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COORDINATION OF WASH INFORMATION ACTIVITIES AND EXCHANGE WITH INTERNATIONAL INFORMATION CENTERS

Trip Report No. 2

Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) Lima, Peru, June 20–25, 1982

WASH FIELD REPORT NO. 48

JULY 1982

LIBRARY
INTERNATIONAL REFERENCE CENTRE
FOR COMMUNITY WATER SUPPLY AND
SANITATION (IRC)

Prepared For:
Office of Health
Bureau for Science and Technology
Agency for International Development
Order of Technical Direction No. 32

WATER AND SANITATION FOR HEALTH PROJECT

COORDINATION AND INFORMATION CENTER

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15 July 1982

Mr. Victor W.R. Wehman, Jr., P.E., R.S.
A.I.D. WASH Project Manager
A.I.D./S&T/H/WS

Dear Mr. Wehman,

Attached please find four copies of WASH Field Report No. 48, Coordination of WASH Information Activities and Exchange with International Organizations, Trip Report No. 2.

This report summarizes the visit of Mr. James Beverly, WASH Information Director, to the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS), Lima, Peru, June 20-25, 1982, under OTD #32.

If you have any questions or comments regarding this report, we will be happy to discuss them.

Sincerely yours,

Dennis B. Warner

Dennis B. Warner, Ph.D., P.E.
WASH Project Director

DBW:JEB:mbb

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WASH FIELD REPORT NO. 48

COORDINATION OF WASH INFORMATION ACTIVITIES AND EXCHANCE WITH INTERNATIONAL INFORMATION CENTERS

Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS)

Lima, Peru, June 20-25, 1982

Trip Report No. 2

Prepared for the Office of Health
Bureau for Science and Technology
Agency for International Development
under Order of Technical Direction No. 32

Prepared by:

James E. Beverly

July 1982

Water and Sanitation for Health Project
Contract No. AID/DSPE-C-0080, Project No. 931-1176
is sponsored by the Office of Health, Bureau for Science and Technology
U.S. Agency for International Development
Washington, DC 20523

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Chapter 1

INTRODUCTION

This report summarizes the second trip made by the WASH Project Information Director under Order of Technical Direction #32: Coordination of WASH Information Activities and Exchange with International Information Centers. The first trip was made in April 1981 to the International Reference Centre (IRC) for Community Water Supply and Sanitation, the Hague, and other European information centers. This second trip was made to the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) of the Pan American Health Organization (PAHO), in Lima, Peru, June 20-25, 1982.

The purpose of the trip was to establish sound, long-term working relationships concerning information exchange and various modes of collaboration in information development, acquisition, analysis and dissemination. The general approach used was to describe the WASH Project, its operational procedures and reports to CEPIS staff, to obtain similiar information about CEPIS and its programs, and then to explore possible modes of interaction.

Monday, June 21, through Wednesday morning, June 24 was spent with senior CEPIS staff: Alberto Flores, Director of CEPIS; Carl Bartone, Coordinator of Technology Development; Rodolfo Saenz, Coordinator of Human and Institutional Resource Development; and Carmen Nieto, CEPIS Librarian. The latter three persons represent the three functional areas of CEPIS operations--Technology Development, Human Resources Development, and Information Exchange. Wednesday morning there was a two hour CEPIS staff meeting attended by nineteen persons. Carl Bartone discussed the Program for the Development and Transfer of Appropriate Technology (see section 3 below) and James Beverly, WASH Information Director, was invited to describe WASH to the CEPIS staff. Wednesday afternoon was spent at AID/Lima but a scheduled meeting with Paul White, AID Program Manager, was cut short, re-scheduled, and completed on Thursday afternoon. Thursday morning was spent mostly with Dr. Fabian Yanez and included a visit to the San Juan sewerage stabilization ponds where extensive research has been carried out for a number of years. The return trip to the United States was made on Friday, June 25.

The remaining four sections of this report discuss the CEPIS Information System (REPIDISCA), the CEPIS Programs for Development and Transfer of Appropriate Technology, and the CEPIS Training Program, followed by the section of Conclusions.

Chapter 2

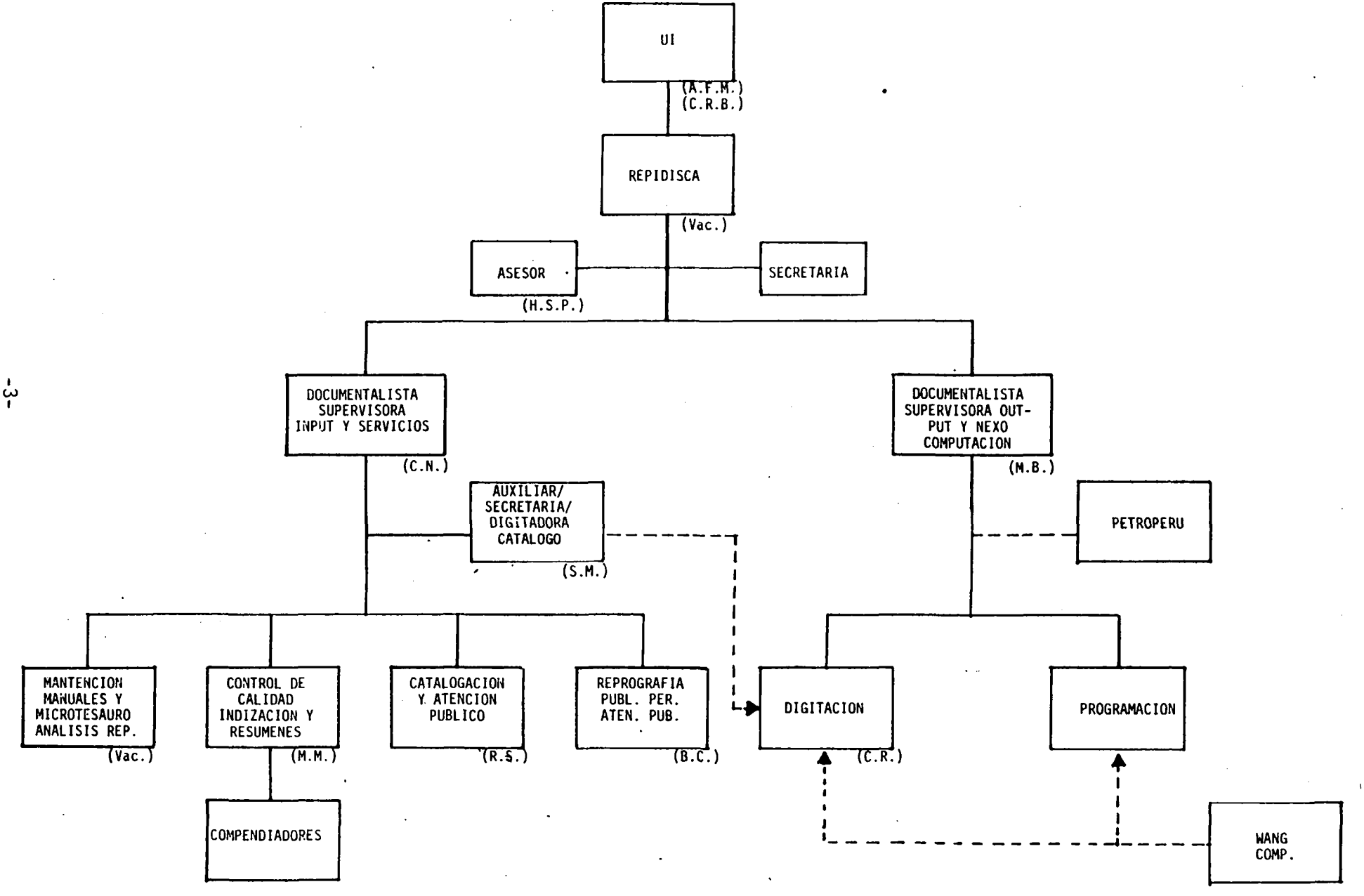
THE CEPIS INFORMATION SYSTEM (REPIDISCA)

REPIDISCA is the acronym for "Red Panamericana de Informacion y Documentacion en Ingenieria Sanitaria y Ciencias Ambientales" which in English is the Pan American Network for Information and Documentation in Sanitary Engineering and Environmental Sciences. Planning for REPIDISCA was initiated in 1977 by CEPIS and the network now includes 23 information units operating in 12 countries. The organization structure, document collection and information services of REPIDISCA are described on the following pages.

