



WHO  
International Reference Centre  
for  
Community Water Supply

# Annual Report 1977

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IRC Annual Report 1977

Established in 1968 at the Netherlands' Institute for Water Supply in Voorburg (The Hague), the WHO International Reference Centre for Community Water Supply (IRC) is based on an agreement between the World Health Organization and the Netherlands Government. In close contact with WHO, the IRC operates as the nexus of a worldwide network of regional and national collaborating institutions, both in developing and industrialized countries.

The general objective of the IRC is to promote international cooperation in the field of community water supply. Operating as a catalyst, the IRC works closely together with its collaborating institutions as well as international agencies, national entities and individuals.

Requests for information on the IRC, or enquiries on specific problems may be directed to the International Reference Centre for Community Water Supply, P.O. Box 140, 2260 AC Leidschendam, the Netherlands.

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## INTRODUCTION

Reliable drinking water and adequate sanitary facilities are basic human needs. Nevertheless, according to recent statistical material of the World Health Organization, approximately 1.2000 million people living in rural and urban fringe areas in, mainly, developing countries, have no reasonable access to safe drinking water. In most cases, acceptable sanitary facilities are not available.

Consequently, community water supply and sanitation have become a growing concern of governments and international organizations, a concern which was once again reflected during the United Nations Water Conference, held in Mar del Plata (Argentina) in March 1977.

The UN Water Conference recommended, that the decade 1980-1990 should be designated the International Drinking Water Supply and Sanitation Decade. This period should be devoted to

increased implementation of national plans for drinking water supply and sanitation. To this recommendation, the Conference added, that "implementation will require a concerted effort by countries and the international community to ensure a reliable drinking water supply and provide basic sanitary facilities to all urban and rural communities on the basis of specific targets to be set up by each country, taking into account its sanitary, social and economic conditions." 1)

The recommended Plan of Action contained four priority areas, namely:

- Action must focus on promotion of (a) increased awareness of the problem; (b) commitment of national governments to provide all people with water of safe quality and adequate quantity and basic sanitary facilities by 1990, according priority to the poor and less privileged and to water scarce areas; and (c) larger allocation to this sector from the total resources available for general economic and social development;
- Action must be taken to remedy constraints of manpower shortage (especially at the intermediate and lower levels), inadequacies in institutions and organizations, and lack of appropriate and cost-effective technology;
- New approaches should be developed which will result in larger flows of national, international and bilateral funds on more favourable and

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1) United Nations, *Report of the United Nations Water Conference*, New York, United Nations Publication, sales no. E.77.II.A.12, (1977) Chapter I.

flexible conditions, so as to enable countries to increase the speed of implementation and, more important, enable the more effective use of the additional resources;

- Communities must be provided with effective education on domestic hygiene and must be motivated and involved, as appropriate, at every level of the programme, including the planning, construction, operation, maintenance and financing of services, and the monitoring and safeguarding of the quality of the water supplied. 1)

As one of its activities in 1977, the International Reference Centre for Community Water Supply (IRC), actively participated in the preparations for the UN Water Conference. Among other things, the IRC organized a symposium on Community Water Supply in Development Cooperation in February 1977 in Amsterdam; the Symposium was set up under the auspices of the Netherlands Minister for Development Cooperation, again in preparation for the above mentioned conference.

The Symposium concentrated on water supply in rural and urban fringe areas, where the problems are most severe. It was stated, that "if significant progress has to be made here, not only massive efforts will be necessary in terms of money and training of personnel for construction, operation, maintenance and installation,

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1) See footnote on previous page



but also improvement in organization and encouragement of the active participation of the communities involved. <sup>1)</sup>

The Symposium put forward a number of recommendations with regard to policy and planning, manpower development, organization and management, finance, technology and motivation.

Completing the first decade of its existence, the IRC will contribute to the best of its ability, to the preparation and implementation of the International Drinking Water Supply and Sanitation Decade, taking into account the valid recommendations of the UN Water Conference.

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1) IRC, *Symposium on Community Water Supply in Development Cooperation*, Voorburg, (The Hague) (1977).





## **1. THE IRC, IT'S OBJECTIVES AND STRATEGIES**

The International Reference Centre for Community Water Supply (IRC) was established in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands Government.

The main objective of the IRC is to contribute to the acceleration of developments in the community water supply and sanitation sector in developing countries, as a contribution to socio-economic development in general and to public health, in particular. To that end, its efforts aim at giving support to the creation and improvement of conditions which are beneficial to an efficient and effective implementation of community water supply and sanitation programmes. Much attention is given to problems in rural and fringe urban areas in developing countries; some of the activities are also relevant to more developed areas and countries.

In general terms the following broad areas of activity can be identified:

- 1 - to promote water supply and sanitation activities and the participation and involvement of local people therein;
- 2 - to support the development of local capacities and capabilities;
- 3 - to contribute to an improvement of institutional and organizational provisions in the field of water supply and sanitation;
- 4 - to initiate, support and coordinate research and development work;
- 5 - to contribute to the accessibility and application of existing information.

The general approach of programmes within these areas lies in the establishment of collaborative efforts between potential users in the advancement, transfer and application of pertinent knowledge, experience and methods. Much attention is given to the development of effective methods for the transfer of knowledge, such as demonstration projects, workshops and seminars, coordinated research and development projects and extension programmes.

Increasing attention is given to the development of an appropriate strategy at the IRC for its programme development and implementation.

The following issues are among those considered to be crucial:

- international cooperation;
- integral approach to structural problems;
- optimization of the development factor (generating effect).

The promotion of international cooperation

includes the development of programmes on the basis of collaboration amongst developing countries, as well as the cooperation with various international organizations in the field of water supply and sanitation, both at an international and national level.

The integral approach is based on the recognition of the interrelated character of the technological, managerial and sociological aspects of water supply and sanitation programmes and of the subsequent need for the integrated development of such programmes.

The development factor relates to the extent to which programme activities contribute to indigenous developments and self-reliance in developing countries. Appreciation of national capabilities, the optimal use of local resources, the improvement of in-country collaboration and the promotion of community participation, are all elements that may contribute to a higher development factor. In this relation it is considered of crucial importance that the major part of the actual development work is carried out by local people and institutions in developing countries, thus underscoring the generating character of the various programme activities, ultimately resulting in self-reliance for developing countries.



## NETWORK OF COLLABORATING CENTRES

An important means of communication with developing countries and an equally important structural basis for collaboration with and among those countries is the "Network of WHO Collaborating Centres for Community Water Supply and Sanitation".

A process of (re)defining functions and composition of this Network was started in 1977, in close collaboration between the World Health Organization and the IRC.

