



IRC  
International Reference Centre  
for Community Water Supply  
and Sanitation

Wine Laboratory

The Hague, The Netherlands

# ANNUAL REPORT 1984

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IRC Annual Report 1984

## **INTERNATIONAL REFERENCE CENTRE FOR COMMUNITY WATER SUPPLY AND SANITATION**

IRC is an internationally operating organization dealing with information and technology support for water and sanitation improvement. With its partners in developing countries and with United Nations agencies, donor organizations, and non-governmental organizations, IRC assists in the generation, transfer, and application of relevant knowledge. The focus of this cooperation is on the rural and urban-fringe areas where the need for technical assistance is greatest.

IRC's information-oriented programmes include: information support and services; technology development and transfer; manpower development and training; community education and participation; and programme evaluation and planning. Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by advisory support to the development of national facilities.

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**for Community Water Supply**  
**and Sanitation**

**WHO Collaborating Centre**

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*Handpump water supply for a small rural community in the Philippines.*

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# 1. IRC IN 1984

IRC is committed to the millions of people who do not have access to adequate drinking water and sanitation facilities, and also to the thousands who dedicate their lives to establishing these facilities. The more knowledge and experience available to the latter, the more efficiently and effectively they can work, and the sooner the former can be served.

IRC is concerned with information support to rural and urban fringe water supply and sanitation programmes in developing countries. It is one of several organizations working in information support and is part of the whole range of agencies supplying information in support of the concept of technical co-operation among developing countries (TCDC). Over the years, IRC has become a practice-directed organization which endeavours to bridge the gap between new developments and available knowledge and experience, and practical situation at the country level.

In the fourth year of the International Drinking Water Supply and Sanitation Decade (IDWSSD), IRC is continuing to focus on 'software' problems in the field, such as community participation, the role of women, and issues related to maintenance. Further refinement of its strategies, by the matching organizational structure to a well-established planning process, have given IRC a solid basis for effective work in the second part of the Decade.

Some of the highlights in IRC activities in 1984 include: national activities in the Public Standpost Water Supplies Project; IRC's 15th anniversary symposium, The local decade: men, women and agencies in water and development, held in June; workshop in Sri Lanka in preparation for a National Training Delivery Systems; in Thailand, an inter-regional workshop on public standpost water supplies; and co-operation with multilateral and bilateral donor agencies on new state-of-the-art publications on key subjects, including handpumps, and the participation of women in water supply and sanitation.

A good number of requests were received for IRC's publications and other documents announced in the newsletters, almost 4000 were received during the year. Payment was received for one-third and the remainder was distributed free of charge. The technical papers, *Small Community Water Supplies* (TP 18) and *Hand pumps* (TP 10), were in greatest demand. This was partly due to the renewed bulk order from the US Peace Corps for 150 and 200 copies respectively, of each for their field offices.

In June, an evaluation team looked at the Decade-linked Programme on Exchange and Transfer of Information (POETRI) which aims to assist national agencies in developing countries to set up a national information capacity to improve water supply and sanitation programmes and projects. The central clearing-house function of IRC, the development of information management aids and the delivery of information products, were found to be more than adequate, but progress has

been hampered because the anticipated essential international funding to develop country focal points has not materialized. On the basis of the recommendations of the evaluation team, the programme in the remainder of 1984 concentrated on a limited number of countries and required tool development and distribution of products.

Of the two demonstration projects supported by IRC, which transfer and generate knowledge and experience in a limited number of countries, slow sand filtration, which was in its third phase, that is dissemination and promotion, came to an end in 1984. A few selected items were identified particularly in seminars for further investigation, and it is expected that further activities will be implemented next year. The experience of the six participating agencies with technology, maintenance and community participation has been condensed and integrated in a publication on slow sand filtration in the IRC Technical Paper Series. The draft manuscript is now being reviewed.

IRC's demonstration project on the public standpost water supplies entered its second full year in 1984. In all four participating countries, a community-based approach has been adopted. Seminars and training workshops have strengthened national, local and project staff. In November 1984, a inter-regional workshop in support of the project was held in Bangkok and the North East Province of Thailand. The 25 participants from seven countries exchanged experience and prepared proposals for further development of the national projects, including evaluation. The recently published hygiene education guidelines have been well received. In addition, a bibliography on public standpost water supplies was published in IRC Occasional Paper Series, and also a brochure on the project was published.

In 1984, members of IRC staff and consultants participated in three evaluation missions: to the Yemen Arabic Republic and to Colombia for the Netherlands Directorate-General for Development Co-operation (DGIS), and to Togo for the Commission of the European Communities.

With UNDP sponsorship, a literature review and selected bibliography on the participation of women in water supply and sanitation has been prepared, and is currently being reviewed. Under a WHO Technical Services Agreement, background material on community education and participation has been reviewed and a draft discussion paper on specific research needs has been prepared.

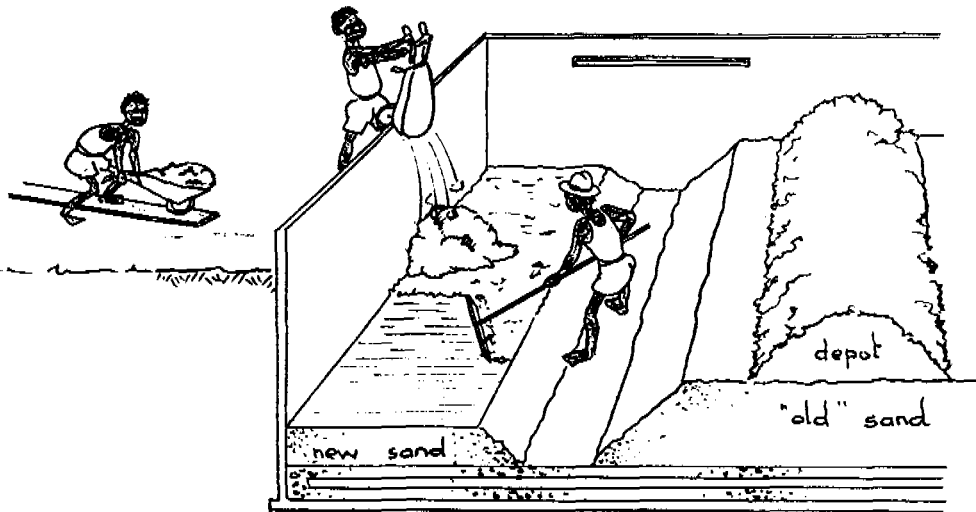
Further case studies on human resources development in five developing countries are being prepared, under the sponsorship of the Development Directorate General of the Commission of the European Communities.

Publications on technology issues are being prepared including renewable energy sources for water pumping under sponsored of the Netherlands Ministry of Housing, Physical Planning and Environment, and the state-of-the-art on handpumps in co-operation with the International Development and Research Centre (IDRC), Canada. Experience with technology, maintenance, and community participation is being integrated in both publications.

