



**REGIONAL SYMPOSIUM ON  
Human Resources for the International  
Drinking Water Supply and Sanitation Decade**

**Panama, July 26-30, 1982**

**FINAL REPORT**

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REGIONAL SYMPOSIUM ON HUMAN RESOURCES FOR THE INTERNATIONAL  
DRINKING WATER SUPPLY AND SANITATION DECADE

I. INTRODUCTION

The Regional Symposium on Human Resources for the International Drinking Water Supply and Sanitation Decade, organized by the Pan American Health Organization (PAHO), was sponsored by the Government of Panama through the Panamanian Ministry of External Relations, Ministry of Health and Instituto de Acueductos y Alcantarillados Nacionales (National Water Supply and Sewerage Institute - IDAAN), together with the Inter-American Association of Sanitary and Environmental Engineering (AIDIS).

The symposium was held in Panama City, Panama on July 26-30, 1982 and was attended by 158 participants from 29 countries of the Region of the Americas and by 17 observers from international agencies. Many of the participants were funded from national sources; others benefited from the assistance offered by the United States Agency for International Development (USAID), by the United Nations Environment Program (UNEP) and by PAHO.

The general purpose of the Symposium was to motivate the participants to contribute, at national and subregional level, to the formulation of policies, plans and strategies for manpower development in environmental sanitation and to the allocation of resources for the organization and execution of personnel training programs.

More specifically, the symposium analyzed the demand for trained manpower that is being generated by the process of working toward the goals of the Decade. It also advocated a systematic approach to manpower education and training within an institutional framework established by the national drinking water and sanitation agencies.

The keynote of the Symposium was that manpower development is the primary responsibility of the managements of the undertaking concerned, and that this responsibility must be translated into actions that are integrated with the undertakings' other responsibilities.

Other important questions considered by the Symposium were the various facets of judicious and effective manpower utilization; the active participation of all sectors of the community in water supply and sanitation program and projects, and the function of the education system in training the manpower for achieving the goals of the Decade.

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II. PROGRAM AND COORDINATION

A.

PROGRAM

Sunday, July 25

15:00-17:00

Registration of participants

Monday, July 26

09:00-11:00

Registration of participants

11:00-12:00

Opening ceremony

- . Dr. Edith Jiménez de Bethancourt  
Minister of Health, Panama
- . Eng. José Fierro  
Executive Director of IDAAN,  
Panama
- . Lic. Mario Espinosa  
PAHO Programs Coordinator, Panama
- . Dr. Vicente Witt  
General Coordinator of Symposium
- . Eng. José María Carrillo  
President of AIDIS
- . Eng. Iván Estribí  
Vice President of AIDIS
- . Eng. Horst Otterstetter  
Technical Coordinator of  
Symposium

12:00-13:00

Reception offered by the Foreign  
Minister  
Jorge Illueca, Panama

13:00-14:00

Lunch

14:00-15:15

Basic Document

"Human Resources for the  
International Drinking Water Supply  
and Sanitation Decade - Analysis of  
the present situation"  
Luis Urbano Jáuregui, Argentina

15:15-15:30

Coffee

15:30-17:00

Panel: General discussion on Basic  
Document

Alberto Florez, PAHO Moderator  
José Fierro  
Irvando Mendonca Pires  
Edgardo Quintanilla  
Carlos Vidal

17:00-1800

Meeting of Working Groups

Tuesday, July 27

- Morning -

Celso Cerezo - Moderator

09:00-10:30

Document 1.1

Manpower demand of the water and  
sanitation institutions

Francisco Lima, PAHO

10:30-10:45

Coffee

10:45-12:00

Document 1.2

Community manpower demand

Anne V.T. Whyte, Canada

12:00-14:00

Lunch

- Afternoon -

Leo Lawson - Moderator

14:00-15:00

Document 2.1

Training as an institutional  
function

Alberto Gónima, PAHO

15:00-15:45 Document 2.1.1  
Pilot manpower training project by  
SANEPAR/BNH/PAHO  
Ingo Henrique Hubert, Brazil

15:45-16:00 Coffee

16:00-17:00 Document 2.2  
Training trainers  
John H. Austin, USA

17:00-17:45 Document 2.2.1  
Training trainers in the Caribbean  
Basin - Water Management Project  
Robert France, St. Vicent

17:45-19:00 Meeting of Working Groups

Wednesday, July 18

- Morning - Irvando Mendonca Pires - Moderator

09:00-10:00 Document 2.3  
National Training Systems  
Walter Pinto Costa, Brazil

