural production, and the load of heavy metals in the food chain.

PURPOSES AND STRUCTURE OF THE PROJECT

The general purposes of this project are the following: to assist in the abatement of risks to health and the environment due to industrial and vehicular contaminants; to prevent progressive deterioration of the environment through establishment of systems for the control of contaminating emissions; to produce technical information to help governments and society in general become more aware of the problems in order to restore or protect water resources from industrial pollution and prevent deterioration of air quality; and to identify the populations at risk and the extent of the health impacts of environmental deterioration.
Several general objectives have been established. The project will attempt to evaluate how much industrial and vehicular emissions and wastes are released in the subregion; identify the toxic products with the greatest impact; determine the magnitude of surface water pollution by industrial effluents; determine the nature and magnitude of the problems posed by unsuitable disposal of toxic and hazardous refuse; promote the countries’ ability to monitor air and water pollution; develop guidelines for controlling final disposal of toxic and hazardous refuse; develop and test interventions for the control and reduction of air and water pollutants; evaluate the impact of air pollution on the health of the exposed population; and develop and propose comprehensive environmental quality management models suited to the requirements of the subregion’s governments.

The strategies to accomplish these objectives include promotion of multisectoral participation, strengthening of institutional capacity to protect the quality of the human habitat, assistance in training human resources to deal with these problems, promotion of international cooperation to optimize the resources of the subregion’s countries, and provision of technical support to the countries in developing their own abilities in the area of environmental health.

The project will be carried out between 1992 and 1995. It consists of four areas of action. The first concerns inventory of sources and emissions and the other three concern activities aimed at controlling specific types of contaminants: industrial effluents, toxic and hazardous wastes, and air pollutants. The inventory will locate fixed and mobile sources of pollution in the major population and industrial centers of Central America and identify priority areas of intervention. Moreover, it is desirable to develop local mechanisms to apply the procedures for preparing the inventory of sources, because the capacity to conduct systematic and continuous environmental monitoring may not be available.

The following entities will participate in the execution of the project at the national level: ministries of health, agriculture, labor, and education; social security and environmental institutions; and nongovernmental organizations, including employers’ and labor organizations, for which a national committee or commission will be established. A national focal point designated by the health, environmental, or other authorities will be responsible for the project’s coordination and execution within each country.

A subregional technical coordinator contracted full-time for four years has overall responsibility for coordination and evaluation of the project at the subregional level, technical support to the national focal points, and establishment of working administrative liaisons with PAHO’s Environmental Health Program (HPE), the Pan American Center for Human Ecology and Health, the PAHO offices in the subregion, and the coordinator of the MASICA program and those of its other projects which have complementary functions. The subregional technical coordinator will convene meetings on technical and administrative progress annually and at the end of four years.

The project will make use of the existing mechanisms employed by the Special Meetings of the Health Sector of Central America (RESSCA) to present and analyze annual progress reports and the working plans.

Goals are specified in a schedule of the operational plan for each activity area. Progress toward fulfillment of these goals will be reported in brief form every four months. These reports will serve as reference for the annual evaluation. If it is judged to be necessary on the basis of the triannual reports, a partial in-depth
assessment of the project as a whole or of some of its areas will be undertaken. Both annual and partial assessments will be coordinated by the chief of HPE or the person the chief may designate, the subregional coordinator of the MASICA project, and others who took part in the activities being evaluated.


Conference on International Health Strategies

Lack of access to basic health care among large population groups, high infant mortality rates, low immunization rates among children under age five, lack of prenatal care for pregnant women, and the AIDS epidemic are some of the problems shared by the United States and countries throughout the world. Public health experts say the United States can learn from and even adapt some of the health care strategies used in developing countries to help solve these problems. This idea will be the topic of a health conference to be held from 14 to 17 June 1992 in Washington, D.C.

“"A Global Partnership: Improving the Health of Underserved Populations” will bring together approximately 1,000 public health and medical professionals from more than 70 countries worldwide. The meeting will constitute the 19th Annual International Health Conference of the National Council for International Health (NCIH), a 21-year-old nonprofit information and advocacy organization dedicated to improving world health.

Conference themes will be global health problems such as infant mortality, AIDS/STDs, family planning, and environmental health; approaches to solving health problems; special targeted populations; institutional responses; and country experiences. The conference is part of a three-year project by NCIH, which has previously conducted five regional conferences on this theme in Texas, Alabama, North Carolina, California, and the city of Boston. In four of those areas, local participants are working to implement ideas developed at their conference.

Such international agencies as the World Health Organization, the Pan American Health Organization, the United Nations Population Fund (UNFPA), and the United Nations Children’s Fund (UNICEF) will be represented at the conference. These agencies also funded and participated in the earlier regional conferences.

For information regarding registration, contact the NCIH Conference Department at (202) 833-5903.