The starting point in the establishment of this network is that, although the primary initiative within each country lies in the planning and construction of water supply and sanitation schemes, which task must rest with the operating agencies, there is an additional need to provide back-up facilities which distill the local experience, provide a focal point for the specific field and collect and distribute experience from other



sources. This function would be best performed by organizations more detached from the day-to-day details of such schemes. This is the conceptional role of the National Centre. The particular merit of such Centres is that they are within the country, they have close links with the operating agencies and they have a good knowledge of local conditions and constraints. Ideally, they should be specially set up to fulfill their role but normally it is prudent and expedient to utilize existing institutions. Having established Collaborating Centres it is both logical and productive to encourage communication between them, since this broadens the experience base and encourages and strengthens the activity of the Centres in carrying out tasks with common objectives. A more formal basis for this interchange ensures that such exchange will take place. This is the first stage of the network. By similar reasoning links at regional level allow discussion within areas of similar conditions and culture, and at the international level for exchange of more common methods and experiences.

Experience of the past five years has shown how such a system can function and which are the principal problems involved. This has emphasized the necessity to choose collaborating centres carefully, both from the point of view of the types of organization and its level of activity. Important criteria are acceptance and central involvement of the centre in the country, and the capability and readiness of the centre to play the requested role.

It is envisaged that during an initial phase of two to three years the operation of the renewed network with a group of approximately 20 collaborating centres will be started. This group will carry out activities in the context of the advancement and transfer of knowledge and methods as mentioned in Chapter 1. These will enhance the programmes in their own country but will, at the same time, be of significance to other countries.

The activities within the framework of the network will be developed in support of the preparation and implementation of programmes in the context of the Drinking Water Supply and Sanitation Decade in cooperation with national governments and regional and international organizations. A list of present Collaborating Centres has been added to this Annual Report as Annex 2.



*Photo: Ministry of National Guidance, Sudan*

### 3. IRC'S PROGRAMMES AND PROJECTS

In the past year special attention has been given to the structuring and planning of the IRC programme as a whole. In particular, the relations between the generation of knowledge, the coordination of research and development, the analysis and evaluation of information, the exchange of information and the development of appropriate methodologies for the integrated transfer of knowledge have been studied. On this basis a longer term programme planning is developed. In defining the programme areas for the next years, a special focus was placed on those fields of knowledge that give support to structural development of the community water supply and sanitation sector in developing countries. These fields are:

- appropriate technology, dealing with the transfer and adaption of existing techniques and methods and with the development of new techniques and methods;

- social development, covering the development of awareness and involvement of local people and the transfer of knowledge in the field of community participation and sanitation education;
- infrastructural development, including information on organizational structures; methods and techniques for manpower development (especially covering the sub-professional and village level);
- programme management, dealing with programme planning and evaluation;
- finance, covering both internal (national) and external finance and funding arrangements.

As a basic support to programmatic development in these fields of knowledge, an information programme is being developed, as a service to relevant organizations and as a basis for the coordination of research

### **APPROPRIATE TECHNOLOGIES**

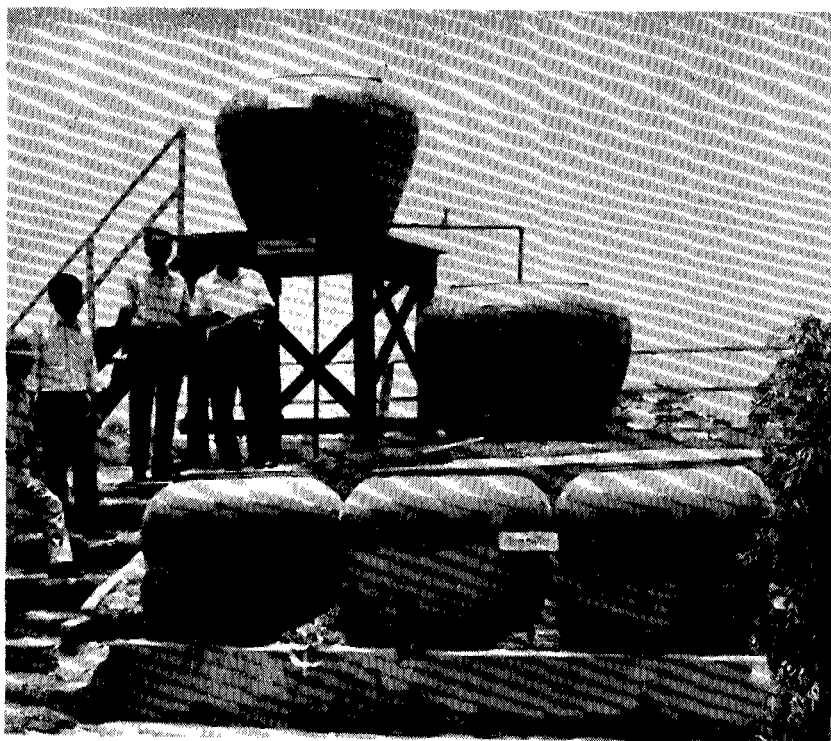
The programme on appropriate technologies is directed to the promotion, application and use of technically and socially suitable technologies in community water supply and sanitation in developing countries.

During the UN Water Conference the role of appropriate technology and the need for building up national technological capacities in developing countries was again stressed. Therefore, the development of an indigenous technological infrastructure in the community water supply sector was promoted and a start was made with giving support to the work of those planners, engineers and technicians who are in charge of these

programmes in developing countries.

A series of projects is being developed on appropriate methods and technologies of water supply and sanitation, standardization and typical design.

In the context of the project on appropriate methods and technologies, which aims at stimulating local innovative work, an extensive mail survey has been set-up. A compilation of the first results has been published as "Practical Solutions in Drinking Water Supply and Wastes Disposal for Developing Countries". The collection of material for this loose-leaf publication will be continued, as it apparently meets a large demand.



Standardization and typical designs have proven their value for repetitive design and construction of water supply and sanitation facilities, particularly in rural areas of developing countries. Therefore, tested types and standard designs will be collected and evaluated. The objective is to provide information and support to engineers in countries which are facing a large backlog in their rural programmes. Later on, results may be introduced to sub-professionals in short training courses.

A start has also been made with the collection of information on sanitation and waste disposal methods. In this connection the OXFAM conference on Sanitation in Hot Climates has been attended.