## 2. DEMONSTRATION PROJECTS

### 2.1 SLOW SAND FILTRATION

The active dissemination of information and experience through workshops and seminars in 1983 was followed by the preparation and dissemination of workshop reports in 1984. A follow-up project proposal has been developed focussing on four elements: training of caretakers; reduction of construction costs; pre-treatments; and rehabilitation of existing plants. This extension project, for which funding is anticipated in 1985, will concentrate on two countries, Colombia and India. Preparations have included visits to both countries. The situation in Colombia is of particular interest because at least two new slow sand filtration plants have been constructed and eight more, including the reconstruction of a rapid sand filter, are planned.



*One of the series of diagrams on resanding a slow sand filter prepared for the caretakers manual.*

An appraisal study was carried out to investigate the potential application of slow sand filtration in the World Bank-funded water programme in Tamil Nadu, India. Three sites have been identified where slow sand filtration would do a better job at a lower cost than rapid sand filtration.

In a paper presented to the Water and Waste Engineering for Developing Countries (WEDC) conference in Singapore, the Indian project manager highlighted the findings of the project. In response to requests from several

countries, detailed advice was given on the potential application of slow sand filtration under prevailing conditions. For example, many small unfiltered public water supplies in the USA have had difficulty in meeting standards set for minimum level of turbidity and of coliform. To obtain information on performance, the Office of Research and Development of the Environmental Protection Agency (EPA) has initiated a number of projects. Most of these projects have used and have been very positive about IRC materials and publications.

## **Publications**

The comments received on the draft of the operation and maintenance manual indicate that it should concentrate more on the caretaker level. Therefore, a simplified version with many illustrations is now being prepared. During the year, translation into Arabic of the guidelines for operation and maintenance was completed and 300 copies have been printed. The revision of the manual for design, construction and operation, and maintenance, to be finalized in 1985, includes some new developments which will reduce construction costs.



*Visit to Ban Poon by participants in the inter-regional workshop for the Public Standpost Water Supplies Project held in Thailand in November.*

## **2.2 PUBLIC STANDPOST WATER SUPPLIES**

In demonstration projects in Indonesia, Malawi, Sri Lanka and Zambia, national staff are developing appropriate methods for planning, implementation and management of public standpost water supplies which could serve as models for future larger scale projects. For example, guidelines produced in Indonesia describe the approach adopted whereby planning, programming, implementation, operation and maintenance are largely the responsibility of the community. In this approach, the role of government changes from provider to facilitator and supporter.

Although emphasis, methodology and progress differ, the development of more appropriate community-based approaches is a common theme in the four countries. To promote sharing of knowledge and experience between the participating countries, an inter-regional workshop was held in Bangkok and Khon Kaen, Thailand, from 12-17 November 1984 in collaboration with the Asian Institute of Technology and Khon Kaen University. Attended by 25 participants from seven countries, the meeting had a number of spin-offs, including renewed interest in mixed piped water supply systems in Thailand.

### **Indonesia**

In Indonesia, now that the preparatory phase has been completed, support activities have concentrated on work at Gumulung Tonggoh, the first of the local demonstration schemes. This is now operational, and the other schemes are in various stages of preparation. The community-based approach is well developed and has been widely discussed prior to application. A useful series of reports and guidelines have begun to flow from the project for wider use. Training workshops and briefings for staff at several levels have also been held.

A regional seminar on public standpost water supplies as infrastructure in housing for low-income communities was organized in Cirebon, 6-9 March 1984, with financial support from UNESCO, the Foundation for International Training, and the project budget. The meeting was attended by 60 persons, including delegates from the Philippines, South Korea, Thailand, Sri Lanka, Malaysia, Canada, and the Netherlands. It provided a good opportunity to introduce the plans and to discuss the progress of the project and the approach taken in Indonesia.

### **Malawi**

The project in Malawi has met with some delay because of difficulty in recruiting a national project manager, and because of major organizational changes in the co-ordinating institution, now the Water Department of the Ministry of Works and Supplies. Meanwhile contacts have been strengthened with various institutions within Malawi which could support and contribute to the project once it is underway.

## **Sri Lanka**

The first of the demonstration schemes is due to be commissioned in January 1985. In this demonstration scheme in Haldumullah, sound understanding of the benefits and difficulties of a community-based approach have been developed and this approach will also be applied in the schemes planned in Padaviya and Wijebahukanda. Several papers on project findings have been produced by project staff.

## **Zambia**

In spite of many difficulties, the project is now being implemented and the demonstration scheme at Mwachisompola is operational. A demonstration and training workshop was held for local extension workers in support of community based approaches in water supply and sanitation.

## **Publications**

A number of publications in support of the project were produced in 1984 and are obtainable from IRC:

- *The environment of simple water supplies: a selected and annotated bibliography of public standpost water supplies*
- *Making the links: guidelines for hygiene education with special reference to public standpost water supplies*
- *Public standpost water supply: an appropriate level of service* (an illustrated brochure)
- *Public standpost water supplies* (a Spanish language translation of the combined TP 13 and 14).



*Public Standpost Water Supplies Project, demonstration scheme in Mwachisompola in Zambia.*

## **3. EVALUATION AND ADVICE PROJECTS**

### **3.1 PROGRAMME ON EXCHANGE AND TRANSFER OF INFORMATION, POETRI**

#### **Introduction**

The DGIS-supported Programme on Exchange and Transfer of Information (POETRI) was started in co-operation with WHO as a contribution to the IDWSSD to promote and to facilitate improved information exchange. Support to institutions in developing countries participating in the programme led to further collection, processing and dissemination of technical information on water supply and sanitation. IRC continued to act as the clearing-house in the programme. Active dissemination of information products, (publications, newsletters and current awareness bulletins) and also improvement and development of professional tools continued.

#### **Tools and products**

During 1984, it became quite clear that a review on the *Intermediate thesaurus for community water supply and sanitation for developing countries* was required. After consultation with the Information Sciences Division of IDRC in Ottawa, Canada, a proposal was prepared for the compilation of a multilingual (English, French, Spanish) integrated thesaurus. It is expected that this will be started in 1985. During 1984, due attention was given to updating the directory of sources. During this process, it became clear that this directory would serve user requirements better if it were organized on a regional basis. Accordingly, regional centres collaborating in POETRI were invited to carry out more detailed surveys in their regions, in particular the Centre Inter Africain d'Etudes Hydrauliques (CIEH) in Burkina Faso, covering French-speaking West and Central Africa and the National Environmental Engineering Research Institute (NEERI) in Nagpur, India. On an experimental basis, the current awareness bulletins prepared by the Documentation Unit of IRC were distributed to approximately 30 institutions participating in the POETRI and Pan American Network for Information and Documentation in Sanitary Engineering and Environmental Sciences (REPIDISCA) networks.

Further investigation of the need for training materials made it clear that manuals to assist and support professional staff in the focal points are needed. On the basis of a survey of comparable materials, a detailed approach for the compilation of a set of special materials for the development of information skills in local information



centres was prepared. As yet funding has not been obtained for this project. However, it is equally important to increase awareness of the usefulness of bibliographic information. Therefore, consideration has been given to the preparation of materials which can be used to inform potential users of the need for and on ways to use information. The basic idea being promoted is that users are not only consumers of products, but also potential providers of new information, and therefore are important sources in the information exchange process. Initial contacts with the World Bank were made to investigate the possibility of co-operating with the Training Network for Water and Waste Management.