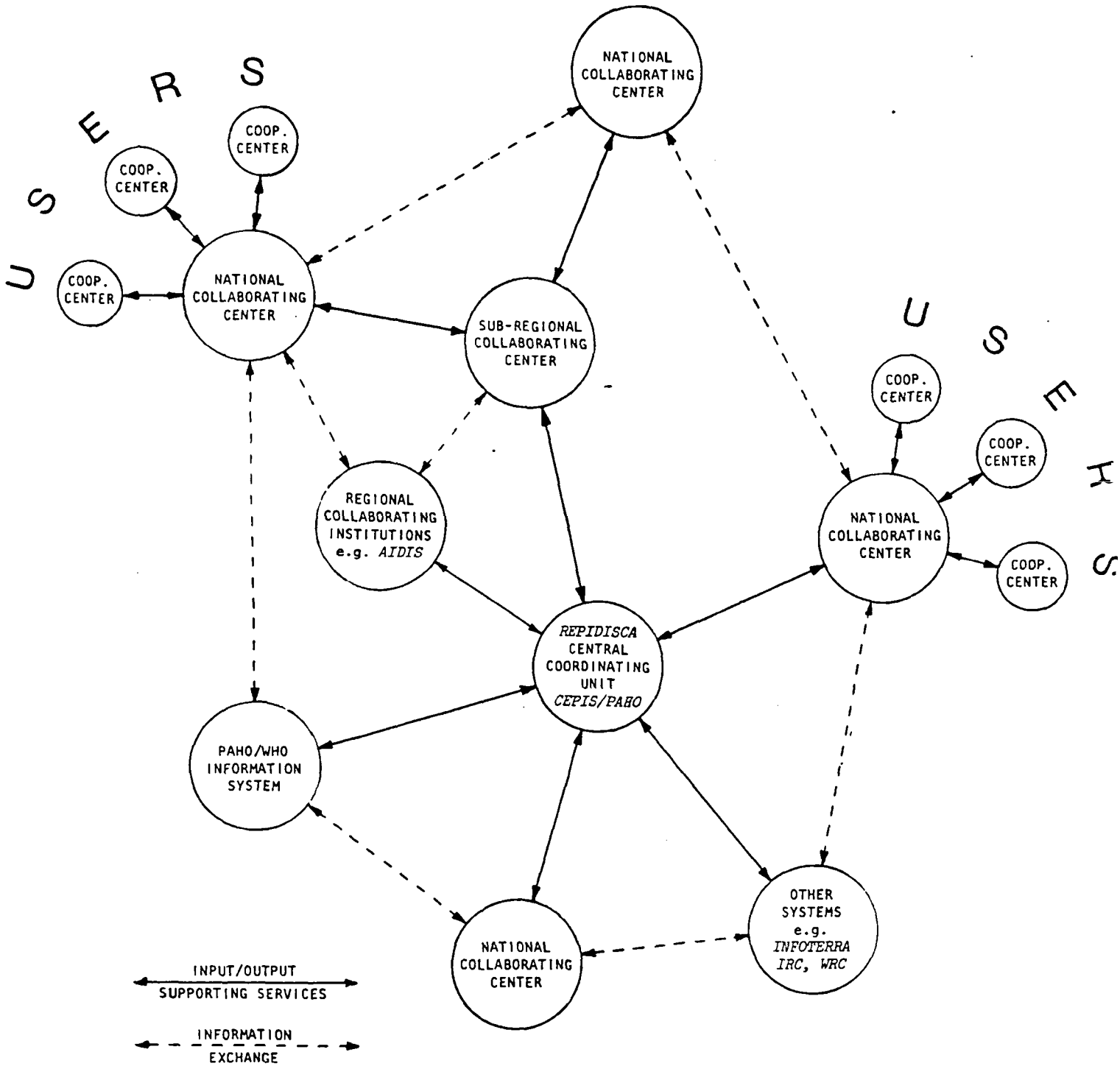
At the moment, the position of Manager of REPIDISCA is vacant and is expected to be filled this summer. In the meantime, Alberto Flores and Carl Bartone have shared development and management responsibilities for REPIDISCA. REPIDISCA is a regional information resource for PAHO and serves in that capacity as part of the POETRI program of the International Reference Center for Community Water Supply and Sanitation at the Hague. POETRI is the acronym for Programme on Exchange and Transfer of Information---an international network established for the UN Water Decade.

The CEPIS Library, which is the core of REPIDISCA, has some 12,000 books, reports and documents of which about 6,000 have been entered into the computer and are accessible by machine searching. The Library collection reflects the classic sanitary engineering and environmental science orientation of CEPIS. In examining the card catalog, which is under revision, and items on the shelves, very little material of a non-technical nature, which is of interest to WASH was found. The CEPIS collection has little on health education, community education, participation and development, technology appropriate for rural communities, and training tools for field use. These gaps are recognized and will be filled as CEPIS becomes more active in these areas (see CEPIS work plan in Chapter 3 below) and as demand develops from members of REPIDISCA.

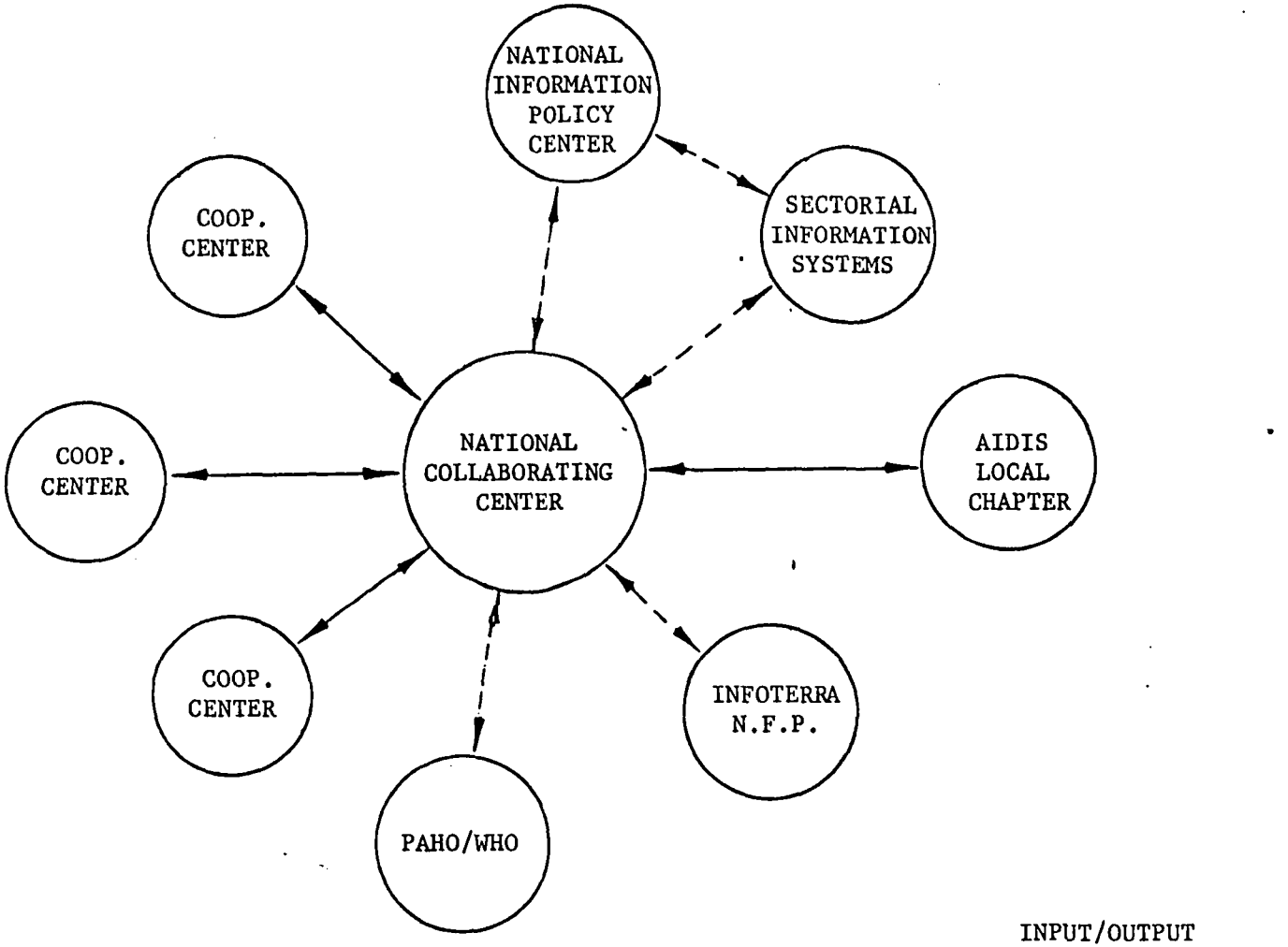
As part of its document delivery service, CEPIS is installing a 3M Model 1050 Microfiche Production Unit ($20,000.00) which will be used to microfiche the CEPIS collection. A microfiche reproduction machine will then be used in the dissemination of documents in microfiche format. The cost recovery aspects of this activity are being explored by CEPIS.