10:00-10:15 Coffee

10:15-11:0 Document 2.3.1  
Personnel training system for  
Central America  
Olman Cordero C., PAHO

11:00-12:00 Document 3.1  
Main problems that limit community  
participation in water and  
sanitation projects  
Julio Alvarez Vigil, Chile

12:30-13:00	Lunch
- Afternoon -	Jacobo Finkelman - Moderator
13:30-14:00	<u>PAHO and the International Drinking Water Supply and Sanitation Decade</u>
	Peter Lowes, UNDP/WHO
14:00-14:45	<u>Document 3.1.1</u>
	<u>Education, training and community participation in water supply and sanitation programs in Colombia</u>
	Orlando López Orozco, Colombia
14:45-15:45	<u>Document 3.2</u>
	<u>Education and training of women for community participation</u>
	Mary Elmendorf, USA
	Presented by: Anne Whyte Commented on by: Alastair White
15:45-16:00	Coffee
16:00-17:45	<u>Meeting of Working Groups</u>
	<u>Thursday, July 29</u>
- Morning -	Martha Alegre - Moderator
09:00-10:00	<u>Document 4.1</u>
	<u>The role of the university in the supply of manpower for the International Drinking Water Supply and Sanitation Decade</u>
	Jurandy Povinelli, Brazil
10:00-10:15	Coffee

- 10:15-11:00 Document 4.1.1  
Regional Sanitary Engineering School (ERIS) - Reorientation of a Sanitary Engineering Teaching Program  
Luis Ernesto García, Guatemala
- 11:00-12:00 Document 4.2  
The role of the vocational school in the supply of manpower for the International Drinking Water Supply and Sanitation Decade  
Enrique Riley, Panama
- 12:00-13:30 Lunch  
- Afternoon - Miguel Angel Arciniega - Moderator
- 13:30-14:00 Environmental training system for Latin America and the Caribbean  
Estanislau Monteiro de Oliveira, UNEP/SEMA
- 14:00-14:45 Document 4.2.1  
National Training Service for Industrial Work (SENATI) - Experience in training technicians for the water industry  
José Gálvez Torres, Peru
- 14:45-15:45 Document 4.3  
Continuing education and its application for the water supply and sanitation sector  
Pedro Martínez Pereda, Mexico
- 15:45-16:00 Coffee

16:00-16:45

Document 4.3.1

CEPIS' experience in continuing education

Alberto Florez M., PAHO

16:45-17:45

Meeting of Working Groups

Friday, July 30

- Morning -

09:00-12:00

Meeting of Working Groups

12:00-14:00

Lunch

- Afternoon -

Plenary Session

General discussion and approval of the final recommendations of the Symposium

Horst Otterstetter - Moderator

15:45-16:00

Coffee

16:00-17:00

Closing ceremonies

Dr. Adolfo Name  
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Guatemala
- . Eng. Waldo Jáuregui  
Vice President of AIDIS, Bolivia
- . Eng. Horst Otterstetter  
Regional Advisor for Manpower,  
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17:00-18:00

Reception offered by Ing. José Fierro  
Executive Director of IDAAN

COORDINATION

COORDINATION OF THE SYMPOSIUM

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Lic. Mario Espinosa

Eng. Horst Otterstetter

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### III. RECOMENDATIONS

To analyze the various aspects connected with the topics discussed in greater detail, six working groups were formed which produced recommendations addressed to the Governments, national coordinating agencies, the water and sanitation institutions, the universities and other education institutions, and also to PAHO/WHO and other international agencies.

These recommendations were then summarized as follows by a drafting committee which met on November 30, 1982 in Panama City:

#### Summary of Recommendations

The participants in the Regional Symposium on Human Resources for the International Drinking Water Supply and Sanitation Decade recommend:

1. To the Governments and the Drinking Water and Sanitation Institutions:
  - 1.1 that high priority be given to manpower development as part of the integral development of the sector institutions, in order to facilitate and accelerate the achievement of the national goals for the Decade;
  - 1.2 that they promote the systematic formulation, updating and perfecting of the manpower development plans;
  - 1.3 that they establish coordination mechanisms to foster cooperation between universities, technology institutes, vocational schools and the agencies of the water and sanitation sector, especially as regards actions for the basic and advanced training of manpower, with a view to attaining efficient and effective utilization of the installed capacity of the various institutions in the countries;
  - 1.4 that they include training programs for the various professional and technical levels, skilled and unskilled workers, and for members of the community who participate in water supply and sanitation programs and projects;
  - 1.5 that the training, education and community motivation programs for securing participation in water supply and sanitation programs and projects be extended to all levels of the population with a view to making the public aware of the value of water and of water supply and sanitation service.
2. To the Government and International Agencies:
  - 2.1 that they include specific financing for manpower development in drinking water supply and sanitation projects;