### **Country oriented activities**

A limited number of institutions were selected for support as focal points for POETRI. However, only limited progress was made in obtaining donor interest in funding for the development of national oriented information activities in these institutions in Indonesia, Niger, Sri Lanka, and Thailand.

### **Evaluation**

POETRI activities were evaluated in May 1984 by a team comprising representatives of WHO and DGIS in close co-operation with POETRI project staff. The entire programme was studied from early preparation in 1979, though the first phase in 1981-1982, to the second phase which is due to terminate early in 1985. The mission concluded that under the programme, a number of valuable information aids (tools) had been developed with professional inputs from IRC staff and outside specialists. However, the building up of an information network, including the establishment of national focal points, has been hampered, mainly because of complications in obtaining the necessary approval in some countries, and also because bilateral agencies have not adopted proposals for direct financing.

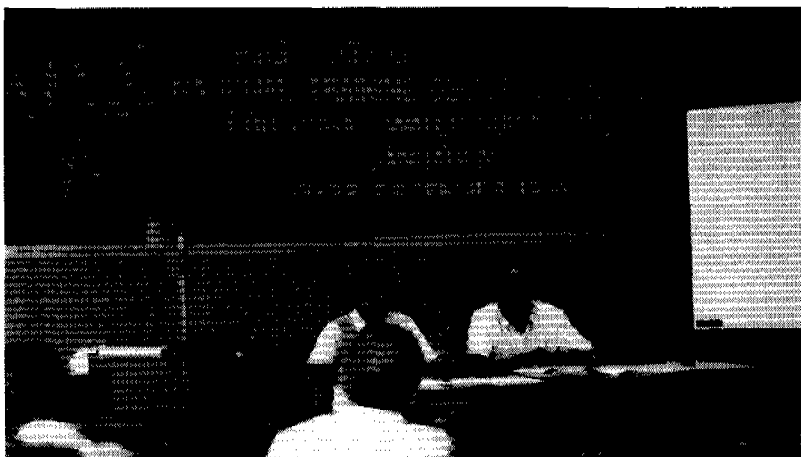
The evaluation team recommended that the remainder of phase II be used to continue current efforts to maintain and develop tools, to intensify the dissemination of information from the clearing-house, and finally, to concentrate on a limited number of feasible opportunities to establish national focal points. The above reporting shows that activities in 1984 were carried out in the spirit of these recommendations. Meanwhile, preparations for a follow-up to the programme in a third phase have been made.

## **3.2 NATIONAL TRAINING DELIVERY SYSTEMS FOR RURAL WATER SUPPLY AND SANITATION, SRI LANKA**

The National Training Delivery System (NTDS) project focuses on human resources for rural non-piped water supplies and sanitation at district and community level.

This project aims to develop a national human resources development plan which integrates data and plans from 25 districts. For a co-ordinated approach, collaboration was pursued with USAID, which has a major human resources development project. WHO and other donor agencies strongly supported the project in Sri Lanka.

In January 1984, approval was given by DGIS to reallocate funds provided for the multi-country NTDS project for extension of the project in Sri Lanka. Formal approval for the project by the Government of Sri Lanka was pursued through the Ministry of Local Government, Housing and Construction and an agreement was signed by the National Water Supply and Drainage Board (NWSDB) which is the project co-ordinating institution, and IRC. A national working group was formed, and a workplan drafted.



*First national workshop on national training delivery system for rural water supply and sanitation held in Colombo, Sri Lanka.*

Draft guidelines for human resources development planning for rural water supply and sanitation were prepared by IRC for the national workshop which was held at Mount Lavinia, Sri Lanka on 17 - 22 December. It was attended by 20 participants. Key sessions were attended by senior officials of NWSDB, Ministry of Local Government Housing and Construction and Ministry of Health, and also representatives of non-governmental organizations, donor agencies and consultants. The participants discussed potential problems in the application of the guidelines and possible solutions. On the base of the workshop recommendations, the planning guidelines are to be revised and presented by the NTDS national working group assisted by the locally based Marga Consultants to district working groups in a few selected districts. Work for 1985 will include surveys and compilation of data necessary for the national human resources development plan.

### **3.3 COMMUNITY EDUCATION AND PARTICIPATION, TANZANIA**

In this special project of the Prime Minister's Office in co-operation with IRC, a community participation component was developed as part of the national rural water supply programme. The project aimed to develop a general framework for community involvement in the various stages of handpump and piped water supply projects. Participation procedures in 12 out of 20 regions have been evaluated and action research in 60 villages in two regions has been carried out to develop and test the community participation strategy. Close contacts have also been maintained with on-going projects in other regions to ensure a co-ordinated approach, and to make use of the findings of community participation in design, construction and maintenance in other regional projects.

The action research project resulted in a series of recommendations for community participation in water and sanitation as part of a national policy. These were discussed and amended at a national workshop on community participation in which high level staff participated from the Ministry of Water and Energy, Ministry of Health (Health Education and Sanitation Departments), Prime Minister's Office, and major donor agencies involved in regional water and sanitation projects. The amended recommendations were adopted as a consensus statement for a national policy on community participation in rural water supply and sanitation. A cabinet paper to ratify the procedure is awaiting acceptance.

#### **Publications**

- *Project for the development of a community participation component in the Tanzanian Rural Water Supply Programme: profile for field testing and application of results.* July 1982.
- *Proceedings of the inter-ministerial meeting on community participation and health education in the Tanzanian Rural Water Supply Programme.* January 1984.
- *Project for the development of a community participation component in the Tanzania Rural Water Supply Programme.* Final Report, July 1984.

### **3.4 EVALUATION WATER SECTOR ACTIVITIES, YEMEN ARAB REPUBLIC**

IRC participated in the joint evaluation mission of the Governments of the Yemen Arab Republic and the Netherlands to evaluate the water sector activities of the Yemeni-Dutch development co-operation programme. This programme aims to advise on future activities in the water sector and to assess the priorities.

For this first sector evaluation, IRC assisted in the organization of the evaluation programme and in the preparation a pre-mission report. IRC's services also included co-ordination of the preparation of the final report for submission to the national

authorities. As a follow-up, DGIS has requested IRC to participate in an evaluation of the agriculture sector in Yemen Arabic Republic to be undertaken in 1985 and for which preparations begun in November 1984.

### **3.5 EVALUATION VILLAGE WATER PROGRAMME, TOGO**

Following the mission to Togo in December 1983 for the Commission of European Communities to evaluate the maintenance system and to promote user involvement in the Programme d'Hydraulique Villageoise, the report was finalized and presented by the Commission to the Togolese government for clearance. The mission recommended that a decentralized maintenance system be developed, specific community education and participation programmes be incorporated, and a coherent training programme be developed.

### **3.6 EVALUATION OF PILOT STUDY, CALI, COLOMBIA**

A staff member of IRC was the team leader of the mission to evaluate the Colombian-Dutch pilot project for domestic wastewater treatment. The potential of this low-cost treatment under tropical conditions was endorsed by the evaluation mission.

### **3.7 DONOR POLICY DEVELOPMENT FOR WATER AND SANITATION SECTOR**

Commissioned by DGIS, IRC assisted with the development of policy guidelines for Netherlands-assisted bilateral projects in the water supply and sanitation sector. As part of this assistance, IRC organized a seminar in the Institute of Social Studies, The Hague, on 16 May 1984. In total, 40 specialists from institutions, non-governmental organizations and consultancy firms in the Netherlands, and also from DGIS participated in discussions based on a summary note prepared by IRC. The seminar findings were submitted by IRC to DGIS at the end of September for use in the development of policy guidelines for water and sanitation projects.