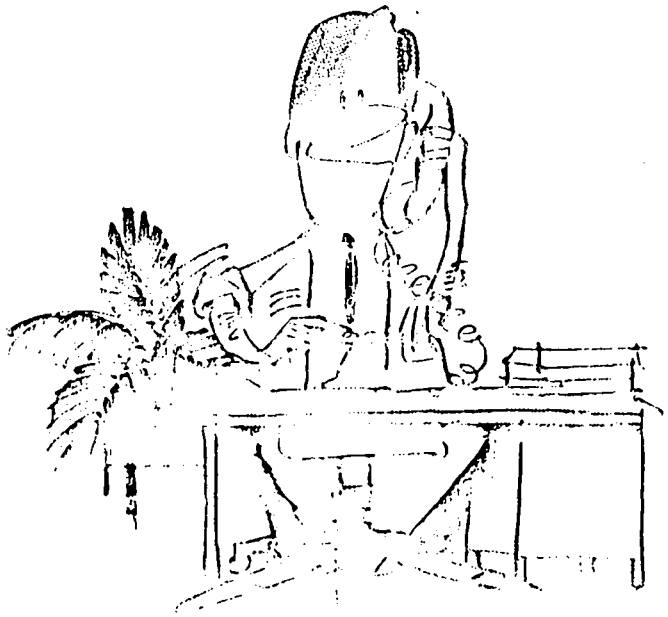
Staff Organization of REPIDISCA within CEPIS at Lima, Peru June 1982



CONCEPTUAL DESIGN OF THE REPIDISCA NETWORK



REPIDISCA NATIONAL SUBNETWORK



REPIDISCA

We welcome your questions by:

MAIL: CEPIS
CASILLA 4337
LIMA 100, PERU

PHONE: 35.4135

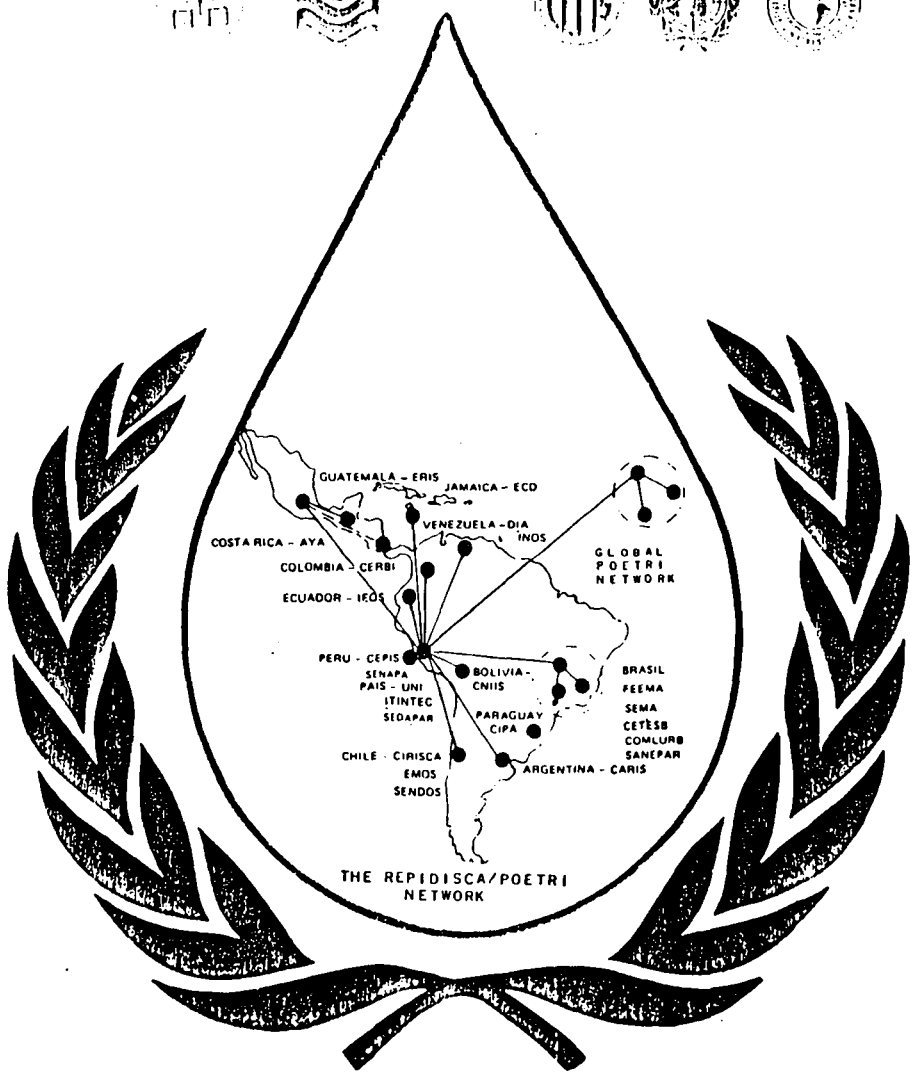
CABLE: CEPIS LIMA TELEX: 21052

IN PERSON: LOS PINOS 259, CAMACHO, LIMA 3, PERU

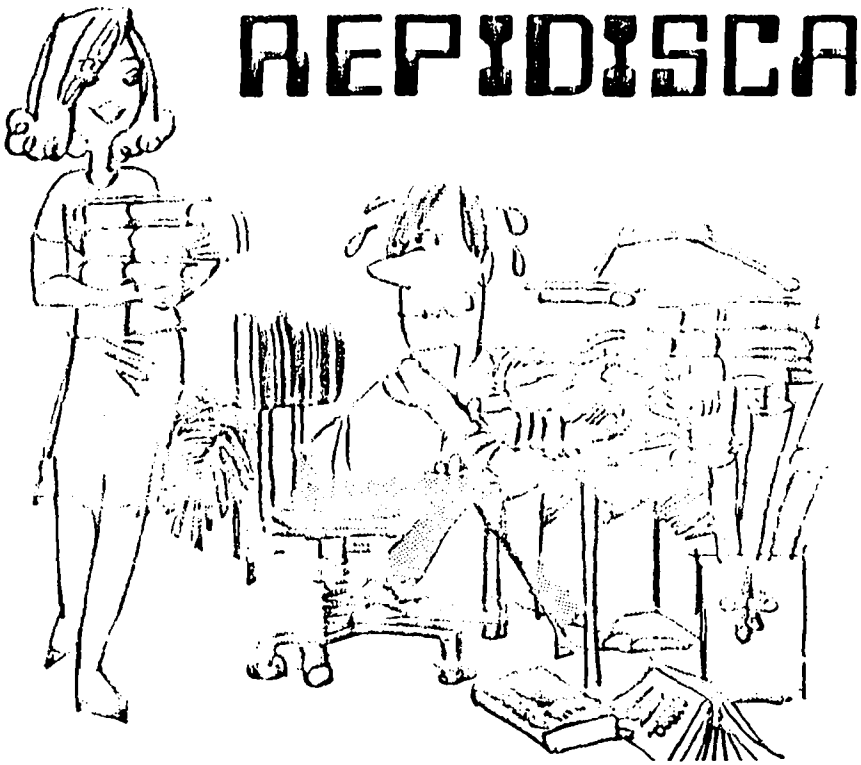
PRINTED AT CEPIS

Pan American Network for Information and Documentation
in Sanitary Engineering and Environmental Sciences

REPIDISCA



REPIDISCA



The Pan American Network for Information and Documentation in Sanitary Engineering and Environmental Sciences (REPIDISCA) is an information system being established to provide access to specialized knowledge through the collection and dissemination of bibliographic materials, with emphasis on "non–conventional" documents of limited distribution or availability such as technical reports, theses, working papers, etc.

Through this system, managerial, professional, technical and administrative personnel in the areas of sanitary engineering and environmental sciencies can keep abreast of the latest developments in their field on a world-wide basis, and will have up-to-date information at their disposal for decision making and the development of new technologies at the local level.

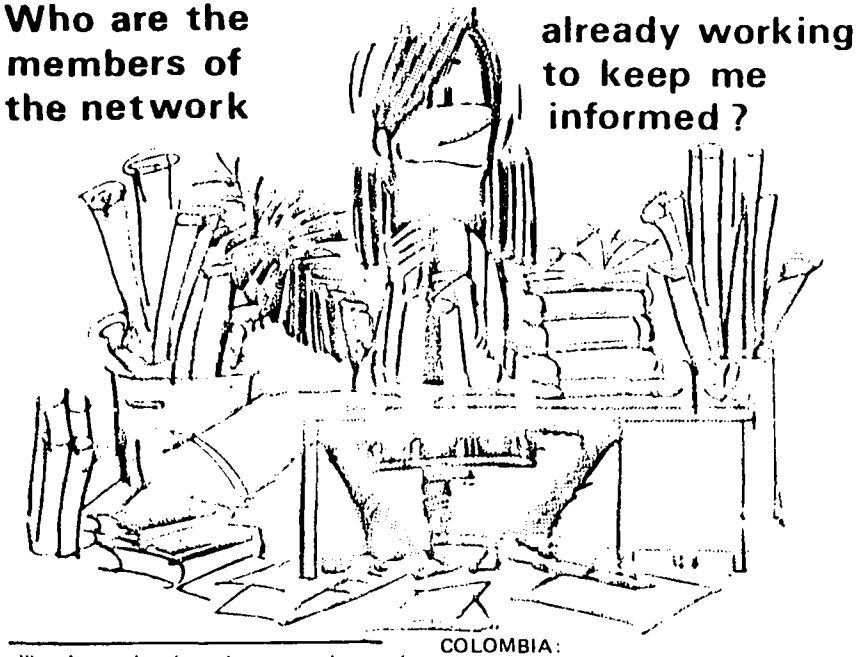
REPIDISCA is a cooperative venture of a regional coordinating center, CEPIS (The Pan American Center for Sanitary Engineering and Environmental Sciences) and National Collaborating Centers (NCCs) in several countries, which carry out local network activities.

The NCCs identify and select documents produced in each country and prepare input worksheets describing their contents. These worksheets are then sent to the regional clearinghouse, where a data base consolidating the information from various countries is created and processed.

Emphasis during the first years of the network is on documents in the fields of water supply and sanitation. When in full operation, REPIDISCA will contain information in all branches of environmental health.

Spanish is the "carrier language", and all documents, in whatever language, are identified by subject or title in Spanish.

Who are the members of the network already working to keep me informed?

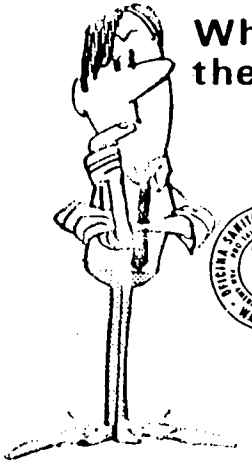


The libraries and other documentation and information centers of the Region, which specialize in sanitary engineering and environmental sciences.