- 2.2 that they promote technical cooperation between countries in the sphere of manpower development for the drinking water and sanitation sector, and for expansion and strengthening of the network of centers cooperating in information and training for which CEPIS is one of the focal points.
3. To PAHO/WHO:
    - 3.1 that they support the formulation of manpower development plans through dissemination of the methodologies and information obtained at the First Regional Seminar on the subject, held in Rio de Janeiro in 1979, those derived from the present symposium, and the basic strategies for manpower development recommended by the United Nations Inter-Agency Orientation Committee for Co-operative Action in the International Drinking Water Supply and Sanitation Decade.
  4. To PAHO/WHO and other International Agencies:
    - 4.1 that they support actions designed to develop national systems for training and research in environmental health, in order to facilitate the achievement of the goals of the Decade, through the development of education technologies and materials.

The foregoing is a summary of the 65 recommendations formulated by the participants in the symposium.

The 65 recommendations are presented below in their entirety, under the Working Groups which produced them.

#### GROUP I

The members of Working Group I, in light of the views and experience presented during the symposium and in consideration of the needs of the drinking water and sanitation sector of the countries, recommended:

1. that manpower planning for the drinking water and sanitation sector be done at the level of each institution but with these plans integrated into a national plan covering all water and sanitation agencies, vocational institutes and other related institutions, and that this national plan form part of a national employment system for the drinking water and sanitation sector;
2. that adaptation of the content of education curricula to the specific requirements of the drinking water and sanitation sector be promoted by means of cooperation agreements between the water and sanitation agencies and the education institutions;

3. that basic sanitary education be included in the primary and secondary level curricula, taking as model the case of Mexico, which has produced teaching and motivational materials for those levels;
4. that special emphasis be placed on manpower integration through the formation of multiprofessional groups as a key step for institutional development;
5. that the purposes of community participation in the water supply and sanitation services include, in addition to the construction of the systems, their operation and maintenance and the marketing of the services;
6. that the development of water distribution system be promoted as a strategy for extending the services to the urban fringe areas;
7. that the basic and advanced training activities focus on concrete aims that are relevant to the performance of the trainee in his duties and that these activities be financed from resources of the institutions benefited, and
8. that horizontal cooperation between drinking water and sanitation agencies be promoted, with the collaboration of international agencies, so that the teaching materials produced by courses, seminars, research, etc., can be compiled, adapted and disseminated.

#### GROUP II.

The members of Working Group II, in light of the views and experience resented during the symposium and in consideration of the needs of the drinking water and sanitation sector of the countries, recommended:

1. that the aims of community promotion programs be:
  - (a) to have the population value water supply and sanitation services more highly,
  - (b) to have the population cooperate in the solving of the problems of water supply and sanitation systems;
  - (c) to secure the population's cooperation in the proper use, operation and maintenance of water supply and sanitation systems;
2. that by means of a coordinated mechanism between the water and sanitation agencies and the professional association in the field, the concept of community promotion be expanded to all levels of the population, to the authorities, to opinion groups and to institutions, with the aim of motivating the full range of public opinion to collaborate in the resolving of the problems of the water and sanitation sector;

3. that in the administration of water supply and sanitation services appropriate commercial-type marketing techniques be adopted without losing the social nature of these services;
4. that PAHO disseminate an appropriate methodology for assessing the demand for manpower in the water supply and sanitation institutions;
5. that the countries which have not yet ascertained the demand for manpower for the water and sanitation sector do so using the methodology that is most suitable for them, taking as basis the capacity of the personnel working in the sector and including the demand derived from community participation;
6. that the countries evaluate the installed training capacity in the water and sanitation sector and outside it;
7. that the activities aimed at finding practical solutions to specific sector problems be coordinated between the research institutes and the water and sanitation agencies with funding contributed by the latter;
8. that provision be made for the primary, secondary and tertiary education curricula to include material with a view to aligning the education and training provided more closely on the needs of the water and sanitation sector;
9. that the professional associations cooperate with the education sector so that by means of inter and multidisciplinary groups programs can be drawn up and executed to provide the complementary training and qualifications required;
10. that efforts be made to integrate, in the education centers and with the assistance of international agencies, professional practice with teaching experience to the mutual benefit of the education and sanitation sectors;
11. that financing mechanisms for manpower development be sought that will not detract from the autonomy of any of the participating institutions;
12. that the water and sanitation institutions establish, perfect and support their own internal training units, encouraging them to make maximum use of the capacity already installed in local education institutions;
13. that PAHO coordinate the formulation of an appropriate methodology for training trainers for the water and sanitation sector, and
14. that PAHO coordinate the exchange of experience in training acquired in the countries' water and sanitation sector.