In connection with the promotion of the concept of appropriate technology, various meetings have been attended. Amongst these were:

- Meeting of the Ad-Hoc Working Group on Appropriate Technology of the Advisory Committee on the Application of Science and Technology (ACAST) in the Committee's preparatory work for the UN Conference on Science and Technology (1979)
- Water Panel, Intermediate Technology Development Group (ITDG)  
May, 1977
- International Conference on Rural Development Technology  
Bangkok, 21st-24th June, 1977
- Sanitation in Developing Countries  
Oxford, 5th-9th July, 1977
- Environmental Health Engineering in Hot Climates and Developing Countries  
Loughborough, September 1977

Integrated demonstration projects are being developed on the following subjects: handpumps, slow sand filtration and public standposts. In the context of the planning of the programme for the coming few years, special emphasis is given to the project-wise development of the various programmes. This means that a series of inter-related and action oriented activities are set-up in and by developing countries and on the basis of international collaboration.

### **HAND PUMPS FOR WATER SUPPLY**

In the field of groundwater utilization for community water supply, hand pumps continue to be of prime importance.

The IRC continued its activities in the context of the IRC Programme on Hand Pumps, a programme that was initiated in early 1976 with the financial support of UNEP, and in close collaboration with WHO.

Much interest in the programme was generated by the publication in August 1977, under the joint sponsorship of UNEP and WHO, of a handbook on hand pumps, entitled "Hand Pumps for Use in Drinking Water Supplies in Developing Countries" (IRC Technical Paper No. 10). This publication provides a state-of-the-art report on hand pumps technology. It describes the history of hand pumps, types of hand pumps, and discusses the principles of operation, and organization of hand pump programmes. Installation and maintenance practices are also covered. Recent research on hand pumps is reviewed, and information given on the requirements for indigenous manufacture of pumps.





A directory of hand pump manufacturers is appended to this Technical Paper. The report on the International Workshop on Hand Pumps (organized by the IRC in July 1976), published as IRC Bulletin No.8, has been distributed as a companion document to "Hand Pumps".

Following the initial circulation and a number of announcements, the hand book continues to be in continuous demand from almost all Third World countries where hand pump programmes are carried out or planned.

In this connection, preparations were made to have "Hand Pumps" translated into French and

Spanish so as to improve its coverage in French and Spanish speaking countries.

A large number of working relationships were established with organizations and agencies having an active interest in hand pumps. Acting as a clearing house, IRC continued to collect and disseminate selected information on hand pumps to serve the needs of hand pump installation programmes, research and development work, as well as educational and extension activities relating to hand pumps.

Work was initiated to develop guidelines for the selection of hand pumps. Under preparation is a catalogue listing existing and newly developed hand pumps.

In 1977, the IRC started activities on the development of a standard code for hand pumps testing. Close collaboration was established with several organizations that are carrying out work in this field, e.g. the Consumer's Association, Harpenden Rise Laboratory (U.K.) and the Engineering Experiment Station, Georgia Institute of Technology (U.S.A.).

Recognizing the prime importance of suitable organizational set-ups for hand pump maintenance, IRC arranged for Mr. John Shawcross (formerly Water Programme Manager, UNICEF, Bangladesh) to prepare a consultant's report on existing schemes for hand pump maintenance, and initiate the establishment of guidelines for suitable organizational set-ups for such maintenance.

In the IRC-programme on hand pumps, growing attention is paid to the promotion and support of indigenous manufacture of pumps. During

1977, the necessary information base and collaborative relationships were built up.

### **SLOW SAND FILTRATION**

The IRC project aims at promoting slow sand filtration for biological treatment of drinking water in rural and urban fringe areas in developing countries. In developing countries, where - in general - surface water is not (very) polluted, slow sand filtration can often be applied as a single treatment process. Slow sand filtration offers a number of advantages, including:

- optimal use can be made of locally available materials
- operation and maintenance are relatively easy and could be done by semi-skilled operators
- operational costs are minimal (no chemicals are required).

The first phase of this project comprised pilot experiments, field investigations and literature studies on slow sand filtration and related simple pre-treatment systems, thus generating reliable information on the design, construction, operation and maintenance of slow sand filters under local conditions in developing countries.

In 1977, activities in the context of the project have been characterized by a transition to its second phase. During this year the various participating institutes<sup>1)</sup> finalized their pro-

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1) University of Science and Technology, Kumasi, Ghana  
National Environmental Engineering Research Institute, Nagpur, India  
University of Nairobi, Nairobi, Kenya  
University of Khartoum, Khartoum, Sudan  
Asian Institute of Technology, Bangkok, Thailand

grammes for the first phase of the project and initiated concrete preparatory activities for phase II. Detailed consultations were held with three other countries, namely Colombia, Jamaica and Pakistan regarding their participation in the second phase programme. Already by the end of 1977 Colombia and Jamaica decided to join the project and started preparatory activities.

Although by December 1977 the reporting on the country programmes for phase I was not completely finished, a start was made with the compilation of already known results in a number of publications.

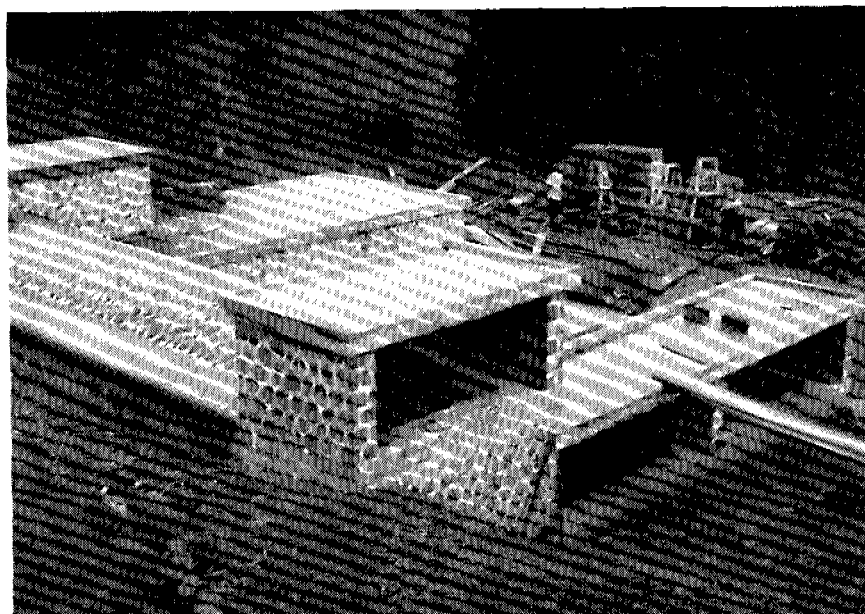
First, the outcome of the various literature studies on "Slow Sand Filtration and Related Simple Pre-treatment Systems" was reviewed and a selection of the references was annotated and published in a bibliography (IRC Bulletin No. 9). Subsequently, the review of the results of the pilot experiments and field investigations was taken up. At present the following interim <sup>1)</sup> publications concerned are under preparation:

- Manual for the Design and Construction of Slow Sand Filtration Schemes;
- Manual for the Operation and Maintenance of Slow Sand Filtration Schemes;
- State-of-the-art review on "Slow Sand Filtration for Community Water Supply in Developing Countries".