There are already 23 information units in operation in 12 countries. We hope to add more each year.

ARGENTINA:
Centro Argentino de Referencia en Ingeniería Sanitaria (CARIS)
BOLIVIA:
Centro Nacional de Información en Ingeniería Sanitaria (CNIIS)*
BRASIL:
Companhia de Tecnologia de Saneamento Ambiental (CETESB)
Fundaçao Estadual de Engenharia do Meio Ambiente (FEEMA)
Secretaria Especial do Meio Ambiente (SEMA)
Companhia de Saneamento do Parana (SANEPAR)
Companhia Municipal de Limpieza Urbana (COMLURB)
CHILE:
Centro de Información y Referencia en Ingeniería Sanitaria y Ciencias del Ambiente (CIRISCA)
Servicio Nacional de Obras Sanitarias (SENDOS)
Empresa Metropolitana de Obras Sanitarias (EMOS)
COLOMBIA:
Instituto Nacional de Fomento Municipal (INSFOPAL)
COSTA RICA:
Instituto Costarricense de Acueductos y Alcantarillados (AYA)
ECUADOR:
Instituto Ecuatoriano de Obras Sanitarias (IEOS)*
GUATEMALA:
Escuela Regional de Ingeniería Sanitaria (ERIS)*
JAMAICA:
Environmental Control Division – Ministry of Health*
PARAGUAY:
Centro de Información en Problemas Ambientales (CIPA)*
PERU:
Servicio Nacional de Abastecimiento de Agua Potable y Alcantarillado(SENAPA)*
ITINTEC*
Programa Académico de Ingeniería Sanitaria –UNI*
Servicio de Agua Potable y Alcantarillado de Arequipa,(SEDAPAR)*
VENEZUELA:
Dirección de Investigación del Ambiente (MARNR)*
Instituto Nacional de Obras Sanitarias (INOS)*
REGIONAL COORDINATING CENTER:
CEPIS

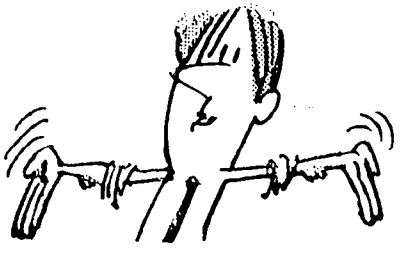
* In process of development



Who are the sponsors?

Financial support is provided by the Pan American Health Organization, through its Environmental Health Protection Division, by the International Development Research Centre of Canada, by the International Reference Centre for Community Water Supply, The Netherlands, through its Programme on Exchange and Transfer of Information (POETRI), and, of course, by YOU as information producer and user. This effort is being made to bring you information which is continually updated and relevant to your needs.

What does the network offer?



Access to all information from CEPIS and the collaborating centers on engineering, management, finance and administration in the fields of water supply, sanitation and other areas of environmental engineering.

CEPIS' library alone contains 10,500 documents, more than 16,500 microfiches, and receives 200 journals and periodicals, with a 15 % annual increase in its collections.

How can I become a member of REPIDISCA

Participation is open to government and educational institutions working in the field of sanitary engineering or environmental sciences:

- Which have a technical information infrastructure, such as a library managed by a professional or other staff with experience in the handling of information,*
- and are willing to identify and process, using REPIDISCA methodology, "non-conventional" documents produced by the institution itself or by other local agencies,*
- submit a set number of input sheets to the Coordinating Center each quarter, and
- assist in the dissemination of REPIDISCA publications and services.

Even if you do not meet the above requirements, you may still enroll as a user by subscribing to REPINDEX, TABCONT, etc.

* CEPIS will provide training.

REPI DISCA

Services provided to network member institutions

TRAINING

We organize courses, give training in our own library, and prepare manuals for self-instruction in system procedures.

CONSULTANT SERVICES

Specialized personnel from any of the institutions making up the network are available to help you solve information problems.

COLLABORATION

With national centers to organize sub-networks in each country for information on water and sanitation.

REFERRALS

We can put you in contact with any information system in the world that might help you solve your problem.

INTER-INSTITUTIONAL LOANS

If necessary you can obtain through us loans or copies of documents available at institutions belonging to the Network or related to it.

Information awareness service

REPIDISCA provides up-to-date information through two types of publication:

REPINDEX

This publication appears quarterly, with approximately 1,000 entries and a summary of each document accessed to the Network's Data Base. Quarterly indices and an annual cumulative index by subject, author and country are also provided.

REPINDEX is currently being computerized using ISIS*. In the future, we will also be able to provide REPINDEX in magnetic tape format, upon request.

* Integrated Set of Information Systems, for information storage, processing and retrieval. System provided by UNESCO.

TABCONT/CEPIS

Every two months the CEPIS library distributes TABCONT/CEPIS, a compilation of the Tables of Contents of 55 selected journals, with a general subject index for easy access to articles of interest. Subscription to TABCONT/CEPIS entitles you to receive free copies of two articles from each bimonthly issue, and copies of additional articles at a nominal $ 1.00 each. A subscription to TABCONT/CEPIS provides access to current literature at a saving of some $ 4,800 per year, which is what it would cost to subscribe to the 55 journals represented.

These and other CEPIS publications are available through annual subscription. Ask for our Catalogue of Publications for additional details.

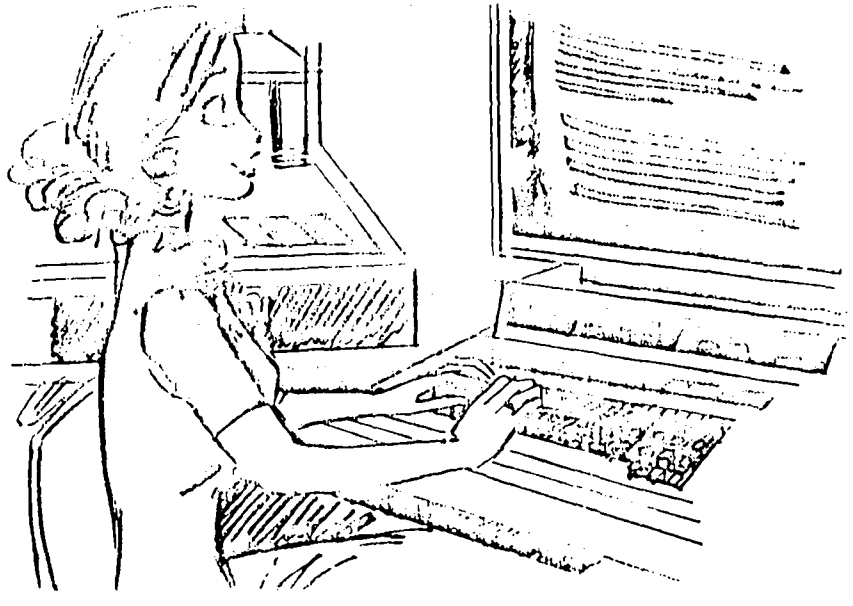
Bibliographic searches

Through this service we can help you locate substantive information on any problem, by providing tailor-made bibliographies, cumulative indices, and information from a particular country or from all countries participating in the network.

Information outputs fron the data base

In addition to the REPINDEX, the following will be produced directly from the computer:

- Union catalogue of serial publications
- Directory of institutions specializing in sanitary engineering and environmental sciences
- Directory of specialists in the field
- Catalogue of the CEPIS library
- Catalogue of research-in-progress
- MISCA microthesaurus of specialized terms
- Selective dissemination of information



Chapter 3

THE CEPIS PROGRAM FOR THE DEVELOPMENT AND TRANSFER OF APPROPRIATE TECHNOLOGY

At the 21st Meeting of the Advisory Committee on Medical Research of PAHO, held in Caracas, Venezuela, 29-30 April 1982, CEPIS presented its Program for the Development and Transfer of Appropriate Technology which was approved.

This program was reviewed and discussed at a CEPIS Staff Meeting on June 23, 1982 attended by the WASH Information Director. The Program Document (PAHO/ACMR/21/10) is reproduced on the following pages. The last four pages of the Program Document present the CEPIS 1982-83 Work Plan by Project Area, Project Title and current status of activity. Fifty one projects are listed.

The Program Document indicates many areas for possible collaboration between CEPIS and WASH.

Pan American Health Organization

PAHO/ACMR/21/10
Original: English

TWENTY-FIRST MEETING OF THE
ADVISORY COMMITTEE ON MEDICAL RESEARCH

Caracas, Venezuela
29-30 April 1982

ENVIRONMENTAL HEALTH RESEARCH

- - - - -

PROGRAM FOR THE DEVELOPMENT AND TRANSFER OF APPROPRIATE TECHNOLOGY

- CEPIS -

ENVIRONMENTAL HEALTH RESEARCH

* * * *

PROGRAM FOR THE DEVELOPMENT AND TRANSFER OF APPROPRIATE TECHNOLOGY (CEPIS)

1. INTRODUCTION

The Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) is a multinational center for technology transfer in environmental engineering, created in 1968 with its base of operations in Lima, Peru. It is one of the technical branches of the PAHO's Division of Environmental Health Protection (EHP).

The Center's role in technology transfer is developed through four basic functions: research, training, information exchange and direct technical cooperation. In general, technical cooperation activities are linked to one of the other three functions, so that CEPIS carries out its work program through three operational units. One of these is the Technology Development Unit which manages the program for the development and transfer of appropriate technology.