GROUP III.

The members of Working Group III, in light of the views and experience presented during the symposium and in consideration of the needs of the drinking water and sanitation sector of the countries, recommended:

1. that the evaluation of the qualitative and quantitative manpower demand for the water and sanitation sector be based on the political, social and economic reality of each country and a personnel policy that guarantees employees a career path, permanent technical and professional updating and adequate remuneration levels;
2. that the countries formulate or update their long, medium and short-term sector manpower development plans with a view to the goals of the International Drinking Water Supply and Sanitation Decade and that these plans:
  - (a) be made part of the National Development Plan,
  - (b) include all the technical, economic and financial, execution, monitoring and evaluation aspects relevant to the manpower development process,
  - (c) set out in special terms all human settlements in the country, according to their water resource circumstances, cultural characteristics, etc.,
  - (d) set precise priorities, and
  - (e) take as reference the Manual for Manpower Development in Environmental Sanitation (Symposium on Manpower Development in Environmental Sanitation - Rio de Janeiro, November 1979); and the papers presented at this symposium;
3. that greater development of rural and urban communities be sought with a view to their active participation in all phases of the water supply and sanitation plans and programs;
4. that utilization of the installed education and training capacity be intensified and optimized and that better coordination be promoted between the drinking water and sanitation institutions and those of the education sector;
5. that more intensive use be made of the technical and financial cooperation and assistance mechanisms available, both through the international agencies and as between the countries of the Region, thus making possible a greater interchange of knowledge, experience and education materials;
6. that the loans granted by international financing agencies include funds specifically earmarked for training, and that PAHO and other

7. international organizations use mechanisms such as international meetings of Ministers of Health, Ministers of Economic Affairs, Ministers of Education and Ministers of Housing to prompt implementation of the recommendations of this symposium and systematic evaluation of progress by the national political authorities.

GROUP IV.

The members of Working Group IV, in light of the views and experience presented during the symposium and in consideration of the needs of the drinking water and sanitation sector of the countries, recommended:

1. that an inventory be made in each of the countries of the human resources available in the water and sanitation sector, to serve as a basis for the long and short-term personnel development plans;
2. that the manpower planning for the water and sanitation sector involve all the training institutions and all the user institutions employing the personnel trained in order to ensure better utilization of all existing and potential resources;
3. that all the countries have a manpower development program as an integral part of their national sanitation plans and that this program covers the sector as a whole (urban area, urban fringe, and rural areas);
4. that the manpower development plans and programs include special mechanisms for identifying specific training needs, better utilization of trained manpower and the retaining of trained personnel through an incentive and merit system;
5. that each water and sanitation agency has, at a high level in its structure, a unit specifically responsible for personnel training;
6. that manpower training activities at all levels not be restricted to purely technical contents but also cover the sanitary implications in regard to health;
7. that manpower training programs at all levels also include user education and training and motivation of the community members who will assume responsibility for the water supply and sanitation services;
8. that the policies on community participation in water supply and sanitation as a component of socioeconomic development strategy be formulated at government level in each country;
9. that the water and sanitation programs incorporated in the general development programs include activities designed to bring about active and responsible community participation in the planning, construction, maintenance and operation of the water and sanitation services;

10. that continuing training, advanced training and motivation programs be instituted for community members who assume responsibility for water and sanitation service and user education, and that incentive and merit systems be envisaged to help retain such trained personnel;
11. that, as part of the manpower development programs, specific teaching materials be prepared for use at community level with a view to securing effective community participation in water and sanitation programs;
12. that all projects in the water and sanitation sector include a training component and also contribute the cost of that training;
13. that the water and sanitation sector make maximum use of education institutions such as the universities and training institutes to train and provide advanced training for professionals and technicians;
14. that the active participation of the national vocational training services be sought in the training of operating personnel for the water supply and sanitation systems;
15. that the water and sanitation sector institutions considerably increase their financial support to the education institutions for the development of continuing education and research programs and the preparation of teaching materials;
16. that the drinking water, sewerage and sanitation agencies liaise with the education institutions to organize in each country, and as early as possible, a seminar to analyze the problems connected with manpower training;
17. that the collaboration and assistance between the universities and the specialized international agencies for the sector be intensified in regard to manpower training, and
18. that a permanent dialogue be established between the education institutions and those of the water and sanitation sector so that personnel training will be aligned on the needs of the sector and the socio-economic circumstances of the country.