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1) To be tested and evaluated in the second phase of the Slow Sand Filtration Project and to be published in final version by the end of this phase (mid 1979).

In the year under review, considerable attention has been given to the development of the subject content of the programme for phase II, mainly by carrying out a number of field studies in and by the participating countries, together with the introduction of experimental Slow Sand Filtration schemes in selected communities.



IRC-photograph

In order to initiate and harmonize these country programmes a number of specific outlines have been prepared, describing the scope and protocol of the various studies.

Apart from a document, providing a general outline for the second phase of the project, specific outlines have been noted down in the following papers:

- Socio-economic studies in phase II of the Slow Sand Filtration Project (January 1977) by Mr. Donald Curtis, Development Administration Group, University of Birmingham.

- Public Health Studies in phase II of the Slow Sand Filtration Project (January 1977) by Dr. Richard Feachem, Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine.
- Health Extension in phase II of the Slow Sand Filtration Project (December 1977) by Dr. Alastair White of the Institute of Development Studies, University of Sussex.

In view of the multidisciplinary character of the programmes for phase II it has been considered essential to have a sound organization infrastructure for the project in the participating countries.

Therefore, in each of the countries a Project Management Committee (PMC) has been established which has the final responsibility for the planning, implementation and evaluation of the country programme concerned.

The PMC's are formed by representatives of institutions of the following categories:

- Operating agencies responsible for the Rural Water Supply sector at both national and state or provincial level.
- Agencies responsible for rural extension of Community Water Supply and Sanitation, both at national and state or provincial level.
- Research and Development Institutes in the field of Public Health and Environmental Engineering.

In each country one of the participating agencies performs the function of Programme Coordinating Institute.

In most of the participating countries the programmes for the second phase were in an advanced planning stage by the end of 1977; some of the

countries already submitted detailed second phase proposals.

Each PMC had selected 2 to 4 villages for the implementation of the project and had carried out the necessary feasibility studies.

In order to provide for organizational and programmatic assistance in the context of the project, missions were made by IRC staff to Colombia, Ghana, India, Jamaica, Kenya, Pakistan, Sudan and Thailand. Visits of a more exploratory nature were paid to Bangladesh, Brazil, Malaysia, Peru and Tanzania. The operational relations with various international and bilateral organizations were further strengthened in 1977. In this connection short missions were made to Canada, the United Kingdom, the United States of America and Switzerland.

### **PUBLIC STANDPOST WATER SUPPLY SYSTEMS**

The major objective of the IRC project on public standpost systems, is to show the inter-related factors (many of a non-technical nature), which are crucial to the development of such water distribution systems.

In this work it is realized that public standposts cannot be expected to produce dramatic improvements in the state of the health of the users, especially when simultaneous sanitation measures are lacking. However, public standposts can represent a real improvement over drawing water from unprotected sources.

A series of country studies and a literature survey have been carried out to identify the major problems and constraints related to the

planning and implementation of public standpost water supplies.

An international expert meeting was held in Accra, Ghana in August 1977 to discuss the preliminary results of the identification studies. The meeting was organized in association with the Ghana Water and Sewerage Corporation. Participants from various countries reviewed a draft report on public standposts for developing countries and formulated recommendations for further research and development and specific studies on, amongst other things, the design, construction and maintenance of public standposts, the organization and management of the system, economic and financial aspects, revenue collection, training of caretakers, and public information. The proceedings of the meeting are available (IRC Bulletin No. 11).



IRC-photograph



A publication on various technological, organizational and social aspects of public standpost water supply systems is in the final editing stage and will be published in 1978.

Furthermore, special papers will be made on the optimal design of distribution networks and on the economic and financial aspects of public standpost water supply systems.

Preparations started, in a multi-country set-up, for a series of integrated demonstration projects in various developing countries. These projects will be carried out by national operating agencies. The projects are directed to structural problems and constraints related to the planning and implementation of public standpost water supplies. Demonstration is chosen as a mechanism for the integral transfer of knowledge and experiences on the various aspects of public standpost water supply systems.

In support of the development of the demonstration projects a series of specific studies was initiated on subjects such as: the design and construction of public standposts and distribution networks, operation and maintenance, extension, public health and sanitation education, management, training, revenue collection, and local manufacture of parts of public standposts.

### **MANPOWER DEVELOPMENT**

The lack of trained personnel is considered to be a major constraint in the provision of water supplies in developing countries.

In many developing countries, (almost) no experience exists on the development of a sys-

tematic training delivery system; often, the number of qualified trainers is limited as well.

The Manpower Development Programme of the IRC aims at assisting developing countries in the design of national training delivery systems, by providing guidance and through the establishment of a network of contacts between countries for the exchange of experiences, training material and trainers.

In 1977, close contacts were established with various national and international organizations in the context of the programme. In particular with the Pan American Health Organization (PAHO) collaborative activities were developed and one of the training experts of PAHO acted as a consultant to the IRC for the development of a proposal for an international collaborative programme on manpower development for the water supply and sanitation sector in developing countries.

Furthermore, consultations started with contacts in Indonesia, Sri Lanka, Tanzania, Ghana, Tunisia and Peru. Close ties were also established with a joint-venture training project of the PAHO, CIDA (Canadian International Development Agency) and 10 Eastern Caribbean countries aiming at an acceleration of appropriate training for water utility employees through technical cooperation among Eastern Caribbean countries. As the objectives and activities of this project are clearly along the lines of the IRC Collaborative Manpower Development Programme endorsement was requested to get this project officially nominated as a demonstration site in order to facilitate the sharing of experience and developments with other

third world countries.

A first draft was issued of a checklist and guideline which contains a series of suggested steps for development of a national training delivery system for the water/waste water sector. This draft has been sent on request to a number of countries which are in the process of setting up or improving local training facilities. Soon a second draft version of the document will be published which will include comments from the field.

In September 1977 an "International Training Seminar on Education and Training for Water Supply and Sanitation in Developing Countries" was organized in England by the Training Division of the National Water Council in collaboration with the IRC. It was a follow-up seminar to the International Training Seminar on Community Water Supply in Developing Countries.<sup>1)</sup>

The objectives of the follow-up seminar were:

- to provide awareness of the principles and best practices upon which the design and implementation of effective schemes of water supply and sanitation training depend
- to discuss lines of approach for the development of appropriate and comprehensive training schemes which will be cost-effective and will stand the test of time
- to explore ways and means of strengthening international training cooperation and achieving more effective exchange of training expertise and resources.