### **3.8 KAMPONG IMPROVEMENT PROGRAMME, INDONESIA**

This DGIS-supported programme to improve the physical environment (footpaths, water supply, sanitation, waste disposal and drainage) of low-income, high-density urban areas (kampongs) in four Indonesian cities was terminated on 31 March 1984. In the final report, the project evaluator/supervisor drew attention to inadequate maintenance and lack of use of semi-public sanitary units, and recommended that a special evaluation study be carried out on these aspects.

## **4. TRAINING AND EDUCATION**

### **4.1 THE LOCAL DECADE SYMPOSIUM**

An international symposium, *The local decade: men, women and agencies in water and development*, in support of the IDWSSD and to mark the 15th anniversary of IRC was held in Amsterdam, 20-22 June 1984. It was opened by Mrs E.M. Schoo, the Netherlands Minister of Development Co-operation. More than 30 people from 14 countries attended, including representatives from national and international organizations, from government and non-government organizations, and engineers, social scientists and health workers.

The symposium brought together experience from the field in order to find ways to overcome constraints and to improve programme approaches in the second half of the Decade. The participants agreed that a partnership of community and agency is essential for effective programmes. In particular, agencies should involve women as users, managers, acceptors and agents of change in the various phases of project development and implementation. The participants also identified areas for dialogue and decision making with the community and ways to involve women.

Further, it was considered that a broader framework of primary health care and community development would allow the integration of water and sanitation projects with a hygiene education component and active participation of the community necessary for a better health impact. Technology developers should take into consideration the degree of maintenance and repair of facilities which could allow for decentralization and use of community selected village caretakers. Especially women should be considered for long time use and service.

The symposium endorsed the importance of hygiene education in water supply and sanitation projects and the need to secure adequate funding for this purpose. Further, attention was focussed on the need for income generation activities in the community to provide funds for adequate operation and maintenance of facilities. Monitoring of the functioning and use of facilities was considered to be very important.

### **4.2 ORIENTATION VISITS**

During 1984, IRC received a large number of visitors following courses and post-graduate studies in the Netherlands, including courses at the Institute for Housing Studies in Rotterdam and International Institute for Hydraulic and Environmental Engineering in Delft. Participants in these courses visit IRC in organized groups to learn of the ongoing work and to become acquainted with the library facilities. Many of these people return to IRC to use the facilities in support of their course work, and also many maintain contacts with IRC after they return to their respective countries.

## PARTICIPANTS IN THE LOCAL DECADE SYMPOSIUM





### **4.3 CONTRIBUTION TO TRAINING COURSES**

IRC staff provided lectures and other input in training courses at the International Institute for Hydraulic and Environmental Engineering in Delft, and the Institute for Housing Studies in Rotterdam.



## 5. PUBLICATIONS

Information collected and generated by IRC on a number of key subjects emerging in the Decade reached the condensation and repackaging stage during 1984. A list of available publications is presented in Appendix I. During the year, the following books were published:

- *Making the links: guidelines on hygiene education with special reference to public standpost water supplies*
- *The environment of simple water supplies: a selected and annotated bibliography on public standpost water supplies*

Draft manuscripts in joint ventures with UNDP, WHO, UNICEF, IDRC, EEC and two Netherlands ministries were prepared and are now being reviewed externally. Shortly, IRC will publish on the following topics:

- participation of women in water supply and sanitation
- handpumps for use in rural water supply programmes
- training skills for supervisors
- case histories on human resources development in the water and sanitation sector
- operation and maintenance for the Volanta pump
- renewable energy sources for pumping in rural water supply in developing countries
- household options for water supply and sanitation.

In 1984, IRC also prepared documents under contract to WHO, a guidance document for the training of community motivators, and a background paper on research needs in community education and participation.

### 5.1 PARTICIPATION OF WOMEN

Effective involvement of communities especially of women in all stages of water supply and sanitation projects was the key subject not only of IRC anniversary symposium in June 1984, but also of an extensive literature review prepared by IRC as part of UNDP inter-regional project, Promotion and Support for Women's Participation in the IDWSSD (INT/83/0030). Over 800 documents, mainly primary sources of information and many unpublished were reviewed in the preparation of this document.

### 5.2 HANDPUMPS

In co-operation with IDRC, Canada, in June IRC began a complete revision and update of *Hand Pumps* (TP 10) in response to the growing demand for a

comprehensive state-of-art publication for use in handpump programmes. Since 1977, when IRC published its handbook on handpumps, a great deal of new information has been generated on this subject. This review is being prepared as a joint venture by IRC and IDRC. A consultant was made available by IDRC to travel to seven selected developing countries to collect additional information on performance, maintenance requirements, and local manufacture of a number of selected handpump designs. At the end of 1984, the first draft of the manuscript was prepared for external review before publication. The new book will contain additional information on community participation, local organization, use of plastic components and local production of handpumps. It places greater emphasis on the use of handpumps in rural water supply programmes.

### **5.3 VOLANTA HANDPUMP**

Under contract to DGIS, and in close co-operation with the Volta Noire Rural Water Supply Project in Burkina Faso, IRC has prepared a users manual for the Volanta handpump for use in the project. At the end of 1984, feedback from project staff was being incorporated in the draft manual.

### **5.4 TRAINING FOR TRAINERS**

Human resources development has been generally identified as a major constraint to the progress of Decade activities. Since 1979, IRC has participated actively in projects in the Eastern Carribean area, in Indonesia, and in Sri Lanka. Several training manuals have been produced in these projects for various levels of staff. Early in 1984, IRC commissioned from its internal budget, the preparation of a training manual for foremen and field supervisors. This manual deals with manual and clerical skills and is intended for use in training courses and also for self-teaching. The draft of the manual was reviewed in 1984. Initial feedback from the field indicates keen interest for this type of material and a demand for translation into local languages.

### **5.5 CASE HISTORIES**

Under contract to the Development Directorate of the Commission for European Communities, preparation of case histories to illustrate a number of key elements in human resources development started early in 1984. The case histories aim to help project staff and managers discover those factors which promote human resources development. The first draft of case histories in Malawi, the Philippines, Thailand, Togo and Zaire has been produced for internal review. These have been prepared in

consultation with WHO and members of the core group in the IDWSSD Task Force for Human Resources Development.

## **5.6 RENEWABLE ENERGY SOURCES FOR RURAL WATER SUPPLY**

Interest has been increasing in the use of renewable energy sources for water pumping largely because of the increased cost of fossil fuels. An extensive survey conducted by UNDP has shown that lack of practical information is one of the main constraints to decision makers, planning officers and engineering staff in determining the potential for these alternative energy sources in their rural water supply programmes. To assist in this process, and under contract to the Netherlands Ministry for Housing, Physical Planning and Environment, work on the earlier draft on the state-of-art on this subject continued. Project staff, advisors and consultants met in two working sessions, the first on 10-11 May, and the second on 12-16 November, to review and develop the manual. The first review meeting was officially opened by Mr. W.C. Rey, Director-General of the Ministry.

