



**IRC**  
**International Reference Centre**  
**for Community Water Supply**  
**and Sanitation**

WHO Collaborating Centre

The Hague

**ANNUAL REPORT 1987**

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

IRC is concerned with knowledge generation and transfer and technical information exchange for water supply and sanitation improvement in developing countries. The emphasis is on innovative approaches to prevailing problems. The target groups are management and technical staff concerned with planning implementation and use of water supply and sanitation facilities in rural and urban fringe areas.

The centre works together with partners in developing countries, United Nations organizations, bilateral donors and non-governmental organizations. Its multidisciplinary staff provides support through development and demonstration projects, evaluation and advice, training and education, publications, and general information exchange.

Activities integrate technical and non-technical issues in water supply and sanitation and include community participation particularly the role of women, hygiene education, appropriate technology, operation and maintenance, community-based financial management, and development of technical information exchange.

IRC is an independent, non-profit organization. It is supported by and linked with the Netherlands Government, UNDP, UNICEF, the World Bank and WHO, for whom it acts as a Collaborating Centre for Community Water Supply and Sanitation.

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## Introduction

Safe water and sanitation are still a dream for more than a billion people. Yet each year of the International Drinking Water Supply and Sanitation Decade is a step towards achieving facilities for these people and their unborn children. As a promotional effort, the first five years of the Decade can be acclaimed as a dramatic success, with 76 developing countries having set Decade targets and national action committees operating in some 80 countries. In 1986 it was estimated that 340 million people had been provided with water and 140 million with sanitation facilities. Last year was promising. At the International Decade Consultation, delegates from some 30 external support agencies discussed effective ways of stepping up co-ordinated activities towards achieving the ultimate goal: water and sanitation for all.

The Consultation, held in Interlaken, Switzerland, emphasized that, although the Decade has not reached its coverage targets, there have been remarkable achievements. Collaboration between external support agencies (ESAs) and partners in developing countries has greatly increased priority given to the water supply and sanitation sector in national and ESA strategies to serve the needs of low-income communities. The Decade has gained worldwide acceptance of low-cost technologies and established the importance of community involvement in project development and implementation.

The Consultation considered that, although the Decade is nearing the end, much remains to be done. The lessons learned must now be applied on a much wider scale. The scope of activities already expanded to include community participation and hygiene education should be broadened further to cover such concerns as environmental protection.

This is the framework for the work of IRC in the generation and transfer of knowledge on specific issues and technical information exchange in general. IRC helps to equip managers, professionals and sub-professionals in the water supply and sanitation sector with knowledge and information towards more effective and efficient development work.

Since the beginning of the Decade, IRC has concentrated on the issue of community participation, particularly the role of women, and has now started to work on other issues which need further development, such as maintenance systems, cost recovery, and hygiene education. Technologies, such as slow sand filtration and public standpost water supplies, were subjects of development and demonstration projects implemented

by national staff with IRC support as effective means for knowledge generation and transfer. In addition to the Decade Newsletter and publication series, advisory missions continued to gain prominence in IRC's work. In 1987 the INFO-IMPACT action has given renewed stimulus to joint actions for improved technical information exchange.

For the remainder of the Decade and beyond, IRC will continue to work towards practical and usable solutions to banish unsafe water supplies and inadequate sanitation facilities. In a nutshell, IRC's efforts will be directed to:

- taking initiatives towards innovative solutions to pertinent problems encountered in the water supply and sanitation sector;
- transfer of knowledge and exchange of technical information through projects and services;
- advisory and evaluation activities.

IRC will adopt a practice-oriented approach and will work in the spirit of collaboration to achieve these ends.

J.M.G. van Damme  
Director

## 1. IRC in 1987

On all fronts 1987 was a productive year for IRC. One encouraging development concerned improvement of technical information exchange in water supply and sanitation. Resulting from an initiative of the Steering Committee for Co-operative Action for the Decade in 1986 and supported by several organizations, IRC organized two international meetings to stimulate new initiatives in information exchange. The outcome of this action, known as INFO-IMPACT, was a Framework for Technical Information Exchange including approaches for regional and global activities. This was endorsed by the Decade Steering Committee meeting in Santo Domingo. The initiative was also favourably received by the donor consultation meeting in Interlaken, Switzerland.

An important event in 1987 was the working visit of Mr Ed Nijpels, the Netherlands Minister of Housing, Physical Planning and Environment, to IRC in April. He raised the issue of IRC's potential role as information centre on environmental issues related to water. The Governing Board agreed to this in principle and at the end of the year various options were being considered.



*During his working visit in April, Minister Nijpels accepted two new IRC publications from Mr. H. Scheltema, Chairman of IRC's Governing Board.*



Innovative groundwork was done on community-based financial management maintenance systems and aspects of hygiene education. An increasing number of national and international donor agencies contracted IRC for advice and evaluation missions. An increasing number of professional staff and students preparing for a career in the water and sanitation sector participated in preparatory programmes at IRC. The highest number of new titles in the various publication series in any one year were produced last year. The same applied for translations of IRC publications and documents by other organizations. New funding was acquired for a follow-up project to the Public Standpost Water Supplies demonstration project.

