



*executive committee of
the directing council*

PAN AMERICAN
HEALTH
ORGANIZATION

*working party of
the regional committee*

WORLD
HEALTH
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MULTINATIONAL CENTERS: PAN AMERICAN CENTER FOR HUMAN ECOLOGY AND HEALTH

PROGRAM DEVELOPMENT

1. Introduction

The Executive Committee reviewed the proposal to establish the Pan American Center for Human Ecology and Health (ECO) at its 72nd Meeting, held in Washington, D.C., in July 1974, and requested the Director of PASB to continue his efforts to establish the Center as early as possible and to seek funds additional to those of the regular budget so as to ensure its effective and continuing operation.

In response to this request, the Director signed an agreement with the Government of Mexico in September 1975 for the establishment of the Center in that country. In addition to providing physical facilities for the installation of the Center, the Government of Mexico also agreed to assist in the financing of local operating costs.

The Center Director and an ecologist, in cooperation with other PASB staff, have been concentrating their efforts on developing a concrete plan of action for the development and implementation of the Center's program. A Five-year Plan (1976-1980) has been prepared and reviewed by the Advisory Committee on Medical Research of PAHO, and two panels of advisors. The program, completed in January 1977, is attached as Annex I. The document describes the specific steps to be undertaken to establish the Center as a functioning unit, and also details some of the activities that ECO will undertake.

2. Progressive Development of the Center

With the development plan largely completed, the Center will start a two-year period of rapid growth in 1978. By early 1979 it is expected that the Center's staff will have grown to full strength, and that its accelerated development phase, as far as regular budget support is concerned, will have reached its leveling off point. The resources that will be required to support the Center are shown in Annex II.

This new technical resource of the Organization will essentially be a multidisciplinary team selected to form a concentration of skills related to assessing the human health effects of environmental change. Each professional will have experience in community based field work in developing countries. Their professional backgrounds will vary, but will fall into three main categories representing the divisions of the human environment: biomedical, such as epidemiology and ecology; sociocultural, such as anthropology and sociology; and development, such as industrial systems analysis. The combined disciplines will have the capacity to examine the health impact of development changes in a comprehensive or holistic manner.

3. Activities Carried Out

In addition to the planning effort, and despite its small size and relatively short existence, the Center's staff has been able to participate in a variety of projects or activities which have contributed to defining the future program. The projects have mostly consisted of environmental and health impact assessments of developing projects such as dams, mines and smelters, geothermal power plants, and colonization or regional development projects.

The first steps for implementing a training program in human ecology have been taken. Potential collaborating institutions have been identified and plans to develop appropriate curricula and field training activities are under way.

An information system is under development and some requests for assistance have been received and answered. The requests have been varied, from questions concerning the health effects of impounded waters to the consequences of using certain food additives.

From the beginning, the intention was to build the Center as a supplement and complement to PAHO's overall program. Mechanisms to coordinate ECO's activities with those of CEPIS and other units or divisions in PAHO have developed to the point where joint missions are becoming the rule rather than the exception. Additionally, ECO cooperates with the Latin American Regional Office of the United Nations Environmental Program, and has participated in joint interagency missions.

The modest but important accomplishments listed above could not have taken place without the assistance and support of the Government of Mexico. The Government is currently supplying temporary quarters, and has made available a suitable building site where it will construct a permanent facility for the Center. In addition, the Government of Mexico contributes funds to cover some of the operating costs of the Center.



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DEVELOPMENT PROGRAM FOR THE PAN AMERICAN CENTER
FOR HUMAN ECOLOGY AND HEALTH

MEXICO

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BACKGROUND

The Pan American Center for Human Ecology and Health (ECO) was officially established in Mexico City in September 1975 after the signing of an agreement between the Pan American Health Organization and the Government of Mexico.

Underlying the decision of the Governing Bodies of the Organization to establish the Center is the concept that health problems and the factors affecting them should be studied in situ, in the hope that solutions may be found in the cultural, social, and economic context of the communities affected.