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1) A compilation of papers presented during this seminar, has been published in November 1977, under the same title (no.10 of IRC's Bulletin Series).

Delegates from a number of developing countries attended and recommendations were forwarded for the organization of similar seminars in the different developing regions.

## **EVALUATION FOR VILLAGE WATER SUPPLY PLANNING**

Only limited information exists on the effectiveness of water supply programmes and the effect of a water supply on a village, the ways in which village problems affect a water supply, and why such a basic amenity should so often be out of order.

Therefore, evaluating the performance of programmes and water supply systems which have been built in the past with a view to learning from it for a better planning of future programmes and systems is of utmost importance.

One of IRC's activities in this field concerns the provision of assistance to the Ross Institute (part of the London School of Hygiene and Tropical Medicine, United Kingdom) that is developing a handbook, intended to stimulate the execution of evaluations according to a proposed standardized methodology in order to permit comparison between different programmes and to provide an opportunity to draw general conclusions.

At the end of 1977, a first draft of a "Handbook on Evaluation for Village Water Supply Planning" was compiled.

During 1978, the Institute will prepare a second draft version of the handbook. The manual will be published after final review and editing.

## COMMUNITY PARTICIPATION

Community related problems are among the major constraints to progress in the field of community water supply and sanitation in rural areas of developing countries. Progress is hampered in terms of slowing down the extension rate of the actual basic sanitary services, as well as in terms of limiting the health and socio-economic benefits which can be expected from these services.

In recent years, there has been a growing demand for alternative approaches to diffusion of community water supply and sanitation in rural areas of developing countries; these approaches should pay due attention to the role that the communities should play themselves in the programmes concerned. This role should include the active involvement of all members, or at least all sections, of the population in the various stages of the introduction of new sanitary services, as well as in the process of changes of behaviour in relation to sanitation and personal hygiene. Active and successful participation in community water supply and sanitation programmes will, in many cases, lead to an increased capacity in the local community for self-reliant cooperation.

Against this background, and as a follow-up of recommendations concerning this subject by the United Nations Water Conference, the IRC initiated in 1977 an orientation study for a programme on the promotion of community participation in community water supply and sanitation.

The general objectives of this study are:

- to develop a state-of-the-art review on commu-

nity participation in the field of community water supply and sanitation and to assess the potential of community participation under various social, cultural, economical and political conditions.

- to appraise the necessity and feasibility of support programmes on the subject in question, which would be initiated on the basis of international cooperation.



*IRC-photograph*

In 1977 the orientation study developed along two lines of action, namely the set-up and development of a number of country programmes on sanitation education and community participation in the context of IRC's Slow Sand Filtration Project, and the compilation of a comparative literature study on "Community Education and Participation in Water Supply and Sanitation in Developing Countries".

In the context of the Slow Sand Filtration Project, the consequences of community involve-

ment are tested, under the circumstances prevailing in the participating countries. A general outline on this "Community Education and Participation Component" of the project has been prepared by Dr. A.T. White.<sup>1)</sup> The document describes in a comprehensive way alternative options for the basic approaches, the implementation strategies and the organizational requirements for the programmes concerned. Although it primarily focuses on the country programmes for the Slow Sand Filtration Project, the outline comprises much information that is also valuable for application in other community water supply and sanitation programmes.

As a first step to the development of an information base, a start was made with a literature study on the social aspects of rural water supply and sanitation programmes in September 1977; on the basis of this study, a selected and annotated bibliography will be compiled comprising both a systematic summary review of available literature in the fields of:

1. the diffusion of all kinds of technological innovations including water supply and sanitation systems.
2. health education, community development and community participation experiences, with special reference to basic sanitary programmes.

After the first orientation survey the search profile was narrowed down to publications on water supply, sanitation and health education.

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1) See also the section on the Slow Sand Filtration Project.







## 4. INFORMATION

One of the recommendations of the UN Water Conference was of particular interest from an information point of view. It was recommended, that "an effective clearing house mechanism should be developed through international cooperation, by strengthening existing mechanisms, if available, to provide for the communication of selected information concerning all elements of community water supply and sanitation"<sup>1)</sup> In 1977, the IRC increased its activities on an Information Programme, that aims at establishing such a clearing house mechanism. A more detailed description is given on the following pages.

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1) United Nations, *Report of the United Nations Water Conference*, New York, United Nations Publication, sales n. E.77.II.A.12, (1977) chapter I

Continuous attention was given to other information activities, such as collection of pertinent documentation and the monthly publication of the IRC Newsletter. A description of both these facets of IRC's information work has been given in this chapter.

Finally, it should be mentioned here, that many guests visited the International Reference Centre. A list of visitors during 1977 has been added to this Annual Report as Annex 3.

### **INFORMATION PROGRAMME**

As mentioned above, the IRC increased its activities in the context of its Information Programme. In close collaboration with a large number of national, regional and international organizations, mainly in developing countries, preparations started for the establishment of a clearing house mechanism, that is being developed for the exchange and transfer of information in the field of community water supply and sanitation.

The clearing house mechanism will ensure, that knowledge and experiences in the field of community water supply and sanitation become accessible to and appropriate for each potential user, thus supporting the improvement of the overall situation in this field.

In preparation for the implementation of the programme, IRC staff travelled to various parts of the world to discuss the programme with pertinent institutions and organizations.

Furthermore, a consultancy meeting was organized in Voorburg, to analyze the draft programme and to prepare a detailed planning for its

implementation. Participants in this meeting were Mr. N. Hughes (An Foras Forbartha, Ireland), Dr. R. Stamper (London School of Economics, U.K.) and Dr. D. Stanislawski (UNDP, Iran).

The now envisaged first implementation phase of the Information Programme is expected to result in, among other things:

- a basic mechanism structure: participating centres at national and regional level in various developing regions
- mechanism 'tools' for information handling at the participating centres
- specific output: standard sets of highly relevant documents, national and regional directories of existing information resources, standard designs.

A direct link exists between the activities in the context of the programme and those on the Network of Collaborating Centres (see the second chapter of this Annual Report). It is obvious, that much of the success of the information programme depends on the activities within the Network, that, as stated before, has a clearly defined function with regard to information communication and exchange.

## **LIBRARY AND DOCUMENTATION**

Much relevant and potentially useful information in the water supply and sanitation field is often not officially published, or is not widely available, when it is published.

In water supply organizations, health ministries, universities, research institutes and other entities, many (often internal) reports,

evaluation studies, state-of-the-art descriptions, etc. are compiled; their existence, though, is often only known by those directly involved. The collection of these documents has a priority for the IRC library. The library is primarily meant for internal purposes, supporting the preparation and implementation of IRC programmes and activities by providing appropriate information to the IRC staff members and consultants. The library resources are also used in request handling.