2. PAHO POLICIES AND PRIORITIES

The development of research and of appropriate technologies for health has been recognized as a principal component of the national and regional strategies for Primary Health Care which were endorsed by Resolution XX of the XXVII PAHO Directing Council in 1980.

The document which resulted from that Directing Council meeting - Health for All in the Year 2000: Strategies[1]- emphasizes the need to:

- give priority to evaluative research and the identification and promotion of innovative technologies;
- define sector policies and programs, consistent with national science and technology policies, and obtain the participation of the sector in the definition of such national policies;
- develop coordinating mechanisms and programs of cooperation at the national and intercountry level;
- identify and exchange information between national institutions and between countries.

The same document also identifies prioritary programmatic areas related to environmental health in the Region. Foremost among these is the provision of water supply and basic sanitation services for rural areas and urban slums, as mandated by the declaration of the International Decade for Water Supply and Sanitation. Specific strategies for achieving the Water Decade goals have been established by the PAHO Directing Council[2], all of which are fully reflected in Health for All in the Year 2000: Strategies.

It has been recognized and emphasized repeatedly that water supply and sanitation is a keystone requisite of several other Primary Health Care program

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[1]PAHO/WHO. Health for All in the Year 2000: Strategies. PAHO Official Document N°173. Washington, D.C. 1980.

[2]Resolution XXII of the XXVI Meeting of the PAHO Directing Council. See: PAHO/WHO. Strategies for Extending and Improving Potable Water Supplies and Excreta Disposal Services during the Decade of the 1980s. Technical Discussions of the XXVI Meeting of the PAHO Directing Council. PAHO Scientific Publication N°390, Washington, D.C. 1979.

areas, notably for the control of several diarrhetic diseases and parasitic maladies.

Other important environmental health program areas include: solid wastes management; food hygiene; sanitary control of housing; control of pollution and environmental health hazards; and protection of the working environment.

Within the above framework CEPIS has recently created the Technology Development Unit, responsible for implementing a program for the development and transfer of appropriate technology within the areas of specialization and work of the Center. This report summarizes the scope and approach of the research program of the Technology Development Unit.

3. GOALS, SCOPE, PROBLEMS AND APPROACH

The goals of the CEPIS program are to promote the development, evaluation and application of appropriate technology to prioritary environmental health problems in the Region; to cooperate in strengthening the research capability of national environmental health institutions; and to improve the flow of technical information to and between researchers.

The scope of the Center's program includes pilot and field projects to identify potential new technologies or environmental control methodologies, and to assess their effectiveness in resolving prioritary environmental health problems, as well as operations research on the institutional, economic and sociocultural factors which are determinants of their successful application.

Thus, the program is a combination of applied (field-oriented) research and development, evaluative studies, and operations research. The role of CEPIS is principally one of promoting and coordinating research and development activities and disseminating research results, although as a Pan American Center of PAHO it also has an active research role within the Regional programs.

There are numerous obstacles to the achievement of the program goals. Only a few countries in the Region have articulated a coherent research policy in the area of water, sanitation and environmental health protection, which links research plans with the needs of the operational agencies of the environmental health sector. In general there is lack of environmental engineers and scientists with research training and experience, and of resources and facilities to support investigative work. At the institutional level management often fails to perceive the importance of applied and operations research to sound decision-making. The combined result is the absence of a vigorous research component in national environmental health programs, a factor which adversely affects their chances of success.

In response to this situation CEPIS and EHP have adopted a general strategy of developing an informal cooperative network of national institutions, and through this network promoting research in operational agencies in selected fields of interest, assisting these agencies in acquiring research competence, and facilitating information and technology transfer. Special emphasis is put on:

- cooperating in innovative research projects ;
- seeking the maximum multiplier effect from projects;
- training of researchers;
- strengthening national research infrastructure.

This general approach is explained in detail in section 6 below.

4. PRIORITARY TECHNOLOGY DEVELOPMENT AREAS

The following eight programmatic areas have been established by CEPIS as being of high priority, principally for the International Water Supply and Sanitation Decade and for environmental quality management:

- Improvement of Drinking Water Quality.
- Appropriate Technology for Collection, Treatment and Disposal of Wastewater and Excreta.
- Technical and Institutional Development of Basic Sanitation Agencies Responsible for Services to Villages and Dispersed Rural Populations.
- Strengthening Commercial Systems of Water Companies.
- Extension of Water Services to Slum Areas through Reductions of Unaccounted for Water.
- Improving the Collection, Transport and Final Disposal of Solid Wastes.
- Assessment and Control of Environmental Pollution and Hazardous Substances.
- Information in Environmental Engineering and Sciences.

It should be noted that CEPIS does not attempt to cover all of the prioritary areas related to environmental health as identified in Health for All in the Year 2000: Strategies. Responsibility for some areas has been assigned to other program units of the Division of Environmental Health Protection (EHP) to whom CEPIS reports. For example, occupational health and industrial hygiene is covered by EHP's Human Ecology and Health Center (ECO) in Mexico, and the food sanitation program is concentrated in the EHP Division itself.

The Center operates on a matrix management method. Thus, activities within each of the prioritary programmatic areas listed above are supported by three management units -the Technology Development Unit, the Information Unit and the Human Resources and Institutional Development Unit. This ensures an appropriate mix of research, training and information components in each area.

5. RESOURCES

All of CEPIS' specialists contribute to the research and technology transfer program, as do the researchers from participating national institutions. In addition, to the greatest extent possible the program draws on the expertise and resources of PAHO/EHP's headquarters and field staff and of the ECO Center.

Although CEPIS has limited staff and financial resources, it can and does work effectively to mobilize significant additional resources which are required for the execution of the program. Some come from the PAHO regular budget itself, some from extrabudgetary grants from a number of multi and

bilateral institutions, and there are substantial counterpart contributions from participating national institutions.

6. IMPLEMENTATION STRATEGIES

For the implementation of the research and technology transfer program, a number of specific strategies are being applied. These include:

- the promotion of applied and operations research in national institutions;
- the conformation of a collaborative network of "Centers of Excellence" in research in the Region, aimed at strengthening national research infrastructures and training researchers;
- the preparation of research protocols and project proposals for presentation to granting institutions;
- the execution of research projects, both at national research centers and in CEPIS;
- the application of research results on a broad scale;
- the dissemination of research results.

Each of these strategies is carried out via a number of mechanisms as discussed below with illustrative examples where useful.

6.1 Promotion of Research in National Institutions

The word promotion is used here in a general sense to indicate the need to stimulate and encourage research undertakings.

As a first step decision makers need to be convinced of the value of research for improving the technical and economic performance of their organizations. Through technical bulletins, presentations at professional meetings and direct technical cooperation activities this theme is constantly presented together with illustrative cases. CEPIS also cooperates with national institutions in the identification of their research priorities and the planning and implementation of research programs.

At a broader level, countries are encouraged to define a national research policy for the environmental health sector through national seminars on research and development and technology transfer. The active participation and/or cosponsorship of the respective national council on science and technology in such events is sought to assure that sector policies and programs become part of the overall national science and technology policy and programs and receive the corresponding support at the national level.

Finally, promotion also means that CEPIS attempts to identify voids in research and to stimulate national research projects aimed at specific problems. This is accomplished through a variety of mechanisms such as research colloquia on particular topics to identify research needs, and the preparation of research protocols and proposals.

As examples of this type of promotion, two international research colloquia cosponsored by CEPIS and CETESB[3] took place recently in São Paulo. One was on methane gas recovery from urban sanitary landfills, and the other on simplified methodologies for eutrophication analysis in tropical lakes and reservoirs.

[3]Companhia de Tecnologia de Saneamento Ambiental (São Paulo, Brasil)

Both meetings identified shortcomings in transferring the approaches used by developed countries to tropical areas. The meetings resulted in specific recommendations for cooperative research to be undertaken at the regional level and the establishment of the required research protocols.

6.2 Collaborating Research Network

By means of the technology development and transfer program, CEPIS seeks to carry out research projects through collaborating national institutions. An example is the project for the comparative evaluation of simple, low-cost disinfection devices. In this project, which is funded by PAHEF, national research groups in five countries are each evaluating a different disinfection process according to a common protocol developed by CEPIS. At the termination of the research work the results will be analyzed together and presented at a regional research dissemination seminar. The same approach is being used in several other regional projects.

The advantages of this networking mechanism are many, among them:

- networking produces a direct and immediate multiplier effect of research efforts in the region;
- it permits the "twinning" of institutions recently embarking upon research work with more technically mature research centers;
- it facilitates the interchange of information and results between researchers in specialized fields;
- it helps to attract block funding from multi and bilateral sources for a concentrated attack on priority water and sanitation problems.

The network approach is not limited to informal groups working on specific research topics. Another strategy is to formally designate national institutions with strong research programs as PAHO Collaborating Centers. Through this strategy the concept of a Pan American Center is expanded to a Pan American Network of Collaborating Institutions. The latter serves as an effective vehicle for the practical application of horizontal cooperation among developing countries (TCDC), while at the same time developing and strengthening the capacity of the individual centers. These PAHO Collaborating Centers play a fundamental role in training researchers and serve as reference centers on research methods and procedures.

CEPIS has experimented with this research network strategy and the results are promising. As more institutions are identified with demonstrated research capability in the prioritary areas of EHP's technical cooperation program, they will be invited to form part of the network and become an active participant in the program.