INTRODUCTION

Development and economic growth is one basic goal of all PAHO's Member Countries. During the next few decades, billions of dollars will be invested in social, industrial, and resource utilization projects. All the nations of the hemisphere are under intense pressure to exploit energy resources, improve agriculture, utilize new territory, and develop industries. Primary raw material vendors will increasingly refine, process, and utilize their own domestic resources.

The recognition that social, educational, and health programs must accompany industrialization is an increasingly accepted concept. Clearly, the experience and mistakes of the highly industrialized nations point to the need for rapidly developing nations to protect their societies from the preventably unwanted side effects that technology and industrialization can bring.

Large-scale development projects in Latin America will have a profound impact on health and human ecology. Such projects may well be some of the most important planned discrete events that will affect the environment and health. At the same time the expansion of suburban areas into the country sides and their effects on the rural areas alter living and disease patterns.

The objective of the Center is to cooperate with Member Countries to prevent or ameliorate adverse impacts on health that result from environmental interventions and changes. The Center will collaborate with Member Countries to develop and utilize their own resources to conduct assessments of health impacts; establish environmental quality standards as guides in the initiation of control programs; utilize information available internationally; design and conduct research projects; and train personnel.

PROGRAM NEEDS

Many individuals and representatives of governments have stated that their countries need technical cooperation in formulating and implementing environmental and health impact assessments of development projects. In most cases they have relatively limited capacity to conduct the extensive investigations required, especially of the health aspects.

The priority questions most frequently asked by representatives of the health sector fall into the following categories.

1. How should environmental and health problems be defined and what information needs to be collected (initially, periodically and/or continually) in order to assess the environmental and health impact of development projects? How is the information to be integrated into a holistic plan? What are the least costly and most efficient ways of collecting such information?
2. How can we develop strategies to minimize adverse effects, including the development of integrated plans, identification of alternatives, and acquisition of technologies which can limit damage?
3. How should control and regulatory strategies be developed? What are the relationships between environmental health standards and health effects? Which indices of health can be best used to measure changes in health and the effectiveness of control programs?
4. What are the most effective and appropriate implementation mechanisms for administrative control and executive authority to enforce an environmental and health protective program?
5. What kind of training should be provided to professionals working in this area, and where will they get it?
6. If expert technical cooperation is needed, what kind of experts should be obtained and how can they be identified?

The list of national concerns may be considered a confirmation of the original objectives as stated in the report of the Advisory Panel which met in Mexico City in January 1975. Those objectives have been modified somewhat by experience and by the discussions at a second meeting of the Advisory Panel in August 1976, but are consistent with the concerns expressed above.

ROLE OF THE CENTER

The Center faces the problem of limiting the definition of health and human ecology for operational purposes. A human ecologist is concerned with all the interactions between man's biomedical, socio-cultural, and productive activities. The environmental health problems facing Latin America range from occupational and community hazards of new industries and development projects to gastroenteric infections caused by the consumption of contaminated water and food. The Center must also confront the reality of operating with limited resources. Therefore, the strategy for the Center's development is to concentrate resources where the problems seem most urgent and yet maintain a flexibility which will allow the Center to respond effectively to unforeseen or uncommon problems. However, emphasis will be on those activities having relevance to the PAHO technical cooperation program and in particular to the functions assigned to the Division of Environmental Health.

The role of the Center is to provide leadership and be a catalytic agent in directing the attention of PAHO and member government agencies toward holistic interpretations of the processes, man-made and natural, that affect the health of human populations. Usually the Center will function as a supplement to ongoing or proposed projects of other units or institutions of PAHO, its member governments, the United Nations agencies and specially the United Nations Environmental Program, which has a responsibility for inter-agency coordination in environmental matters. In its operations the Center will emphasize information synthesis and analysis, inculcation of integrative methodologies, and training to develop self-sufficiency within Member Countries.