The preliminary results and findings were presented to the course on rural energy planning at Twente University of Technology in May. Collection and processing of information from numerous sources world-wide was stepped up, in particular by communication with specialists and through searching grey literature. Information exchange with several specialized institutions and organizations proved especially useful in building up the knowledge base on renewable energy sources and their use in rural water supply.

## **5.7 HOUSEHOLD OPTIONS FOR WATER SUPPLY AND SANITATION**

Also under contract to the Netherlands Ministry for Housing Physical, Planning and Environment IRC started a literature search for information on simple options for water collection, storage, purification and transport at household level. The aim of this study is to help staff of organizations working at village level, for example village health workers, community development workers, to identify together with the community the burdens and risks in water supply and sanitation and to make improvements through community action (self-improvement) which require little or no outside support.

The options presented in this book are not the only solutions. Often, local people have found very adequate solutions, which unfortunately are unknown to others. Therefore, the options are not only described but also the rationale for these options is discussed in order to provide field-workers with the information necessary to discuss the particular option or similar options of more relevance to the local situation with the community or groups within the community. The first draft of this book has been produced for review.

## **5.8 OTHER JOINT PUBLICATIONS**

Technical service agreements were signed with WHO in 1984 for the preparation of two documents. Early in the year, work started on a guidance document on the training of community motivators. The first draft of this document has been prepared for external review, after which field testing and publication is envisaged.

In the final quarter, IRC reviewed background material for WHO on community education and participation in order to prepare a discussion paper on research needs in the subject area.

## **6. INFORMATION AND DOCUMENTATION**

Acquisition, classification and storage of information remain the core of IRC's information transfer work. In the documentation unit a start was made with the automation of the 7000 holding to make it more accessible for literature search and request handling. In the repackaging and distribution activities, there was a slight reduction in the number of publications (3950 in total) distributed in 1984. This is partly because some titles in the technical paper series were being reprinted and others were being revised. Because there was no editor for the newsletter for part of the year, only seven issues were produced in 1984.

### **6.1 DOCUMENTATION ACTIVITIES**

The Documentation Unit continued with title descriptions and cataloguing; more than 1300 publications were processed in this way. In 1984, 800 new documents were received, of which about 70% was grey literature. The unit produced 11 current awareness bulletins which were also distributed to the focal points in POETRI. For IRC staff, 17 accession lists were produced.

The staff of the Documentation Unit devoted a considerable amount of time to assisting those working on publications and project documents, particularly the bibliography on public standpost water supplies and the literature review and annotated bibliography on the participation of women.

The assistant documentalists are organizing the microcomputer system, and 500 of the recent acquisitions have been processed. Files with information on developing countries, institutions and donor policies have been improved to assist internal and external request handling.

### **6.2 EXTERNAL INFORMATION SERVICES**

The Documentation Unit handled about 100 external requests for information. During an informal meeting with representatives of UNICEF and the Intermediate Technology Development Group in February, co-ordination of the publications of various agencies and specialists was discussed with regard to handling the growing number of requests. In 1984, a policy was developed for making a charge for extensive literature searches for consulting firms and manufactureres from the industrialized countries.

### **6.3 NEWSLETTER**

In 1984, seven newsletters were produced and distributed. The increasing demand for bulk supplies to agencies for internal distribution demonstrated the value of the

newsletter on drinking water supply and sanitation issues. Of the 4000 addresses on the mailing list, just over half are in the developing countries, Africa tops the list of regions, with Asia a good second.

As the cost of compilation, production, printing and mailing add up to approximately one dollar per newsletter, ways to maximize the newsletter's impact are being explored, for example, co-operation with other agencies and links with contacts in the IRC information support network to provide two-way exchange of information.

A draft inventory of subject coverage in nine periodicals of relevance to the Decade demonstrated the very good subject coverage in the IRC newsletter. This draft inventory was well received at the informal meeting on co-ordination of information exchange in February.

## 6.4 PUBLICATION MANAGEMENT

During 1984, IRC produced a limited number of new publications, including:

- *Participation and education in community water supply and sanitation programmes* (TP 12)
- *Making the links: guidelines for hygiene education, with special referencence to public water supplies* (Occasional Paper Series)- *The environment of simple water supplies: a selected and annotated bibliography on public standpost water supplies* (also produced in the Occasional Paper Series for the PSWS project)
- brochures: *IRC at a Glance*  
*Public Standpost Water Supply*  
*Local Decade Symposium*  
*Annual Report 1983.*

In April, an agreement was signed with Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) Lima, Peru, for translation in Spanish, production and distribution of selected IRC publications. It covers cost and benefit sharing which will make Spanish translations possible through a revolving fund at CEPIS.

The centre started translation of the following titles in the Technical Paper Series:

- *Evaluation for village water supply planning* (TP 15)
- *Community participation in water supply and sanitation: concepts, strategies and methods* (TP 17)
- *Small community water supplies in developing countries* (TP 18)
- *Guidelines on health aspects of plumbing* (TP 19)
- *Practical solutions in drinking water supply and waste disposal for developing countries* (TP 20).

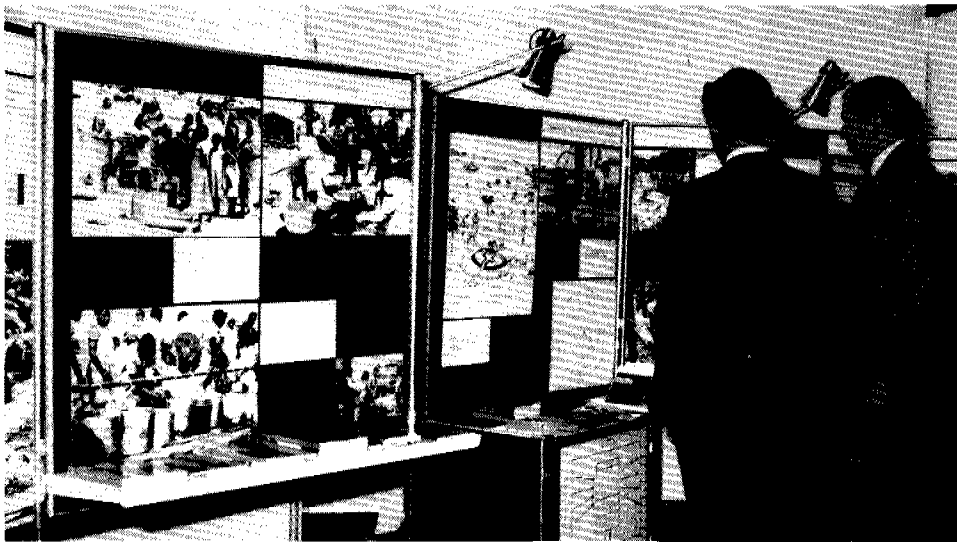
In 1984, almost 4000 copies of IRC publications were distributed to 1400 clients; two-thirds were provided free of charge, and for one-third IRC received payment for the cost of production and distribution. IRC handled an increasing number of bulk orders from development agencies in the developed countries for their field offices. The publications on handpumps and small community water supplies remain the best running titles, but for the first time, bulk orders were received for the publication on participation and education.