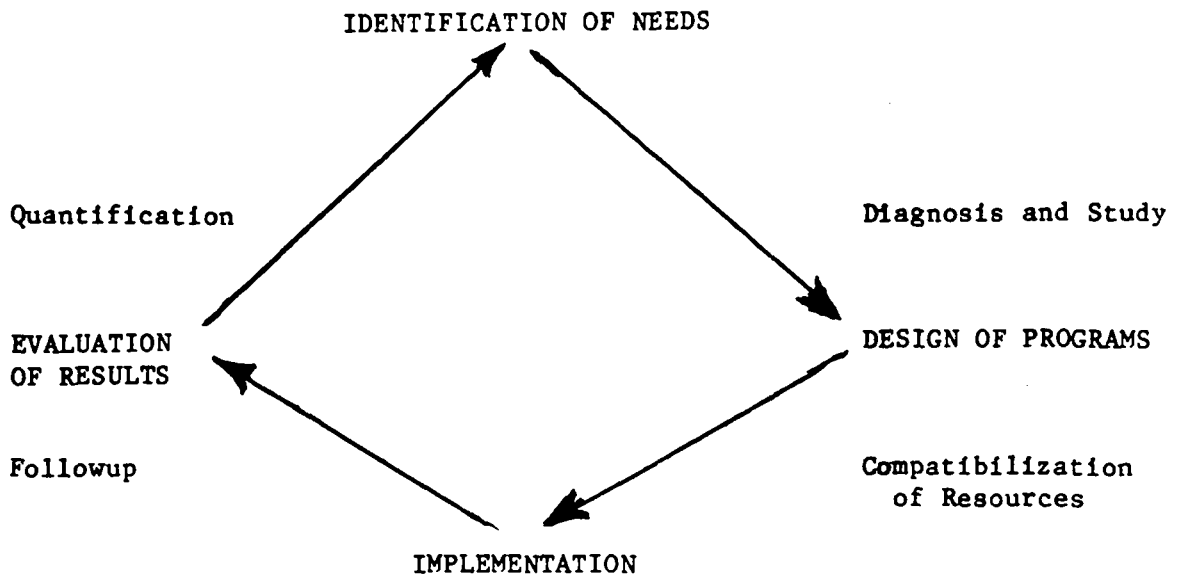
#### GROUP V.

The members of Working Group V, in light of the views and experience presented during the symposium and in consideration of the needs of the drinking water and sanitation sector of the countries, recommended:

1. that the coordinating committees for the Decade and those in charge of the drinking water and sanitation sector analyze the possibility of putting into effect the suggestions made by the United Nations Inter-agency Orientation Committee for Co-operative Action in the

International Drinking Water Supply and Sanitation Decade in the document on basic strategies for Manpower development;

2. that the responsible ministries and water and sanitation sector coordinating bodies in the countries institute, with PAHO/WHO collaboration, a program of training and advanced training for directors and managers of water and sanitation agencies;
3. that the drinking water and sanitation agencies take measures designed to optimize the utilization of existing human resources before embarking on any policy to augment the number of these resources;
4. that the drinking water and sanitation agencies optimize the utilization of available community resources;
5. that the drinking water and sanitation agencies seek access to available education methods to select from them those best suited to their personnel training programs;
6. that the drinking water and sanitation undertakings utilize the mechanism for horizontal cooperation with other countries to meet basic and advanced training needs that cannot be satisfied locally;
7. that all water and sanitation agency staff members attending the symposium undertake to produce a multiplier effect by publicizing the symposium's work and findings within their respective institutions;
8. that all water supply and sanitation agencies proceed to prepare occupation profiles in order to be able to establish the occupation structure of the water industry in each country;
9. that all drinking water supply and sanitation agencies adopt the following training scheme:



10. that a system for identifying training needs be established in each country's water and sanitation sector in order to bring about rational participation by the universities, the education system, the vocational training institutes and the community, and
11. that the water and sanitation institutions of the countries continue using the successful strategy of community education and training with a view to achieving the goals of the International Drinking Water Supply and Sanitation Decade.

REGIONAL SYMPOSIUM ON HUMAN RESOURCES FOR THE INTERNATIONAL

DRINKING WATER SUPPLY AND SANITATION DECADE

Panama - July 26-30, 1983

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