### **IRC NEWSLETTER**

The International Reference Centre for Community Water Supply continued in 1977 to compile and disseminate its Newsletter. Based on, among other reasons, the above-mentioned recommendation of the United Nations Water Conference, the subject scope of the Newsletter was expanded to comprise water supply and sanitation. As before, the Newsletter covers sources of various nature, giving information on relevant research and other new developments on forthcoming conferences and courses, on new publications, reports, etc.

As the Newsletter makes information available on useful developments in the water supply and sanitation field, that is not published elsewhere, often use is made of knowledge and experiences, made available to the Centre by Newsletter readers.

The Centro Panamericano de Ingeniería Sanitaria y Ciencias del Ambiente (CEPIS), Lima, Peru, where the Newsletter is being translated into Spanish and disseminated over Latin America, succeeded in effecting a spectacular increase in readership

over the last year: 7,000 in 1976, ca. 11,500 at the end of 1977.

Many reactions were received on Newsletter items. Those referring to IRC activities were dealt with directly. However, those reactions often referred to items on activities, reports, etc. from institutes and organizations other than the IRC; this regardless the fact that Newsletter always names the original sources of information.

These reactions are invariably referred to the origins of the respective Newsletter item.

### **REQUEST HANDLING AND REFERRAL SERVICES**

As the IRC mainly holds information on specific elements of community water supply and sanitation, especially in fields where IRC programmes and projects (e.g. slow sand filtration, hand pumps, appropriate technologies, etc.) are being carried out, many of the numerous questions received, were not handled at the IRC, or only partly (by providing short selective lists of bibliographic references). The requests that the Centre did not handle itself, were referred to other sources of relevant information.

This approach offers two advantages:

- the inquirer will often get more complete information from a specialized source than the IRC could have supplied
- the inquirer gets into direct contact with the sources of the information needed.

This 'request handling by referral' will surely be improved as a consequence of the IRC Information Programme.



**ORGANIZATIONS THAT GAVE FINANCIAL  
SUPPORT TO IRC ACTIVITIES IN 1977**

International Bank for Reconstruction and  
Development (World Bank)

Ministry of Public Health and Environmental  
Hygiene,  
Netherlands

Ministry of Foreign Affairs,  
Directorate of International Technical Assistance,  
Netherlands

United Nations Environment Programme

World Health Organization





## COLLABORATING CENTRES

Institut d'Hygiène et d'Epidémiologie  
14 Rue Juliette Wytsman  
1050 Brussels  
Belgium

Companhia Estadual de Tecnologia de Saneamento  
Básico e de Defesa do Meio Ambiente (CETESB)  
Avenue Prof. Frederico Hermann Jr. 345  
C.E.P. 05459  
Sao Paulo  
Brazil

Fundação Estadual de Engenharia do Meio  
Ambiente (FEEMA)  
Rua Fonseca Teles 121-15<sup>o</sup> and  
Caixa Postal 23011 - ZC 09  
Rio de Janeiro, GB  
Brazil

Centre of General and Environmental Hygiene  
Institute of Hygiene and Epidemiology  
Srobàrova 48  
10042 Prague -10  
Czechoslovakia

Institute of Hygiene  
University of Aarhus  
Universitetsparken  
8000 Aarhus-C  
Denmark

Sanitary Engineering Department  
Faculty of Engineering  
University of Alexandria  
Alexandria  
Egypt

Office de la Recherche Scientifique et Technique  
Outre-Mer (ORSTOM)  
Section d'Hydrology  
24 Rue Bayard  
Paris 8e  
France

Department of Civil Engineering  
Faculty of Engineering  
University of Science and Technology  
Kumasi  
Ghana

All-India Institute of Hygiene and Public Health  
110 Chittaranjan Avenue  
Calcutta-12  
India

National Environmental Engineering Research  
Institute (NEERI)  
Nehru Marg  
Nagpur - 440020  
India (regional centre)

Victoria Jubilee Technical Institute  
Matunga  
Bombay-19  
India

Institute of Hydro-Sciences and Water Resources  
Technology  
University of Tehran  
64 Ghadessi Street  
North Boulevard Elizabeth  
Tehran  
Iran

Environmental Health Laboratory  
Hebrew University - Hadassah Medical School  
P.O. Box 1172  
Jerusalem  
Israel

Istituto di Ricerca sulle Acque  
Consiglio Nazionale delle Ricerche  
Via Reno 1, Irsa  
Rome  
Italy

Centro Studi e Ricerche di Ingegneria Sanitaria  
University of Naples  
Piassale Tecchio  
80125 Naples  
Italy

Department of Sanitary Engineering  
Faculty of Engineering  
University of Tokyo  
Tokyo  
Japan

Department of Civil Engineering and Architecture  
and School of Public Health  
American University of Beirut  
Beirut  
Lebanon

Testing and Research Institute of the  
Netherlands Waterundertakings, KIWA, Ltd.  
Sir Winston Churchilllaan  
Rijswijk 2109  
The Netherlands

Faculty of Engineering  
University of Lagos  
Lagos  
Nigeria

Pan American Centre for Sanitary Engineering  
and Environmental Sciences (CEPIS)  
Calle los Pinos 259, Urbanizacion Camacho  
Casilla Postal 4337  
Lima - 100  
Peru (regional centre)

Departamento Academico de Saneamiento  
Universidad Nacional de Ingenieria  
Avenida Tupac Amaru s/n  
Apartado 1301  
Lima  
Peru

Faculty of Engineering and Architecture  
University of Khartoum  
P.O. Box 487  
Khartoum  
Sudan

Battelle Geneva Research Centre  
7 Route de Drize  
1227 Carouge  
Geneva  
Switzerland

Division of Environmental Hygiene  
Asian Institute of Technology  
Henri Dunant Street  
P.O. Box 2753  
Bangkok  
Thailand

Middle East Technical University  
Sanitary Engineering Laboratory  
Ankara  
Turkey

Department of Civil Engineering  
University of Newcastle-upon-Tyne  
Claremont Road  
Newcastle-upon-Tyne NE1 7RU  
United Kingdom

Water Research Centre  
45 Station Road  
Henley-on-Thames  
Oxon. RG9 1BW  
United Kingdom

Division of Water Hygiene  
Water Quality Office  
Environmental Protection Agency  
5600 Fishers Lane  
Rockville, Maryland 20852  
U.S.A.

National Sanitation Foundation  
P.O. Box 1468  
2355 West Stadium Boulevard  
Ann Arbor, Michigan 48106  
U.S.A.