At the end of the year, a publication marketing specialist was hired to advise IRC on how to increase its distribution in various markets. Differential pricing and use of external agents are being considered. The consultant considered that IRC publications are reaching the prime target group, that is agencies and people in the water supply and sanitation sector, remarkably well in view of its low-key marketing policy. Penetration of a much larger market would be possible. In the last quarter of 1984, a start was made to computerize invoicing and stock-taking which will also give a better insight into IRC's market.

As already mentioned in Chapter 5, a number of joint publications are in preparation. For these, the services of a freelance editor have been engaged.

## 6.5 GUESTS AND PUBLIC RELATIONS

In February, Mrs E.M. Schoo, Minister for Development Co-operation, paid a working visit to IRC, on which occasion she announced funding for IRC's 15th Anniversary Symposium in June. The anniversary promotion and publicity work



*Visit by his Royal Highness, Prince Claus of the Netherlands, to the IRC display at Aquatech 1984.*

resulted in press coverage in selected periodicals and newspapers. During the symposium, journalists were briefed or held background interviews with participants. Copies of the final document of the symposium were handed to all participants at the closing session.

In September, IRC was invited to present a display of its activities at the International Aquatech Exhibition in Amsterdam. The display of black and white photographs and a handpump attracted hundreds of visitors. At the opening ceremony, His Royal Highness, Prince Claus of the Netherlands; the Minister of Transport and Public Works of The Netherlands, Mrs N. Smit-Kroes; and other officials visited the stand.



## 7. KNOWLEDGE BASE DEVELOPMENT

In addition to and in support of the specific projects which include knowledge base development, attention was given to further development of the knowledge base, and to making information accessible on a wide range of aspects of rural and urban fringe water supply and sanitation in developing countries. This concerns target and action-oriented information on technical, social, organizational and economic aspects, with special emphasis on innovative know-how. This information is tested by IRC and its partners in the field and repackaged so that it can be readily used. In some cases, knowledge base development includes the development of proposals for external funding for further work.

### 7.1 HUMAN RESOURCES DEVELOPMENT

Project proposals have been prepared and efforts made to identify countries where IRC could support activities in this area. Assistance in the exploration of needs was obtained from WHO's regional office for South-East Asia. In December 1984, the Programme Officer visited Nepal to discuss human resources development with representatives of agencies involved in rural water supply and sanitation.



*Handpumps are being widely used in rural water supply programmes in developing countries.*

## **7.2 HANDPUMPS**

During 1984, IRC has concentrated on maintenance and cost aspects of handpump programmes for rural water supply, in order to develop practical guidelines and information support. Information was exchanged with project staff and water agencies in several developing countries. Also, much information was derived from and information support given to the UNDP/World Bank Project for Field Trials and Technological Development of Handpumps (81/026). IRC is represented on the advisory panel of this project. Technical advice was provided to the development co-operation agencies of the Netherlands and the Scandinavian governments about handpump programmes being carried out in various countries with technical and financial assistance from these agencies.

## **7.3 RAINWATER HARVESTING**

Information obtained earlier on rainwater harvesting was updated as a vital part of the consolidated information base.

## **7.4 MODULAR DESIGNS FOR WATER TREATMENT**

Promotion of the use of standard designs and modular learning materials as tools for training of technicians and community workers has continued. From Institute Nacional de Salud (INAS), Colombia, examples of the designs and drawings of standard components as used in the national planning were received. Designs on hydraulic flocculation were exchanged with CEPIS, Peru. Experiments in Brazil have led to the adoption of these designs and their dissemination in local design courses.

Collaboration with the Sanitation Facilities Branch of the US Indian Health Service was explored. The service has long experience in providing rural water supply systems by involving the community in an evaluation of package treatment plants in Indonesia. One of the units in their evaluation was designed by IRC. This unit scored high on items, such as maximum use of local materials and low level of operational problems.

## **7.5 DRINKING WATER QUALITY**

The earlier IRC project on the promotion of local preparation of disinfectants (hypochlorite) for small-scale water supplies received encouraging reactions during 1984 from the Provincial Waterworks Authority in Thailand and the National Water Supply and Drainage Board in Sri Lanka.

Attention was given to the active exchange of information on hypochlorite, including the translation and editing of a literature review on on-site hypochlorite production. Draft reports have been prepared by consultants on the state-of-art of hypochlorite generation emphasizing particularly electrode and electrode materials for on-site generation and a laboratory set-up for electrolytic hypochlorite generation.

In spite of the promising outlook, funds have not materialized to monitor and test hypochlorite generators with the aim of producing guidelines for local manufacturing systems.

## **7.6 GROUNDWATER DEVELOPMENT**

Groundwater development including exploration of sub-surface water resources, siting and construction of wells and boreholes, is an important part of rural water supply programmes in most developing countries. IRC's work in this subject area aims to improve access to field-tested technology and expertise. Subjects included in knowledge base development are the use of simplified methods of groundwater exploration, small-scale simple yet reliable techniques for groundwater treatment, low-cost well construction, borehole drilling, design of well screens, and selection of casing materials. As an area of special interest, the artificial recharge of aquifers (water-bearing geological formations) was taken up.

The possibility was explored of preparing a generalized, abridged version of a manual developed in Mozambique in a bilateral project for hydrological investigation and training of national geohydrological staff in that country.

## **7.7 TECHNOLOGY DEVELOPMENT CENTRES**

In a joint proposal by Africa Regional Centre for Technology (ARCT) and IRC, the setting up of three regional centres in Africa to serve as field demonstration and training units for low-cost water supply and sanitation systems for about 30 countries was recommended. Main elements are technology development based on local resources and regional co-operation. However, in spite of increased efforts in 1984, a location for the project has not yet been found.

## **7.8 MAINTENANCE SYSTEMS DEVELOPMENT**

The importance of adequate operation and maintenance of water supply systems is being increasingly recognized, yet attempts to develop and implement maintenance systems have not been very successful. As the results of such attempts and the fact that problems encountered have not been analyzed systematically, very little

information is available on this important matter. Consultations with donor agencies indicated a growing interest for more information on experience with maintenance systems and on key factors and conditions to be considered in selecting or developing a system.

## **7.9 FINANCIAL MANAGEMENT**

Awareness of and interest in improved financial arrangements for community water supply and management is growing. In particular, it is more generally felt that as far as possible, local communities should be responsible for at least the generation of funds to meet recurrent costs and possibly part of the investment cost of their own water supplies.

To support the increasing need for information, IRC has begun to compile acknowledge base on appropriate financial management, including items such as, charging policy, cross-subsidization, tariff structure, revenue collection, local administration and revolving funds. There is special need for information on practical aspects of financial management for maximum self-sufficiency at community level.

A literature review and selected and annotated bibliography on financial management is being prepared. A draft project document on aspects of community-based financial management has also been prepared. This will be field-tested and developed further within the context of the integrated demonstration project on public standpost water supplies.

Consultations have been held with WHO on the further development of this programme area with a view to supporting the planning for the IDWSSD at national level.

## **7.10 PROGRAMME EVALUATION**

In response to increasing demand for information on evaluation, IRC has increased its efforts to provide appropriate information to help strengthen national capacity in developing countries on programme evaluation. Regular consultations with WHO contributed considerably to the development of this programme area.