6.3 Research Protocols and Proposals

It is important to establish the research protocol (including data requirements, methods and procedures) before initiating a project, along with clear statements of objectives. Otherwise it is difficult to compare the results of a project with similar research efforts, and to judge the validity of the research findings. This is evident in the case of cooperative research programs where a common protocol is required, but it is no less true of individual isolated research projects if the results are to be broadly applicable. Also,

the development of a good project document makes it easier to attract local resources and international funding.

Therefore, CEPIS puts considerable emphasis on assisting in the preparation of protocols and proposals. The Center also provides information on the requirements of funding agencies for the preparation of proposals, and can assist in establishing contacts between potential donors and national researchers.

6.4 Doing Research

Although CEPIS does directly carry out a number of research projects, the resources it has for doing research are limited. Therefore, in order to maximize CEPIS' contributions through research and technology transfer, a strategy of developing innovative demonstration projects which have high potential multiplier effects has been adopted. Normally, such projects are undertaken with extrabudgetary resources.

An example is the San Juan Waste Stabilization Lagoons study in which CEPIS is the executing agency. In a first phase, which was funded by the International Development Research Centre (IDRC), the efficiency of lagoons in tropical conditions was evaluated and new design criteria established. Also, a pathogen survival problem was identified. In the second phase, now underway with funding from the Peruvian Ministry of Health and the Inter American Development Bank (IADB), pathogen survival is being researched in greater depth and health risks associated with irrigation reuse of the pond effluents are being evaluated. This project has provided an opportunity for in-service training of several researchers from other countries, and has

lead to the publication of numerous manuals on research methods and procedures for the study of tropical ponds and reuse schemes, as well as design manuals. The importance of this work cannot be over-stressed as irrigation with domestic sewage is commonplace in Latin America.

Apart from research done in CEPIS, its specialists also participate in investigations being carried out in national institutions throughout the Region. Often they act in the capacity of special advisors, or cooperate in periodic evaluations of project progress.

6.5 Application of Research Results

When research results become available and promising new technologies or methodologies have been identified, the Center encourages their application on a broad scale through its technical cooperation activities. The usual practice is to look for several new field demonstration project sites and use them to develop a cadre of engineers and scientists who in turn can act as consultants to still other projects. Thus, CEPIS' role should gradually decrease with continued application of the technology.

6.6 Dissemination of Research Results

The dissemination of research results on appropriate technology is achieved via several mechanisms, several of which were referred to above. These can be summarized succinctly as follows:

- the publication of scientific and technical reports and review articles by CEPIS staff and local investigators;

- scientific and technical meetings at CEPIS and at national research centers;
- the incorporation of research and development results in the didactic material produced in CEPIS and its introduction into the curriculum of regional courses;
- the inclusion of written results and materials into the REPIDISCA[4] regional document data base so that it appears in selected bibliographies, literature searches and secondary references such as REPINDEX[5];
- the creation of a computerized research-in-progress file for regional research projects on environmental health topics;
- the publication of a Regional Directory of Environmental Health Research Institutions;
- the production of specialized research bibliographies on prioritary subjects.

7. 1982-83 WORK PLAN

As an example of the types of activities being developed with the collaboration of CEPIS, a summary of the 1982-83 research and technology transfer program is shown in the attached tables. As indicated in the table the individual projects are in various stages of development, but in the long run all will reach the dissemination and application phase.

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[4]Pan American Network for Information and Documentation on Sanitary Engineering and Environmental Sciences.

[5]REPINDEX is a quarterly computerized index on appropriate technology of non-conventional regional literature and environmental health, published by CEPIS/EHP.

For the Water Decade a number of other high-priority research and development projects can be identified, not only in environmental engineering areas but also on managerial and commercial aspects. Thus, a dynamic approach is required. Additional projects will be incorporated in this program as they are formulated and corresponding resources become available.

RESEARCH AND TECHNOLOGY TRANSFER PROGRAM

1982-83 Work Plan

Program Area and Project Title	Current status of activity: Project promotion	Collaborating Centers	Preparation of R&D proposals	Active research project	Application of research results	Dissemination of research results
Improvement of Drinking Water Quality						
- Modular designs for water treatment plants (WHO)						X
- Design, construction and evaluation of simple, low-cost rural water treatment plants	X	X	X		X	
- Simplified methods of cleaning slow sand filters (DTIAPA)				X		
- Simple disinfection processes for rural water supplies (PAHEF)		X		X		
- Analytical quality control in water laboratories (EPA)	X	X		X		X
- Simplified methods of water analysis					X	X
- Evaluation of new treatment processes - granular media flocculators (SANEPAR)		X			X	X
Appropriate Technology for Collection, Treatment and Disposal of Wastewater and Excreta						
- Evaluation of microbiological health risks of wastewater reuse in agriculture (DTIAPA/DIGEMA)			X	X		
- Evaluation of toxicological health risks of wastewater reuse in agriculture	X					
- Design of waste stabilization ponds (IDRC)					X	X
- Comparison of land application vs. multicell lagoon treatment in reuse projects (SERPAR)		X	X			
- Small, low-cost wastewater treatment plants		X			X	X
- Small-scale biogas technology for excreta disposal		X				
- Energy recovery from wastewater treatment plants	X	X			X	
- Evaluation of OXFAM sanitation units (OXFAM)			X			
- Development of nonconventional design criteria and construction methods to reduce the cost of sewer systems		X		X		

RESEARCH AND TECHNOLOGY TRANSFER PROGRAM

1982-83 Work Plan

Program Area and Project Title	Current status of activity: Project promotion	Collaborating Centers	Preparation of R&D proposals	Active research project	Application of research results	Dissemination of research results
Technical and Institutional Development of Basic Sanitation Agencies Responsible for Nucleated and Dispersed Rural Populations						
- Development of an operational model of an institutional development program for rural water and sanitation agencies in Peru (DTIAPA)			X			
- Evaluation of operation and maintenance of rural water systems (DTIAPA)		X			X	X
- Logistical and organizational requirements to optimize operation and maintenance of pumps and motors in rural systems (DTIAPA)				X		
- Evaluation of technical, economic, institutional and social factors affecting the operation and maintenance of rural water systems in Peru (DTIAPA)				X		
- Seminar on appropriate technology for elevating water in rural areas (OXFAM)		X				X
- Feasibility study for establishing a training delivery system for the Peruvian water and sanitation authorities (DTIAPA)					X	X
- Improvement of design and operating characteristics of slow sand filters (DTIAPA)		X		X		
Strengthening Commercial Systems of Water Companies						
- Application of economic and financial models for project analysis (IDB, IBRD)		X	X		X	
- Development of methodology for evaluating and selecting residential water meters (DTIAPA)				X		X
- Statistical approach to quality control in commercial systems	X	X				
- Use of surrogate variables to estimate unmetered consumption of residential connections	X	X				
- Educational technology applied to development of meter repairs manual (DTIAPA)				X		
- Development of a velocity-type proportional meter for macrometering		X	X			

RESEARCH AND TECHNOLOGY TRANSFER PROGRAM

1982-83 Work Plan

Program Area and Project Title	Current status of activity: Project Promotion	Collaborating Centers	Preparation of R&D proposals	Active research project	Application of research results	Dissemination of research results
Extension of Water Services to Slum Areas through Reductions of Unaccounted for Water						
- Determination of optimal meter maintenance policies		X	X			
- Evaluation of leak-detection equipment		X				
Improving the Collection, Transport and Final Disposal of Solid Wastes						
- Recovery and utilization of methane gas from sanitary landfills in large urban areas		X	X			X
- Development of simple technology for sanitary landfills for small communities		X	X			
- Nonconventional solutions to garbage collection in slum areas via community participation		X	X			X
- Manual on occupational health risks in solid waste handling systems	X					
Assessment and Control of Environmental Pollution and Hazardous Substances						
- Application of mathematical models to evaluate water quality control programs		X			X	X
- Evaluation of submarine outfalls for coastal wastewater disposal	X				X	X
- Development of eutrophication models for tropical lakes		X	X			
- Epidemiological and economic study of silicosis in the Bolivian mining industry		X	X	X		
- Economic evaluation of environmental hazard control methods in the mining sector			X			
- Study of the exposure of female workers to organic solvents (UNVFDW)	X	X	X			
- Regional network of water pollution monitoring (GEMS/WATER)		X				X
- Regional network of air pollution monitoring (GEMS/AIR)		X				X
- Analytical quality control in wastewater laboratories (EPA)	X	X		X		X

RESEARCH AND TECHNOLOGY TRANSFER PROGRAM

1982-83 Work Plan

Program Area and Project Title	Current status of activity: Project promotion	Collaborating Centers	Preparation of R&D proposals	Active research project	Application of research results	Dissemination of research results
Information in Environmental Engineering and Sciences						
- Regional survey of research institutions		X		X		X
- Regional survey of research in progress		X		X		X
- Evaluation of the institutional infrastructure in Peru for establishing a national information network for the Decade (DTIAPA/POETRI)		X		X		
- Experimental development and evaluation of regional information services in the field of water and sanitation (IDRC/UNESCO)		X		X	X	X

Chapter 4

THE CEPIS TRAINING PROGRAM

The provision of training and education services are basic tasks of CEPIS. These activities are managed by Mr. Rodolfo Saenz, Coordinator, Unit for Human and Institutional Resource Development, who has many years experience as a professor of sanitary engineering.

The training courses given by CEPIS, in Lima and elsewhere in Latin America, are outlined on the next page. Subject matter is presented as 36 themes in eight major categories. Courses are designed for seven levels of management, five for those with University backgrounds and three for those without much formal education. Participants in these countries in 1979-1981 by country and major subject categories is shown in the table below.