POTENTIAL PROGRAM ACTIVITIES

Environmental Impact Assessments

Systematic analysis of human ecological systems, which includes multiple and concurrent influences of the physical, biological, socioeconomic, and political factors affecting the health status of populations, is an enormous task. Nevertheless, the obvious need to base health management strategies on an adequate evaluation of all such factors within a defined locality, clearly calls for the inclusion of such activities within the work plan of the Center. Under these circumstances it seems obvious that the Center's objectives can probably best be pursued by assumption of a leadership function in integrating products of the activities of other units and agencies. To achieve the desired synthesis, the Center will attempt to provide skills and integrative perspectives to supplement projects and investigations conducted by other agencies and Centers. The ultimate objective is to develop a capability within member governments to intervene effectively in the human ecological system in the interest of human health and general welfare.

Information

The raw material for ecological analysis is information. Therefore, the Center must concern itself with the assembly and evaluation of relevant data of all types, to be secured from international, national, private, academic, and industrial sources. As a rule, it will not engage in projects aimed at generation of primary information. However, it may well feel that in certain areas, especially those of an epidemiologic character, supplementation of the activities of other groups will prove to be essential to the development of a workable data base.

The Center will be a pioneering agency to the degree to which it serves the functions of information assembly and evaluation, systematic analysis of the whole human environment, and projection of the impact of change in man's surroundings on the status of man himself.

Training

Human ecology is an integrative science which is concerned with all the elements of man's activities and environment, their interactions, and their impact on man's health and well being.

It is recognized that to incorporate ecologic systems thinking and applications in decision-making will require a pervasive educational and training effort. The holistic approach can hardly be said to be prevalent among developers, resource exploiters, or other environmental change agents.

Limitations in staff and fiscal resources suggest that the Center's direct training activities should be essentially catalytic. While seminars, symposia, and occasional lectures will be possible, it is likely that the most lasting benefits can be achieved by giving some form of intensive training in ecologic systems or epidemiology to a few individuals already professionally qualified in a related area of science, medicine, or engineering. Such trainees might then be expected to translate the newly learned philosophy and methodology into the curricula and programs of their respective Latin American institutions.

As the Center grows, a more extensive, multi-level training program may be possible, including both in-house courses and various forms of traineeships and scholarships.

Training and human resource development will become an increasingly important part of ECO's program but is expected to take some time to evolve because it should be built on a base of experience.

Research

The research program of the Center will concentrate on developing methods for measuring the impact of environmental change on health. At this

time it is difficult to predict what specific research projects will be incorporated into the Center's program. More than likely, however, the emphasis will be on supporting research in existing institutions rather than building up any significant in-house capabilities.

STRATEGY FOR THE DEVELOPMENT

The new Center is starting from a small base and entering an area that is relatively new and has not been rigorously defined. There are no clear guidelines or established precedents to follow. A cautious step-by-step development seems advisable. The Center must not overcommit itself and spread its resources too thin. For the period 1975 to 1980, the prime task is to develop the technical and managerial capacity to deliver high-quality assistance.

The strategy will be to transform the general objectives of the Center into a specific program consistent with the resources available. The first step is to describe what needs to be done and then to develop a critical mass of professional and supporting staff to execute the plan of action.

PLAN OF ACTION

The general strategy for development of the Center attempts to indicate where emphasis will be placed as the Center matures. It does not imply absolute boundaries between activities or stages.

Assessment Activities

Initially the Center is expected to assist in human ecology and health impact assessments of development projects related to environmental factors. The Center will avoid undertaking the management of entire environmental assessment programs. Instead it will begin by participating in assessments already underway by filling the gaps that appear to be weakest in relation to the assessment of health related aspects by professional specialists or planning inputs.

For the next three years activities in this area of work will consist of the following:

1. A series of selected consultations on the environmental impact on human health of development projects to provide direct technical assistance when requested, including:
First, participating in selected assessments.
Second, advising member states in what is needed to develop their own capacity for assessments.
2. A continuing review of existing health and environmental impact assessment methods, concentrating on direct health effects,

indirect health effects brought about by environmental changes, and, social effects which have an impact on health. The review will include the collection and evaluation of health criteria documents.

