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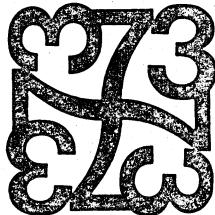
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UNITED STATES DEPARTMENT OF AGRICULTURE
Extension Service

ISSUES IN CONTROLLING POLLUTION

Talk by Dr. H. G. Geyer
Agriculture and Natural Resources Staff
at the 1973 National Agricultural Outlook Conference
Washington, D. C., 1:15 p.m., Tuesday, February 20, 1973

"Environmental pollution is the unfavorable alteration of our surroundings, wholly or largely as a by-product of man's actions, through direct or indirect effects of changes in energy patterns, radiation levels, chemical and physical constitution and abundances of organisms. These changes may affect man directly, or through his supplies of water and of agricultural and other biological products, his objects or possessions, or his opportunities for recreation and appreciation of nature."^{1/} This definition appearing in the 1965 White House Report was an introduction to a national concern that was to evolve into a continuing and increasingly aggressive effort to improve the quality of life both nationally and internationally. It brought into focus the fact that there are specific interrelationships between the production of pollutants, technology and standards of living. The vast amounts of diverse and novel materials generated by human activities degrade the quality of air, water and land; and in turn threaten the health, livelihood, recreation, cleanliness and physical conditions of man.

Pollution, because of its pervasive nature, disregards political boundaries be they State, national or international. Recognition of this fact was reflected in 1972 when representatives from a majority of the countries assembled in Stockholm, Sweden, to address themselves to the international concerns for the human environment.

During the last several years, actions by the Congress and the Executive Branch of Government have clearly reflected an appreciation of these problems, but more importantly established a mandate for their prevention and control.

The Issues

The words "pollution" and "quality of life" have a diversity of meanings. For each, the interpretation will be influenced by education, knowledge, experience, occupation, income, and place of residence. Likewise, the same

influences make it most difficult to arrive at unanimity of opinion or effort for program development and program execution aimed at solving or preventing environmental problems. Add to this the vastness and complexity of this environmental universe, and it is little wonder that frustrations develop as we search for handles with which to grapple with the problems. It is here where we should then place the emphasis. The part cannot be attacked as an entity within itself. It must be attacked with the resolve to understand its relationship to the total. In other words, will our positive efforts at one point result in negative effects at another?

Recognizing the vastness of the subject area, an attempt will be made here to discuss some of the issues inherent to family living, or what might be more appropriately identified as human ecology.

For most of us the word "environment" evokes confusion when we are confronted with chemical pollutants, behavioral disturbances associated with human concentrations and automation. The medical profession has long recognized the pathological implications stemming from unnatural stimuli or sudden changes in our everyday surroundings and the capability for adaptive response. Equally pertinent is the fact that environmental conditions directly affect human characteristics, and influence both health and disease. From conception to death the body and mind are constantly altered through adaptation to influence social and physical behavior.

In response to the recognition of the profound impact that man's activities were having on the natural environment, Congress enacted the Environmental Policy Act of 1969. Specifically identified were: the influences of population growth, high-density urbanization, industrial expansion, and resource exploitation. The purpose is clearly delineated "to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man."

Complementary legislation then followed. The Environmental Quality Act of 1970 revised responsibilities for Federal agencies to assure compliance with environmental policies and established the Council on Environmental Quality.

The Environmental Education Act of 1970 has as its purpose the establishment of "educational programs to encourage understanding of policies and support of activities designed to enhance environmental quality and maintain ecological balance."

Water and Water Related Legislation

The Rivers and Harbors Act of 1899, better known as the Refuse Act, was enacted to protect the quality of navigable waters.

The Federal Water Pollution Control Act was amended in 1972 with the objective to "restore and maintain the chemical, physical and biological

integrity of the nation's waters." The major issues of concern were delineated as national goals.

1. "The discharge of pollutants into navigable waters be eliminated by 1985;"
2. "A water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;"
3. "The discharge of toxic pollutants in toxic amounts be prohibited;"
4. "Federal financial assistance for construction for publicly owned waste treatment works;"
5. "Area-wide waste treatment management planning processes-- to assure adequate control of sources of pollutants in each State;"
6. "Research and demonstration to eliminate the discharge of pollutants into navigable waters."

Also relevant are the Water Resources Research and Water Resources Planning Acts.

For enhancing air quality, the Clean Air Act of 1955 was amended in 1970.

Concern for solid waste is expressed in the Solid Waste Disposal Act of 1965 and the Resource Recovery Act of 1970.

Other legislation with specific pollution and environmental concern encompasses noise abatement, Fish and Wildlife Coordination Act, National Materials Policy Act, Federal Insecticide, Fungicide, and Rodenticide Act, and Occupational Safety and Health Act.