The courses and workshops to be offered by CEPIS in 1983 are listed in Spanish on the last three pages of this section. The professional level of the offering for the courses is also indicated. Each course has training materials that are being revised and can be made available to WASH and others. Several of these training manuals in Spanish are in the WASH Library. All CEPIS training materials is to be included in the next issue of the REPINDEX of REPIDISCA.

CEPIS/EH /HP/OPS/OMS

AÑO 198 3 — UNIDAD DE RECURSOS HUMANOS E INSTITUCIONALES
PROGRAMACION DE ACTIVIDADES DE ADIESTRAMIENTO

CUADRO No 1

CLAVE		DIC											CGT						TA			ASP		RD				AR				PA	RS	ACE			SEE	
TEMAS / NIVEL OCUPACIONAL		DESARROLLO INSTITUCIONAL Y CAPACITACION											COMPLEMENTOS GERENCIALES Y TECNICOS						MEJORAMIENTO CALIDAD AGUA CONSUMO HUMANO									MEJORAMIENTO DEL AMBIENTE					ESPECIALES				
		PLAN	Sistema Comercial					SISTEMA DESARROL Y MANEJO RECUR - SOS HUMANOS				ADM							PRODUCCION			AGUAS SUB TERRANEAS		DISTRIBUCION				AGUAS RESIDUALES				OTROS		ATENCION DE CASOS ESPECIALES			SISTEMAS Y EQUIPOS ESPECIALES	
																			TRATAMIENTO					REDES				RECOLECC	TRATAMIENTO SIMPLIFICADO									
		SISTEMA DE PLANIFICACION	SISTEMA COMERCIAL	SUBSISTEMA DE COMERCIALIZACION	SUBSISTEMA DE CATASTRO	SUBSISTEMA DE MEDICION	SUBSISTEMA de FACTURAC Y COBRANZA	SISTEMAS DE ADIESTRAMIENTO	DIRECTORES PROG ADIESTR	CURSOS BASICOS	SISTEMA DE ADMINISTRACION	FACTIBILIDAD DE PROYECTOS	PREPARACION DE INFORMES TECNICOS	MANTENIMIENTO EN LAS TAPAS	ANALISIS DE SISTEMAS	METODOLOGIA PARA INVESTIGACION	INFORMACION TECNICA	EVALUACION	O & M	PROGRAMAS DE PROCESOS UNITARIOS	DESARROLLO Y MANEJO DE ACUIFEROS	CONSTRUCCION DE POZOS	EVALUACION	O & M	DISEÑO	CONTROL DE FUGAS	REDES COLECTORES EBISARIOS	EVALUACION	O & M	DISEÑO	POLUCION	RESIDUOS SOLIDOS	AREAS RURALES	AREAS URBANAS MARGINADAS	SITUACION DE DESASTRE	MACRO-MEDICION	BOMBAS Y ESTACIONES DE BOMBEO
FORMACION UNIVERSITARIA	A. Decisión																																				
	B Ejecutivo																																				
	C. Profesional																																				
	D. Auxiliar Profesional																																				
FORMACION PROFESIONAL NO ACADEMICA	E. Supervisores																																				
	F Operadores y Tecnicos de Mantenimiento																																				
	G. Obreros Calificados y otros																																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
		CIENCIAS SOCIALES, ECONOMICAS, Y OTROS + INGENIERIAS																INGENIERIAS																			

IAPAS = INSTITUCIONES DE AGUA POTABLE, ALCANTARILLADO Y SANEAMIENTO, O & M = OPERACION Y MANTENIMIENTO

Cuadro N° 1

NUMERO DE PARTICIPANTES EN EVENTOS DE ADIESTRAMIENTO REALIZADOS EN DIVERSOS PAISES CON LA COLABORACION DEL CEPIS
PERIODO 1979-1981

TEMAS / PAISES	(DIC) DESARROLLO INSTITUCIONAL Y CAPACITACION	(CGT) COMPLEMENTOS GERENCIALES Y TECNICOS	(TA) TRATAMIENTO DE AGUA	(AR) AGUAS RESIDUALES	(PA) POLUCION DEL AMBIENTE	(RS) RESIDUOS SOLIDOS	(ACE) ATENCION DE CASOS ESPECIALES	OTROS	TOTAL DE PARTICIPANTES
ARGENTINA	-	-	53	-	-	12	19	-	84
BOLIVIA	-	-	1	-	-	2	-	-	3
BRASIL	-	-	-	-	-	3	-	21	24
COLOMBIA	-	-	23	33	-	46	-	-	102
COSTA RICA	-	-	30	-	25	13	-	-	68
CUBA	-	-	-	-	-	2	-	-	2
CHILE	-	-	4	45	-	4	-	-	53
ECUADOR	-	-	3	-	-	3	-	-	6
EL SALVADOR	-	-	2	-	-	3	-	-	5
GUATEMALA	-	-	23	-	-	1	-	-	24
HAITI	-	-	-	-	-	4	-	-	4
HONDURAS	-	-	19	-	-	1	-	-	20
MEXICO	-	-	-	-	-	7	-	56	63
NICARAGUA	35	-	24	-	-	5	-	-	64
PANAMA	-	-	3	-	-	1	-	102	106
PARAGUAY	-	-	10	-	-	1	-	-	11
REP. DOMINICANA	-	-	1	-	-	18	-	-	19
URUGUAY	-	-	1	-	-	-	-	-	1
VENEZUELA	-	-	2	20	-	4	-	-	26
PERU	-	-	3	-	-	8	-	-	11
SUB-REGIONAL SIN DESGLOSE	-	70	-	-	-	11	-	-	81
TOTAL	35	70	202	98	25	149	19	179	777

Cuadro N° 2

NUMERO DE PARTICIPANTES POR PAISES EN EVENTOS REALIZADOS POR EL CEPIS EN EL PERU
PERIODO 1979-1981

TEMAS / PAISES	(DIC) DESARROLLO INSTITUCIONAL Y CAPACITACION	(CGT) COMPLEMENTOS GERENCIALES Y TECNICOS	(TA) TRATAMIENTO DE AGUA	(ASP) AGUAS SUBTERRANEAS Y POZOS	(RD) REDES DE DISTRIBUCION DE AGUA	(AR) AGUAS RESIDUALES	(RS) RESIDUOS SOLIDOS	(ACE) ATENCION DE CASOS ESPECIALES	TOTAL DE PARTICIPANTES
ARGENTINA	3	4	1	-	-	1	2	1	12
BOLIVIA	9	8	1	8	5	6	4	10	51
BRASIL	6	7	-	-	-	-	3	7	23
COLOMBIA	5	3	4	6	3	4	5	2	32
COSTA RICA	8	2	1	-	2	-	-	-	6
CUBA	-	-	-	-	-	-	-	-	-
CHILE	3	7	-	2	-	1	5	4	22
ECUADOR	6	4	-	-	2	2	3	-	18
EL SALVADOR	-	-	-	-	-	-	-	-	-
GUATEMALA	-	6	1	4	1	-	-	3	15
HAITI	1	-	-	-	-	-	-	4	5
HONDURAS	1	2	-	-	2	-	-	1	6
MEXICO	-	1	-	-	-	-	2	-	3
NICARAGUA	1	-	-	-	-	-	-	-	1
PANAMA	1	2	-	-	-	-	-	-	3
PARAGUAY	1	1	-	-	-	-	-	-	1
REP. DOMINICANA	1	-	-	-	-	1	2	-	3
URUGUAY	2	4	-	-	-	-	-	1	5
VENEZUELA	9	6	2	2	3	10	2	-	10
PERU	127	118	14	61	63	46	38	40	507
TOTAL	177	176	24	83	83	71	68	77	759

VIII EVENTOS DE CAPACITACION QUE SE HAN REALIZADO EN EL CEPIS

Para ilustrar a los países sobre el tipo de cooperación que el CEPIS les puede brindar se proporciona a continuación una lista de cursos, talleres, seminarios, etc., realizados por el CEPIS* en los últimos cuatro años. (Cuando no se indica lo contrario corresponden al nivel profesional "C").

DIC
DESARROLLO INSTITUCIONAL Y CAPACITACION

Curso: El sistema comercial en las instituciones de agua potable y alcantarillado.
Niveles A y B — 1 semana

Taller: Desarrollo del subsistema de comercialización de los servicios de las empresas de agua potable y alcantarillado.
2 semanas

Taller: Desarrollo del subsistema de catastro de consumidores de las empresas de agua potable y alcantarillado.
2 semanas

Taller: El subsistema de medición en las instituciones de agua potable y alcantarillado.
2 semanas

Taller: El subsistema de facturación y cobranza en las instituciones de agua potable y alcantarillado.
2 semanas

Taller: Desarrollo de sistemas permanentes de adiestramiento en las instituciones de agua potable y alcantarillado.
1 semana

Taller: Desarrollo institucional necesario para la operación y mantenimiento de acueductos rurales.
1 semana

* Se puede solicitar al CEPIS la programación detallada e información adicional sobre cualquiera de estos eventos.