3. The development of a set of assessment methodology manuals which can serve as guidelines to be made available for others to use. Some areas where such manuals might be highly useful are:
 - (a) Agro-ecosystem alteration and modernization.
 - (b) Colonization and establishment of new population frontiers.
 - (c) Population change assessment in urban and rural areas.
 - (d) Multipurpose dams in tropical, subtropical, and temperate ecosystems.
 - (e) Geothermal and nuclear power plants.
 - (f) Integrated extractive-processing industries; e.g., copper, aluminum, steel, petroleum and petrochemicals.
4. The study of the relationship between ecologically based health plans and governmental structures which are responsible for executing the plans. The intent is to learn how to strengthen the capacity of responsible agencies, to implement appropriate control strategies.

The goal is to conduct the studies on a joint basis with the appropriate specialists within the host country, PAHO/WHO, and with other international agencies as appropriate. The plan is to provide specialized technical skills to countries coordinated through the Country Representative's office. Cooperative action can foster a mutual feeling of accomplishment and perhaps improve the opportunity for success in implementing the recommendations.

In addition to planning to develop a capacity to respond to a variety of requests for assistance, an integrated set of specific project activities is being proposed as one part of the Center's program during 1976 and 1977. These projects will provide a variety of technical and administrative problems for study, which are expected to contribute to the Center's development as well as to provide solution of direct value to the countries concerned. No firm commitments have been made as yet, and difficulties may arise which will indicate that ECO's participation is no longer appropriate. The list serves as a display of examples of the sort of projects with which ECO could be concerned. The proposed projects are:

1. Cerro Colorado Copper Mine and Fortune Dam - Chiriqui, Panamá. A new copper mine and smelter are planned in a relatively undeveloped area, as well as a dam to supply power for the project. Both ECO and the United Nations Environment Program (UNEP) have made preliminary surveys and plan to combine resources to assist the Government of Panama in completing an intensive environmental and health impact assessment. The first reports have been used in early project planning for determining smelter site location and other designs aimed at avoiding pollution and potential health hazards.
2. Colonization in Tropical Forests. In conjunction with the Center for Ecological Investigations of the South East (CIES), located in San Cristóbal de las Casas, Chiapas, Mexico, it is planned to study the ecological, sociological, and health impacts of new colonies in tropical evergreen forest in the Lacandona Forest in Chiapas.
3. Papaloapan Dam in Mexico. The purpose of studying this 20-year old subtropical dam is to take advantage of the opportunity it offers for retrospective analysis to see which aspects of an environmental and health assessment turn out in practice to be most critical. A general ecological and health impact study will be undertaken attempting to assess multiple aspects of the changes on the health and way of life of the affected people. Particular emphasis will be placed on the health impact of relocation of people and on nutritional effects following changes in agricultural practices.
4. The Salto Grande Hydroelectric Dam. Argentina and Uruguay have jointly established a binational "Comisión Técnica Mixta Argentina-Uruguay de Salto Grande" to build a dam. ECO has been asked to participate in an extensive impact assessment which is being undertaken by the Commission. ECO's contribution will be small in comparison to the binational effort, but the cooperative studies provide an opportunity for both the Commission and ECO to develop improved assessment methodologies. The opportunity to observe the administrative and management aspects of an international project will be of particular importance to ECO's program.
5. Implementation strategies. A project is being developed to learn more about the implementing process of environmental and health control plans. The purpose is to observe and describe the governmental structure as it relates to environmental and health management. The responsibility for the execution of environmental control strategies is often found in different agencies or ministries, sometimes with overlapping responsibilities. Interagency conflict and competition are not unknown. In other instances, there are gaps in responsibilities. Capacities to undertake or execute

time-phased plans may differ from one agency to another. Such data can be of great practical importance in designing plans, by making it possible in many cases to adopt the plans in line with an approach that is appropriate to the particular government concerned.