A glossary of terms on planning and evaluation has been prepared and reviewed and made available for information and reference purposes. IRC also contributed to the preparation of the WHO promotional brochure, *Minimal Evaluation Procedures (MEP)*, which is to be published in the beginning of 1985.

Early in the year, a second batch of 200 copies of *Planning and evaluation: a literature review and selected and annotated bibliography* was mailed. At the same time, the search for relevant information was intensified. This led to a substantial flow of evaluation reports to IRC throughout the year and a subsequent extension of the information base on this subject.

## **8. ORGANIZATION**

### **8.1 STATUS AND INSTITUTIONAL ARRANGEMENTS**

In 1981, at the beginning of the Decade, IRC was given the status of an independent, non-profit organization. This allows for impartial and effective expenditure of project funds, and flexibility in executing projects. The international character of IRC is reflected in its Governing Board which comprises members from international organizations (UNDP, UNICEF, and the World Bank, with an observer status of the WHO representative), and of representatives of the sponsoring Netherlands Ministries of Housing, Physical Planning and Environment, and of Foreign Affairs, Directorate-General for Development Co-operation. The members of the Governing Board are listed in Appendix II.

To mark the 15th anniversary of its establishment, a symposium entitled, The local decade: men, women and agencies in water and development, was held in Amsterdam, 20-22 June. (see Section 3.1). This symposium was officially opened by the Minister for Development Co-operation, Mrs E.M. Schoo, and was also supported financially by DGIS.

### **8.2 GOVERNING BOARD**

Mr. H. Scheltema, former ambassador, became Chairman of the Governing Board on 1 June 1984. The Governing Board met three times during the year, in February, June and October. A special meeting of the Board was held in February, on the occasion of the working visit of the Netherlands Minister for Development Co-operation to IRC. The second meeting was held prior to the IRC anniversary symposium in June. At both meetings, the annual programme was reviewed and specific points of co-operation between IRC and the Steering Committee for the Decade and its members were discussed. At the annual meeting in October, the Governing Board took note of the proposed Indicative Medium-Term Plan 1985-1986, and approved the annual plan and budget for 1985. Further, it was decided that consideration should be given to specifying IRC's potential on the basis of an analysis of past and current activities for use with external contacts. It was felt that all three meetings were instrumental in clarifying IRC's focus and strategies and in reaching closer co-operation with the agencies represented on the Board.

### **8.3 IRC'S STRATEGY**

During 1984, IRC's strategy was defined more precisely. IRC's overall strategy to achieve its objective is the generation and transfer of information. In this context,

information is defined as knowledge and experience; technology and methodology; intelligence and public information. The generation of information is the collection, screening and integration of information in an information base, and the transfer of information is making information readily available and accessible.

Information is transferred to the target groups through four transfer strategies, which are listed here in order of increasing impact, but decreasing geographic coverage:

- publication and dissemination of information
- training and education
- evaluation and advice
- development and demonstration.

These strategies are implemented through support projects which in principle require external funding. Projects are developed in response to requests from "clients" or their support agencies, sometimes as part of larger projects of these agencies to use IRC's support role, including its knowledge base. An overriding consideration in the support projects is the integration of various technical and non-technical aspects through one or more subject areas which constitute entry points. In most cases, projects include a strong component of generation of information.

As much as possible activities are carried out and supported by staff in the countries concerned. In the spirit of Technical Co-operation among Developing Countries (TCDC), IRC aims to establish links between the countries with which it works. It is a collaborating centre with WHO and has close links with UNDP, UNICEF, and the World Bank. It also co-operates with other UN agencies, financial donors and non-governmental organizations, which work with the various agencies which comprise IRC's primary target group and which use IRC's output in their programmes.

## **8.4 INTERNAL ORGANIZATION, BUDGET AND STAFF**

### **Internal organization**

In 1984, organizational efforts were directed primarily to developing a more businesslike, project-oriented approach at IRC, streamlined management and organization, and to extending the order portfolio. The evaluation of the policy team in 1984 concluded that, with some modification in focus of the team, it could play an important role in quality control and co-ordination of IRC's activities. Supported by the clearer strategy, efforts to improve the planning process resulted in a concise and balanced plan for 1985 and an indicative medium-term plan for 1985-1987.

Measures for budget control and internal working procedures were further improved, a staffing plan developed, and a basis for adequate staff policy initiated.

In 1984, considerable progress was made in automation. Most of the mailing addresses have been computerized, and progress has been made in the automation of the documentation holding.

The financial administration was computerized in 1984 and a start was made with automation of the time registration. Replacement of the word processing equipment was started.

## **Budget**

IRC operates with a core budget from the Netherlands Government. This is intended to be a generating budget which, through agreement with developing countries and the development and submission of project proposals to multilateral and bilateral donors, should lead to extra-budgetary resources for specific information projects. In 1984, the core budget remained at Dfl 1.5 million, and IRC had an additional budget of Dfl. 2.5 million. In spite of the unfavourable economic situation world-wide and the increasing value of the US dollars against other currencies, the number of externally funded projects increased in 1984 and total funding was comparable with the previous year.

It is envisaged that IRC, as an information-oriented agency of international scope and identity, will gradually increase its funding from international sources. Since this direction was established only recently, this amounted to 4% of the total budget in 1984. Efforts will be made to increase this proportion in the future.

In total, ten new project proposals were approved and submitted, of which four received funding from international donors and six from the Netherlands Government bilateral funds.

## **Staff**

In 1984, the total number of staff was 29, including 12 professional staff in sanitary engineering, social sciences, and human resources development; 6 information and documentation system specialists, and 11 administrative staff (see Appendix III). External specialists were employed for specific assignments, as required.

## 9. PROGRAMME PLAN 1985

In planning for 1985, IRC had to take into account that three major externally funded projects were phased out in 1984 or are going to be phased out in 1985. One of these projects is POETRI, which will be continued in an modified form, hopefully with support from other agencies. Follow-up activities are planned for both the slow sand filtration project and the public standpost water supplies project.

For 1985, a number of smaller projects are to be developed, which will receive internal funding in their initial phase, and for which efforts will be made to attract additional funding from external sources. These projects include piped water supplies for small communities, which aims to develop, through demonstration, more efficient and appropriate ways of approaching new and existing piped water supplies at several levels of service. A project on an integrated approach to the community environment aims to promote, also through demonstration, the integrated development of water supply, sanitation and hygiene education, and to explore how these developments can be built on to introduce solid waste and home improvements. These two projects are closely related to the earlier demonstrated projects on slow sand filtration and public standpost water supplies.

Building on the POETRI programme, the second phase of which will end early 1985, and taking the recommendations of the 1984 evaluation as a starting point, work will continue on immediate delivery of information products and support to a limited number of existing national and regional centres for information services. A link with the exchange and transfer of information activities with the World Bank project on Training Materials for Waste Management will be investigated.

The experience in the Tanzanian community education and participation project is to be written up and published. The strategy for greater involvement of the community and training of staff to achieve this is to be implemented in 1985. IRC will assist in further development of the community education and participation component in the national rural water supply programme, and in preparation of a training programme on methodology for local staff.