In addition to the foregoing Acts, there are an extensive number of Executive Orders and memoranda to further clarify objectives and goals; for it is quite pertinent to point out that it has become virtually necessary for the enactment of laws to protect man against himself. This was most succinctly brought into reality for all of us by the often quoted Pogo, "We have met the enemy and he is us."

Permit me to briefly identify a few problem areas that warrant our concern:

Air Pollutants--approximately 215 million tons discharged into the atmosphere annually, illness and deaths have occurred from occupational or accidental exposure to

toxic fumes, smoke, vapors, pesticide aerosols and high concentrations of dust. Illness and discomfort stem from a diversity of allergens--plant pollens, household dusts, pet hair, and dandruff.

Communicable Diseases--the common cold, tuberculosis and influenza may be transmitted by airborne microorganisms. Atmospheric pollutants may also aggravate asthma and cause transient eye and respiratory infections.

Water Pollutants--water is subject to pollution by a variety of microorganisms, pesticides and other toxic materials. Present water treatment methods evolve from efforts to control diseases such as typhoid fever, cholera and dysentery, prevalent a century ago. In spite of this progress, many of our communities are consuming water of unknown quality since they are not covered by U.S. public health standards. Even those that are covered by standards are in need of updating, especially with regard to chemical contaminants. Viruses such as hepatitis and bacterial pathogens still warrant serious concern. There is need for increased monitoring of ground water for nitrates because of the health implications, especially for infants. There is need for constant assessment of those pollutants emanating from both urban and industrial areas for their contribution for eutrophication, fish kills, and impairment of aesthetic and recreational value of streams.

Pesticide Pollutants--a small number of human deaths from accidental poisoning, misuse or deliberate ingestion are reported annually. However, of greater concern are the long-range implications of low-level ingestion or exposure from these compounds singularly or in combination to human health.

Also at issue is the use of pesticides in the home. We should first ask, "Why are they used?" The logical answer is, there is an obvious problem. But why the problem? A pest problem becomes a pollution problem only if an environment is created that is conducive to the pest's survival. Thus, the logical and most practical approach to pest control is the maintenance of an environment that is refractory to pest survival.

Noise Pollution--hearing is one of man's most physical senses. When jeopardized or impaired it can affect ability to function as a social being. Extended exposure to high noise levels can cause hearing loss. The Labor Department has established standards for the average working

day that the maximum allowable continuous noise exposure shall not exceed 90 decibels weighted (dBA). Although this level satisfies Labor Department regulations, continuous exposure at this level will result in 15% of the exposed population's developing a hearing handicap.

Also with respect to noise pollution, additional attention needs to be given to the home environment. What acute or subtle changes may result from exposure to the ever increasing use of noise producing appliances in the home? How frequently do we consider the potential pathological implications of such exposure to both adults and youth? It must be kept in mind that responses to environmental forces cannot be weighed only from the present, but must be considered in light of their future consequences.

Solid Wastes--as a Nation, we generate approximately 4.5 billion tons annually. Agriculture contributes over 50%; mineral waste represents about 40%; residential, commercial and institutional are combined for 6%; and industrial is about 3%. Refuse collected in urban areas has increased from 2.75 pounds per person per day in 1920 to 5 pounds in 1970 with an expected 8 pounds in 1980.^{2/} However, only about 3/4 of the residential, commercial and institutional solid waste was collected.^{3/} Equally significant are the following average daily haulaway trash rates:^{4/} hospitals--8 pounds per bed, schools--10 pounds per room plus one pound per four pupils, apartments--5 pounds per unit plus one pound per bedroom, office space--1 pound per square foot.

In addition to the foregoing, there are a variety of social, psychological and aesthetic pollutants that impinge on human development, health, and welfare.

In summary, an attempt has been made to demonstrate that there is a definite interplay of forces between man and the biocommunity of which he is a part. For achievement of a holistic man-environment relationship, it is imperative to take cognizance of the interdependence and interrelationships of all environmental factors and their effect on man, coupled with the recognition and acceptance that the generation of pollutants and environmental degradation is a product of man. The solution to pollution problems will depend on an understanding of their effects on the environmental forces that directly and indirectly affect the welfare of man.

REFERENCE MATERIALS

- 1/ Restoring the Quality of our Environment, Report of the Environmental Pollution Panel, President's Advisory Committee, the White House, November 1965.
- 2/ Environmental Quality: The First Annual Report of the Council on Environmental Quality, CEQ, Washington, D. C., August 1970, p. 106.
- 3/ Ibid., p. 107.
- 4/ Grounds Maintenance, March 1971, p. 34.