College of Engineering  
University of Florida  
Gainesville, Florida 32601  
U.S.A.

School of Public Health  
The University of North Carolina  
P.O. Box 630  
Chapel Hill, North Carolina 27514  
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Academy of Community Services  
(K.D. Pamfilov Academy of Community Services)  
Volokamskoe Sosse 16  
Moscow D-373  
U.S.S.R.

Comité Inter-africain d'Etudes Hydrauliques (CIEH)  
Boîte Postale 368  
Ouagadougou  
Upper Volta

Department of Sanitary Engineering  
Faculty of Engineering  
Central University of Venezuela  
Caracas  
Venezuela

## VISITORS TO THE IRC IN 1977

Abdin, Dr.	University of Khartoum, Khartoum, Sudan
Austin Barry, Prof. B.	Manhattan College, New York, U.S.A.
Ballance, Dr. R.C.	World Health Organiza- tion, Geneva, Switzerland
Bannerman, R.R.	Northern Region Water Supply Project, Bolgatanga, Ghana
Beyer, M.	UNICEF, New York, U.S.A.
Bouvier, C. des	Food and Agricultural Organization, Accra, Ghana
Carefoot, N.F.	Pan American Health Organization, Bridgetown, Barbados.
Cillié, G.G.	National Institute for Water Research, Pretoria, South Africa
Chitmaitree, Prof. T.	Chulalongkorn University, Bangkok, Thailand
Congdon, B.	TOOL Foundation, Amsterdam, The Netherlands
Cuthbert, Dr. J.	Consumer's Association, Harpden, United Kingdom
De, Dr. S.	All-India Institute of Hygiene and Public Health, Calcutta, India



Desir, M.	North Atlantic Treaty Organization, Brussels, Belgium
Dotan, G.	Jerusalem Municipal Water Corporation, Jerusalem, Israel
Erdélyi, Dr. M.	Research Institute for Water, Budapest, Hungary
Etienne, G.C.	World Health Organiza- tion, Geneva, Switzerland
Feachem, Dr. R.	Ross Institute of Tropical Hygiene, London, United Kingdom
Giertz, L.N.	TOOL Foundation, Amsterdam, The Netherlands
Haack, F.E.	Canadian International Development Agency, Ottawa, Canada
Haute, Prof. A. van	University of Leuven, Leuven, Belgium
Hughes, N.	An Foras Forbartha, Dublin, Ireland
Ibrahim, Prof. A.H.	Ministry of Health, Khartoum, Sudan
Ives, Prof. K.	University College, London, United Kingdom
Kuran, I.H.	State Hydraulics Works, Ankara, Turkey
Lauria, Prof. D.T.	University of North Carolina, Chapel Hill, U.S.A.

Rajagopalan, A.	World Health Organiza- tion, New Delhi, India
Raman, V.	National Environmental Engineering Institute, Nagpur, India
Saraf, R.	National Environmental Engineering Institute, Nagpur, India
Setiawan, E.	PAM Jakarta Water Works, Jakarta, Indonesia
Sikka, Dr. H.	Syracuse Research Corporation, New York
Sjamsul, Ir.	West-Java Rural Water Supply Project, Java, Indonesia
Soejoga, Dr. M.D.	West-Java Rural Water Supply Project, Java, Indonesia
Stamper, R.	London School of Economics, London, United Kingdom
Stanislawski, Dr. D.J.	United Nations Development Programme, Tehran, Iran
Stern, P.H.	Intermediate Technology Development Group, London, United Kingdom
Subrahmanyam, D.V.	World Health Organiza- tion, Geneva, Switzerland
Turell, R.P.J.	National Water Council, London, United Kingdom

**PARTICIPANTS TO SYMPOSIUM ON COMMUNITY  
WATER SUPPLY IN DEVELOPMENT COOPERATION <sup>1)</sup>**

Amelsvoort, Dr. V.F.P.M. van	Catholic University of Nijmegen, Nijmegen, the Netherlands
Assen, J. van	Technical Assistance Department, the Hague, the Netherlands
Bergen, A.R.	National Institute for Water Supply, Voorburg, the Netherlands
Blumenthal, K.P.	Department Water Re- sources Management, the Hague, the Netherlands
Brugman, A.	Netherlands Organization for Development Cooper- ation, the Hague, the Netherlands
Carefoot, N.F.	Pan American Health Organization, Lima, Peru
Cornelisse, Dr. P.A.	Centre for Development Planning, Rotterdam, the Netherlands

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1) Amsterdam, the Netherlands, 7-10 February,  
1977; see page 7 of this report

Csonka, J.	Groundwater Surveying - TNO, Delft, the Netherlands
Da Camara, F.L.	Commission of the Euro- pean Communities, Brussels, Belgium
Davelaar, H.	UNICEF, New York, U.S.A.
Dieleman, P.J.	Food and Agricultural Organization, Rome, Italy
Dieterich, Dr. B.H.	World Health Organiza- tion, Geneva, Switzerland
Etienne, G.C.	World Health Organiza- tion, Geneva, Switzerland
Feachem, Dr. R.	Ross Institute of Tropical Hygiene, London, United Kingdom
Harahap, Dr. F.	Development Technology Centre, Bandung, Indonesia
Hasselt, A.M.I.C.E.	ILACO, Arnhem, the Netherlands
Heide, Dr. J.A. van der	Eindhoven University of Technology, Eindhoven, the Netherlands

Hemmes, H.	Netherlands Investment Bank for Developing Countries, the Hague, the Netherlands
Hommes, Prof. Dr. E.W.	State University, Utrecht, Utrecht, the Netherlands
Horst, Dr. G.J.C. van der	Netherlands Universities Foundation for Inter- national Cooperation
Huisman, Prof. L.	Delft Technological University, Delft, the Netherlands
Kakebeeke, W.J.	Ministry of Public Health and Environ- mental Hygiene Protection, Leidschendam, the Netherlands
Kalbermatten, J.M.	World Bank, Washington, U.S.A.
Koopman, Dr. F.	Ministry of Foreign Affairs, the Hague, the Netherlands
Laan, J.C. van de	ILACO, Arnhem, the Netherlands
Lucasse, Dr. Chr.	Royal Tropical Institute, Amsterdam, the Netherlands

Lwegarulila, F.K.	Ministry of Water, Energy and Minerals, Dar es Salaam, Tanzania
Mageed, Dr. Y.A.	United Nations, New York, U.S.A.
Mengesha, A.	African Development Bank, Abidjan, Ivory Coast
Miller, Dr. D.G.	Water Research Centre, Henley-on-Thames, United Kingdom
Oomen, J.H.C.M.	Dwars, Heederick and Vergeij, Amersfoort, the Netherlands
Peeters, W.H.A.	CEBEMO, the Hague, the Netherlands
Pickford, J.A.	University of Technology, Loughborough, United Kingdom
Pieper, A.H.	ILACO, Arnhem, the Netherlands
Pitchai, Prof. Dr. R.	College of Engineering, Guindy, India
Raalte, R.A. van	Ministry of Agriculture, the Hague, the Netherlands