CGT
COMPLEMENTOS GERENCIALES Y TECNICOS

Curso: Factibilidad de proyectos en ingeniería sanitaria y saneamiento.
3 semanas

Taller: La información técnica en abastecimiento de agua y saneamiento.
1 semana

Curso: Supervisores de operación y mantenimiento de sistemas de agua potable y alcantarillado (profesionalización de personal no universitario).
Nivel E — 4 semanas

Taller: Operación y mantenimiento en los sistemas de agua potable y alcantarillado.
2 semanas

TA
TRATAMIENTO DE AGUA PARA CONSUMO HUMANO

Curso: Evaluación de plantas de tratamiento de agua.
3 semanas

Curso: Operadores de plantas de tratamiento de agua (profesionalización de personal no universitario).
Nivel E — 3 semanas

Taller: Desinfección de aguas para abastecimientos rurales.
1 semana

Curso: Operación y mantenimiento de plantas de tratamiento de agua.
3 semanas

Curso: Prediseño de procesos unitarios y anteproyectos de plantas de tratamiento de agua para consumo humano.
3 semanas

TA
TRATAMIENTO DE AGUA PARA CONSUMO HUMANO (Cont.)

Taller: Vigilancia y control de calidad del agua para consumo humano.
1 semana

Curso: Diseño de plantas de tratamiento de agua para el medio rural.
2 semanas

ASP
AGUAS SUBTERRANEAS Y POZOS

Curso: Conocimientos básicos sobre aguas subterráneas.
1 semana

Curso: Diseño y construcción de pozos.
2 semanas

Curso: Operación y mantenimiento de pozos y manejo de acuíferos.
2 semanas

Curso: Desarrollo de aguas subterráneas y manejo de acuíferos.
3 semanas

RD
REDES DE DISTRIBUCION DE AGUA POTABLE

Curso: Control de fugas en redes de distribución de agua potable.
2 semanas

Taller: Evaluación de redes de distribución de agua potable.
2 semanas

AR
AGUAS RESIDUALES

Curso: Evaluación de sistemas simples para el tratamiento de aguas residuales.
1 semana

AR
AGUAS RESIDUALES (Cont.)

Curso: Diseño de sistemas simplificados para el tratamiento de aguas residuales.
2 semanas

Curso: Lagunas para estabilización de aguas residuales.
2 semanas

PA
POLUCION DEL AMBIENTE

Curso: Procedimientos gerenciales para controlar la polución en aguas naturales.
2 semanas

Curso: Planeamiento y diseño de emisarios submarinos para disposición de desechos.
1 semana

RS
RESIDUOS SOLIDOS

Taller: Recolección y disposición final de residuos sólidos.
2 semanas

Taller: Aspectos institucionales y de planificación en residuos sólidos.
2 semanas

ACE
ATENCION DE CASOS ESPECIALES

Seminario: Tecnologías apropiadas para elevación de agua en áreas rurales.
1 semana

Curso: Operación y mantenimiento de acueductos rurales (profesionalización de personal no universitario).
Nivel E 3 semanas

ACE
ATENCION DE CASOS ESPECIALES
(Cont.)

Taller: Abastecimiento de agua potable en situaciones de desastre.
2 semanas

Curso: Diseño de plantas de tratamiento de agua para el medio rural.
2 semanas

SEE
SISTEMAS Y EQUIPOS ESPECIALES

Curso: Macromedición en los sistemas de agua potable y alcantarillado.
1 semana

Curso: Operación y mantenimiento de equipos de bombeo.
2 semanas

Chapter 5

CONCLUSIONS

The REPIDISCA system of CEPIS is well organized and operational. The quarterly REPINDEX, which is computerized and includes abstracts, is proving to be a most useful information resource. All WASH Reports will be included in REPINDEX and, when CEPIS microfiche capability is on line, documents in REPINDEX will be readily available in that format. As members of REPIDISCA continue to provide information materials to CEPIS, the REPIDISCA data base will become more useful and relevant to user needs.

The CEPIS Program for the Development and Transfer of Appropriate Technology includes fifty-one projects, many of which overlap WASH activities. As indicated in Chapter 3 above, there are a number of projects where WASH and CEPIS could collaborate. These possiblities should be explored. A dialogue along these lines was initiated when Carl Bartone, CEPIS Coordinator of Technology Development, visited the WASH Project Office on June 26, 1982.

The training and human resource development activities of CEPIS and WASH also overlap. WASH is already working closely with Horst Otterstetter, who is responsible for coordinating human resource development for the Environmental Health Division of PAHO in Washington. Now that WASH is more aware of CEPIS training programs, joint efforts and collaboration are anticipated.

APPENDIX A

WATER AND SANITATION FOR HEALTH (WASH) PROJECT
ORDER OF TECHNICAL DIRECTION (OTD) NUMBER 32
Amendment Number 1
June 15, 1982

TO: Dennis Warner, Ph.D., P.E.
WASH Contract Project Director

FROM: Victor W.R. Wehman, Jr., P.E., R.S. VWW
A.I.D. WASH Project Manager
A.I.D./S&T/H/WS

SUBJECT: Provision of Technical Assistance Under WASH Project Scope of Work for DS/HEA (S&T/H)

REF: A) OTD #32 dated 11 March 81

1. Paragraph 2 of subject OTD #32 (Reference A) is cancelled. New paragraph 2 of OTD #32 is to read as follows:

   "WASH contractor/subcontractor/consultants authorized to allow WASH Project Information Director to expend up to 75 (seventy-five) person days of effort over a 30 (thirty) month period to accomplish this technical assistance effort."

2. Nothing follows.

MEMORANDUM March 11, 1981

Water and Sanitation for Health (WASH) Project
Order of Technical Direction (OTD) Number 32

TO: Mr. James Arbuthnot, P.E.
WASH Contract Project Director

FROM: Mr. Victor W.R. Wehman, Jr., P.E., R.S.
AID WASH Project Manager

SUBJECT: Provision of Technical Assistance Under WASH Project Scope of Work for DS/HEA

REFS: A) Conversations Arbuthnot/Beverly/Wehman Dec 80 - Mar 81

1. WASH Contractor requested to provide technical assistance to AID/DS/HEA as per following Scope of Work.

2. WASH contractor/sub-contractor/consultants authorized to allow WASH Information Director to expend up to 75 person days over a six month period to accomplish this technical assistance effort.

3. Contractor to provide detailed briefing upon all aspects of this OTD upon returning from overseas information centers working visits. No visit to last more than 2 weeks duration spread at least one month apart.

4. No draft or final report due on this OTD other than ensuring that coordination initiated as a result of coordinating trips is followed up on and all actions taken as necessary.

5. Contractor to physically visit and work with following international information centers to ensure information sharing for A.I.D. clients:

   1) IRC, the Hague, Netherlands
   2) Ross Institute, London, England
   3) ITDG, London, England
   4) (Univ. of Loughborough), England
   5) CEPIS Lima, Peru
   6) AIT (ENSIC), Bangkok, Thailand
   7) WHO Information Center, Geneva, Switzerland

6. Contractor's information director should attempt to accomplish the following aspects during these investigatory, information gathering trips.

   In an effort to establish a sound, long-term working relationship on WS&S matters concerning information exchange and various modes of collaboration on information development, acquisition, analysis and dissemination, at least the following points with each organization should be covered:

1. Identify who should be the primary contact(s)-- name, title, address, phone, cable

2. Identify names of other people in organization with specific interests or responsibilities-- by technical area, region, etc.

3. Acquire recent annual report and other descriptive material on programs, projects, joint-ventures, future plans

4. Obtain list of publications, prices, service charges, procedures, forms, etc.

5. Have WASH Project placed on mailing list for announcements, etc, literature dissemination

6. Review facility and holdings: what does their collection consist of; how organized; strongest area(s); computerized; micro-fich?

7. Identify specific subject areas, if any, to emphasize for information exhange - In what are they most interested?

8. Introduce and explore ideas as to how they might work with the WASH Project - on information in training, technical assistance, technology transfer/ adaptation, joint-efforts, etc.

7. WASH Information Director should take detailed notes on conversation/ meetings and observations made at each organization, and follow up on coordination commitments made or actions that require A.I.D. Project Manager approval.

8. Contractor to coordinate directly with international reference or information center authorities. Contractor must notify and receive country clearance from respective AID Mission before traveling to that location. Please keep AID desk officers officially informed of travel schedules and ETAs, etc. Ensure that health officers with each of the regional bureaus receive copies of the OTD and a short visit explaining its purpose.

9. WASH Contractor authorized up to 75 days of international travel per diem and miscellaneous expenses to accomplish scope of work.

10. Contractor authorized to pay for interpreter services, secretarial services or spot purchase various appropriate documents during official visits to information centers. Contractor should encourage gratis dissemination and cooperative sharing of various documents except for large bulk orders. WASH should be paying for large bulk orders unless they are given as gratis.

11. Contractor authorized to make up to 5 trips in and out of Washington, D.C. to respective sites to accomplish Scope of Work. ARRANGEMENTS for each trip should be CLEARED with the PROJECT MANAGER in ADVANCE. VWW

12. Coordination on trips should begin immediately and technical assistance initiated as soon as possible after appropriate coordination and travel approval.

13. Appreciate your prompt attention to this matter. Good luck.

VVW:ja:3/11/81

APPENDIX B

Officials Interviewed in Lima, Peru
June 21-24, 1982

Name	Title	Organization
Alberto Flores	Director	CEPIS
Carl Bartone	Coordinator of Technology Development	CEPIS
Rodolfo Saenz	Coordinator of Human & Institutional Resource Development	CEPIS
Dr. Fabian Yanez	Sanitary Engineer	CEPIS
Carmen Nieto	Librarian	CEPIS
Paul White	AID Program Manager	USAID, Lima