Training

As stated previously, the training program will take some time to evolve. Based on contacts established with existing institutions a number of possible training activities have been identified in which ECO might provide some input. These include:

1. Assisting in developing and expanding specific academic programs at those institutions where new degree programs in human ecology are being contemplated.
2. Determining what potential exists with nonacademic applied research institutions in on-the-job training activities.
3. Assisting in providing the human ecology input to post-graduate programs to train physicians and health scientists.
4. Participating in ongoing continuing education programs by developing a series of special short courses in the field of human ecology.
5. Initiating a fellowship program for doctoral candidates in environmental sciences and human ecology.
6. Providing the opportunity for a number of outside professionals to gain experience by participating in the activities of the Center.

Information

A resource critically needed by the Center staff is an information system that will permit keeping up-to-date on knowledge concerning environmental and health problems to support its planned activities. Activities which are contemplated include the following:

1. Continuing with surveys of main sources of information in Mexico City and elsewhere in order to evaluate what is available and useable to the Center and thus avoid duplication.
2. Continuing to build up a sources information reference file organized by subjects which will make it possible to produce annotated bibliographies on specific topics.

3. Establishing an information analysis program whereby the professional staff at the Center will evaluate the quality and applicability of information in reports and journals for input to the ECO system.

Research

It is expected that the Center will not have an in-house research program during the next three years. Efforts will be directed to stimulating, and possibly providing modest support for studies at existing institutions in the Region. The following are areas of research needing attention:

1. Photo-interpretation as a tool to estimate and project health indices and cultural patterns which are undergoing change.
2. Developing procedures to display the multiplicity of information obtained in an ecological investigation. Multiple transparent overlay mapping is one technique which needs evaluating.
3. Simplified modeling processes to study critical variables and parameters.

DEVELOPING THE CORE STAFF

To carry out the proposed program, the Center will need a mix of professional capacities and experiences. The multidisciplinary team should be selected so that each member's skills complement others and the whole team's skills cover the spectrum of discipline required for a comprehensive health and environmental impact assessment.

The total minimum professional staff should number eight: the director, two ecologists, two epidemiologists, a behavioral scientist, a toxicologist, and an environmental systems analyst. The emphasis on ECO's staffing plan is to gather a team experienced in community studies of human health.

The basic human ecological and health assessment team capabilities will be augmented by establishing close working relationships with the UNEP Latin American Regional Office in Mexico City, and other international agencies, which have strengths in ecology, economics environmental law, and other areas, as well as the PAHO program and specially CEPIS, in Lima, which have specialized environmental engineering skills. This arrangement will also benefit the other agencies by broadening their scope and capabilities in human ecology and health through the use of the specialists of ECO. Additions will be made to the Center's core staff as resources permit and as program activities expand.

In summary, the strategy is to use the limited resources available to build a multidisciplinary core staff which will be responsible for managing and conducting the program of the Center. Most of the resources will be used to provide the critical mass of professionals, together with the necessary administrative and technical infrastructure.

BUDGET FOR THE ESTABLISHMENT AND OPERATION
FOR FOUR YEARS OF THE CENTER FOR HUMAN ECOLOGY AND HEALTH
(In U.S. Dollars)

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>Total</u>
Staff	183,185	299,315	464,950	553,360	1,500,810
Short-term Consultants	21,600	18,000	20,400	19,000	79,000
Duty Travel	9,260	13,200	26,000	26,000	74,460
Seminars	12,862	7,000	15,000	15,430	50,292
Supplies and Equipment	9,500	31,420	42,225	36,970	120,115
Grants	-	3,000	10,000	13,000	26,000
Common Services	10,500	17,045	20,330	21,195	69,070
Contractual Services	6,625	14,500	25,570	25,000	71,695
Total Project Costs	<u>253,532</u>	<u>403,480</u>	<u>624,475</u>	<u>709,955</u>	<u>1,991,442</u>

Building

- The host country is providing the office space required to initiate the activities of the Center and subsequently a building of 1,500 m² of usable surface area with the necessary equipment. It will also contribute towards defraying local operation costs.