Another advisory project for which limited external funding has been obtained from the European Community concerns the proposed establishment of a European water network. This network aims to link potential water and sanitation projects in developing countries with funding initiatives by local communities in Europe.

In 1985, IRC will produce a number of publications for which the generation and repackaging work has been done in 1984. In the Documentation Unit, some 2000 holdings will be processed on the computer in order to facilitate literature searches. For request handling, which is costing an increasing amount of time, a policy is being developed to charge clients in industrialized countries for this service.



In the information base development, new state-of-the-art publications are planned on maintenance systems development for rural water supply programmes and community based financial management and organization.

The recently established organizational structure, planning mechanisms and staff policy will result in a sounder funding position and an even better service to IRC clients. Also for this purpose, the package of strategies in information transfer and generation as used by IRC will be further integrated and strengthened, where possible.



## **APPENDIX I: LIST OF AVAILABLE PUBLICATIONS**

### **Technical Papers**

- Hand pumps for use in drinking water supplies in developing countries. (TP 10\*,\*\*) 1978.
- Slow sand filtration for community water supply in developing countries: a design and construction manual. (TP 11\*,\*\*) 1978.
- Participation and education in community water supply and sanitation programmes: a literature review. (TP 12\*\*) 2nd revised edition, 1981
- Public standpost water supplies. (TP 13\*\*) 1979.
- Public standpost water supplies: a design and manual. (TP 14\*\*) 1979.
- Evaluation for village water supply planning. (TP 15) 1980.
- POETRI, Programme on Exchange and Transfer of Information: reference manual, Volume I. (TP 16\*) 1981.
- Community participation in water supply and sanitation: concepts, strategies and methods. (TP 17) 1981.
- Small community water supplies in developing countries: technology of small water supply systems in developing countries. (TP 18\*) 1981.
- Guidelines on health aspects of plumbing. (TP 19) 1982.
- Practical solutions in drinking water supply and wastes disposal for developing countries. (TP 20) 1982.
- A groundwater primer. (TP 21) 1983.

### **Occasional Paper Series**

- The Colombian field manuals and training guides for the promotion of community participation in water and sanitation schemes. 1983.
- Guidelines for operation and maintenance of slow sand filtration plants in rural areas of developing countries. 1983.
- Planning and evaluation for community water supply and sanitation: a literature review and a selected and annotated bibliography. 1982.
- Making the links: guidelines for hygiene education in community water supply and sanitation with particular emphasis on public standpost water supplies. 1984.
- The environment of simple water supplies: a selected and annotated bibliography in support of public standpost water supplies. 1984.

### **Other Publications**

- The Buba-Tombali water project, Guinea-Bissau, 1978-1981. 1983.
- Directory of organizations involved in community education and participation water supply and sanitation. 1983.

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\*) Also available in French.

\*\*) Also available in Spanish from CEPIS, Casilla Postal 4337, Lima 100, Peru.

### **Bulletins**

- Global workshop on appropriate water and waste water technology for developing countries. Report of proceedings. (B7) 1973.
- Slow sand filtration for community water supply in developing countries: a selected and annotated bibliography. (B9) 1977.
- Public standposts for developing countries. proceedings of an International Expert Meeting, Achimota, Accra, Ghana. (B11) 1978.
- Participation and education in community water supply and sanitation programmes: a selected and annotated bibliography. (B13) 1979.
- Community education and participation in the IRC slow sand filtration project. Report of proceedings. (B14) 1979.
- Slow sand filtration for community water supply in developing countries, report of an International Appraisal Meeting, Nagpur, India, (B16) 1981.
- Report of a global seminar on a modular approach in small water supply systems design. Jakarta, Indonesia. (B17) 1981.
- Informe del Seminario internacional sobre filtracion lenta de arena para abastecimiento público de agua en países en desarrollo. (B18) 1983.

## APPENDIX II: GOVERNING BOARD

Mr. H. Scheltema (Chairman)	Former Ambassador.
Mr. P.J. Verkerk (Secretary)	Director, Drinking and Industrial Water Supply, Directorate-General for Environmental Protection, Netherlands Ministry of Housing, Physical Planning and Environment.
Mr. W.J. Kakebeeke (Treasurer)	Head, International Environmental Affairs Department, Directorate-General for Environmental Protection, Netherlands Ministry of Housing, Physical Planning and Environment.
Mr. H. Gajentaan (until 1 May 1984)	Deputy-Director, Directorate International Organizations, Directorate-General for Development Co-operation, Netherlands Ministry of Foreign Affairs.
Mr. H. Wagenmakers (from 1 May 1984)	Deputy-Director, Directorate International Organizations, Directorate-General Development Co-operation, Netherlands Ministry of Foreign Affairs.
Mr. L.P.J. Mazairac	Director, Development Co-operation Africa, Directorate-General for Development Co-operation, Netherlands Ministry of Foreign Affairs
Dr. M.G. Beyer	Senior Policy Specialist, Water and Environmental Sanitation Team, United Nations Childrens' Fund.
Mr. J. Freedman	Rural Water Supply and Sanitation Adviser, Water Supply and Urban Development Department, The World Bank.
Dr. P.D. Lowes	UNDP/WHO Co-ordinator for the Water and Sanitation Decade, United Nations Development Programme/World Health Organization.
Mr. S. Unakul (Observer)	Manager, Environmental Health Technology and Support, Division of Environmental Health, World Health Organization.

## **APPENDIX III: IRC STAFF IN 1984**

### **Director**

Hans M.G. van Damme

### **Professional Staff**

Ms. Marieke T. Boot	Hygiene education
Robert E.A.L.E. Brasseur	Human resources development; training and education
A. Toon van Dam	Programme on Exchange and Transfer of Information (POETRI)
Enric L.P. Hessing	Programme evaluation
Ebbo H. Hofkes	Water supply technology
Michael Seager	Public standpost water supplies
T. Kien Tjiook	Water quality and treatment
Siemen Veenstra	Project support
Jan Teun Visscher	Community education and participation; slow sand filtration
Alastair T. White	Community education and participation
Ms. Christine A. van Wijk-Sijbesma	Community education and participation; role of women

### **Information Section**

Dick de Jong	Information Manager
Ms. Lia C. van der Kruit	Senior Documentalist
Cor H. Dietvorst	Documentalist
Ms. Antoinette A.M. Oosterveer	Information Assistant (from September)
Ms. Marlies E. Timmer	Information Assistant (until September)
Ms. Lia A. Wahab	Assistant Information
D.W. Karnosoehardjo	Second Information Assistant

**Administration and Finance**

M. Krijn Peterse	Head, Administration and Finance
Ms. Cecilia M. Heil	Management Assistant
Ms. Hilda W. de Vries	Staff Assistant
Ms. J. Hanny van Eerden	Project Assistant
Ms. Anneke Groenendal	Project Assistant
Ms. Jeanette F.E. Klop	Project Assistant (from November)
Ms. Cynthia A. Raley	Project Assistant (until November)
Ms. Chantal W.M. Stenfert-Ploum	Project Assistant
Ms. Ela I. Sogno	Project Assistant
Hein Bodrij	Bookkeeper
Ms. Lucie te Riele	Receptionist
René Lommert	Office Assistant

# APPENDIX IV: SUPPORT ROLE OF IRC