Resnick ,Dr. I.N.	Economic Development Bureau, Inc., New Haven, U.S.A.
Ridder, Dr. N.A. de	International Institute for Land Reclamation and Improvement, Wageningen, the Netherlands
Rijters, K.A.	ICCO, Utrecht, the Netherlands
Ringnalda, G.	Ministry of Foreign Affairs, the Hague, the Netherlands
Runnalls, D.	International Institute for Environment and Development, London, United Kingdom
Sanchez, H.	World Health Organiza- tion, Jakarta, Indonesia
Schippers, C.	IWACO, Rotterdam, the Netherlands
Smith, E.C.	Hasselt and de Koning, Nijmegen, the Netherlands

Soels, K.	Ministry of Foreign Affairs, the Hague, the Netherlands
Veen, G. van der	Ministry of Foreign Affairs, the Hague, the Netherlands
Versteeg, J.H.F.	Ministry of Foreign Affairs, the Hague, the Netherlands
Vierstra, G.A.	Royal Tropical Institute, Amsterdam, the Netherlands
Vlieger, C.A. de	IWACO, Rotterdam, the Netherlands
Weille, Dr. G.A. de	Royal Netherlands Meteorological Institute, De Bilt, the Netherlands
Wildeboer, W.	Ministry of Foreign Affairs, the Hague, the Netherlands
Youskine, M.K.	Ministry of Foreign Affairs, the Hague, the Netherlands
Zevenbergen, W.	Ministry of Foreign Affairs, the Hague, the Netherlands





## IRC STAFF AS AT DECEMBER 31, 1977

### Director

Ir. P. Santema (Director, National Institute  
for Water Supply)

### Manager

Drs. J.M.G. van Damme

### Programme Development

Ir. J. Haijens	(Programme Coordinator)
Ir. E.L.P. Hessing	(Programme Coordinator)
Ir. E.H.A. Hofkes	(Programme Officer)
Ir. P. Kerkhoven	(Programme Officer)
Ir. T.K. Tjiok	(Programme Officer)

### Information Section

W.-K. Hoogendoorn	(Head Information Services )
Ing. A.L.M. Helderma	(Library Officer)
Ms. B.J. Isgar	(Information Assistant)

### Secretariate

Ms. M.L. Broersma	(Management Assistant)
Ms. M. Marchant	(Project Assistant)
Ms. Y.E. Putman	(Project Assistant)
Ms. S. Tengbergen	(Staff Assistant)



## IRC PUBLICATIONS

## TECHNICAL PAPERS

- No. 1 Plastic Pipe in Drinking Water Distribution Practice, 1971
- No. 2 The Suitability of Iodine and Iodine Compounds as Disinfectants for Small Water Supplies, 1972
- No. 3 The Purification of Water on a Small Scale, 1973 (also available in French)
- No. 4 Health Aspects Relating to the use of uPVC Pipes for Community Water Supply, report of a Consultant Group, 1973
- No. 5 Health Aspects Relating to the Use of Polyelectrolytes in Water Treatment for Community Water Supply, report of a Consultant Group, 1973 (also available in French)
- No. 6 The Potential Pollution Index as a Tool for River Water Quality Management, 1973
- No. 7 Health Effects Relating to Direct and Indirect Re-use of Waste Water for Human Consumption, report of an International Working Meeting, 1975

- No. 8 Prediction Methodology for Suitable Waste and Wastewater Processes, report, University of Oklahoma and U.S. Agency for International Development, 1976
- No. 9 Analysis of Organic Compounds in Water to Support Health Effects Studies, a Consultants Report, 1976
- No. 10 Handpumps for Use in Drinking Water Supplies in Developing Countries, 1977 (translations into French and Spanish are in preparation)
- No. 11 Design and Construction Manual for Small Slow Sand Filtration Plants in Developing Countries, 1978
- No. 12 Public Standpost Water Supplies, 1978

#### **BULLETIN SERIES**

- No. 1 Community Water Supply Research, 1971 (out of print)
- No. 2 Training Courses in Community Water Supply, 1971 (out of print)

- No. 3      Community Water Supply Research, 1972  
(out of print)
- No. 4      The Story of CPHERI, 1972 (out of print)
- No. 5      Meeting of Directors of Institutions  
Collaborating with the WHO International  
Reference Centre for Community Water  
Supply, Bilthoven, the Netherlands,  
report of proceedings, 1973
- No. 6      Community Water Supply Research, 1973
- No. 7      Global Workshop on Appropriate Water  
and Waste Water Treatment Technology  
for Developing Countries, Voorburg, the  
Netherlands, 1977
- No. 8      International Workshop on Hand Pumps  
for Water Supply, Voorburg, the  
Netherlands, 1977
- No. 9      Slow Sand Filtration for Community  
Water Supply in Developing Countries,  
a selected and annotated bibliography,  
1977
- No. 10     International Training Seminar on  
Community Water Supply in Developing  
Countries, Amsterdam, the Netherlands,  
1978
- No. 11     Public Standposts for Developing  
Countries, Proceedings of an Inter-  
national Expert Meeting held in

Achimota (Accra), Ghana, 1978

No. 12      Report of the International Meeting on  
Community Education and Participation  
in the IRC Slow Sand Filtration Project,  
Voorburg, the Netherlands, 1978

### **OTHER PUBLICATIONS AND PAPERS**

Developing Countries Techniques in Water and  
Waste Treatment, T.K. Tjiok, 1975

Practical Solutions in Drinking Water Supply and  
Wastes Disposal for Developing Countries,  
Contributions to a Mail Survey, T.K. Tjiok, 1977

Symposium on Community Water Supply in Develop-  
ment Cooperation, report, 1977

Towards an Improvement of International Transfer  
and Exchange of of Information on Water Supply  
and Sanitation in Developing Countries,  
W.-K. Hoogendoorn, 1977

Community Water Supply and Sanitation, Basis to  
Rural Development, T.K. Tjiok

### **IRC NEWSLETTER**

Monthly Newsletter, available (free of charge)  
in English and French. A Spanish version is  
available through the Pan American Centre for  
Sanitary Engineering and Environmental Sciences  
(CEPIS), Casilla Postal 2117, Los Cedros 269,  
San Isidro, Zone IV, Lima, Peru.