## **SPECIFIC ACHIEVEMENTS**

Demonstration projects have received increasing attention as being particularly effective means of stepping up progress towards achieving the Decade's objective of water and sanitation for all. This support has given extra stimulus for the IRC supported development and demonstration projects. Although 1987 saw the end of the Public Standpost Water Supply (PSWS) project plans were well in advance during the year for the follow-up project. The PSWS project encompassed four countries and was carried out by national staff with IRC support. Convinced of the effectiveness of this approach, IRC supported extension and broadening of these activities. A start was made late in 1987 with the new three-year Piped Supplies for Small Communities project funded by the Netherlands Directorate General for International Co-operation. This project in Malawi and Zambia is working in co-operation with national organizations responsible for water and sanitation.

1987 was the fourth year of the IRC supported demonstration project on slow sand filtration. In Colombia and India considerable interest has been developed in this technique of water purification through enthusiastic participation of national staff in project activities. This year attention focused on promotion of the technique and dissemination of information through international seminars. Emphasis was also given to plant operation and maintenance with the translation of the IRC caretakers manual into several languages by national organizations. In Colombia a research project is being carried out on pre-treatment to overcome the problem of excessive water turbidity before entering the plant.

Increasing use is being made of the expertise available at IRC for advisory missions and consultations. Funding agencies and donor organizations request the services of IRC for project appraisal, formulation and evaluation. In 1987 a number of assignments were undertaken for the Netherlands Directorate General for International Co-operation, Commission of the European Economic Community,

DANIDA, UNDP, World Bank, UNICEF and WHO. During the year IRC participated in assignments in various countries throughout Asia, Africa and Latin America.

IRC is gradually gaining an important function in training those working in the water supply and sanitation sector in developing countries. Throughout the year tailor-made preparatory programmes were developed and organized for volunteers, consultants, and technical staff and students from developing countries. IRC's longstanding expertise in community participation was called upon for training courses for development assistance staff in the Netherlands and also in Norway. IRC contributed to the International Training Network of the World Bank by preparing a module on the value and use of technical information and by including supplements on the programme in its newsletter.

A large number of IRC publications appeared in 1987, thus bringing to fruition in several cases some years of study and research. Two books were produced in the Technical Papers Series, one on slow sand filtration and the other on renewable sources of energy for rural water supply. Both topics are currently of interest. During the year three occasional papers were prepared in direct response to particular needs of those directly involved in the sector. The topics discussed are artificial recharge of groundwater, maintenance systems for rural water supplies and user participation in payment for community-based water supply and sanitation. The new IRC Training Series has created a good deal of interest. In 1987 three titles were added. The training course for evaluating water supply and sanitation projects was prepared and fieldtested in the UNICEF programme in Nigeria. "Training Skills for Supervisors" has been very well received and translated into Arabic, Amharic and Sinhalese.

Two projects on technical information exchange were carried out with international co-funding. Throughout the year, IRC initiated and was actively involved in the INFO-IMPACT action. A further stimulus to information exchange was IRC's joint venture with UNDP and WHO to publish a list of basic publications on community water supply and sanitation, a selected bibliography, and a glossary of expressions. With financial support from the Canadian International Development Research Centre (IDRC), a new "Interwater Thesaurus of terms" used in the water supply and sanitation sector was completed in English, French and Spanish.

During the year the documentation centre received a large number of requests for information, and for the first time external computer searches were made for outside consultants for a fee. More than 5000 copies of IRC publications were distributed to countries throughout the world. A price differential was made for those working in

developing countries. In all, seven IRC newsletters in English and French were circulated in 1987. The newsletter has been increasingly used as a vehicle for dissemination of information from other agencies and for information on specific topics.

## **2. Development and Demonstration**

Throughout 1987, IRC was actively involved in supporting the two long-term development and demonstration projects in six developing countries. These projects integrate technical, economic, socio-cultural and organizational aspects of water supply and sanitation. This year the Public Standpost Water Supplies project concentrated on consolidating experience in the local demonstration schemes, developing ways of sharing and applying the information generated, reporting on the project and planning the follow-up project, Piped Supplies for Small Communities (PSSC). In 1987 the main activities in the Slow Sand Filtration project were promotion of application and simplified operation and maintenance.

Development and demonstration projects are the most comprehensive and intensive knowledge transfer mechanism applied by IRC. These projects include elements of training, advice and evaluation, and publication. Through the integrated and community-based approaches followed in these projects, participating national agencies gain experience in sustainable project development. During 1987, numerous external support agencies expressed renewed interest in this type of project as a means of accelerating Decade progress.

### **PIPED SUPPLIES FOR SMALL COMMUNITIES**

1987 saw the transition from the Public Standpost Water Supplies (PSWS) project to the Piped Supplies for Small Communities (PSSC) project. Although PSWS country projects in Indonesia, Sri Lanka, Malawi and Zambia were formally concluded on 31 December 1986, consolidation activities continued in all four countries during 1987. At the same time preparations were made for follow-up country projects in the framework of the Piped Supplies for Small Communities Project in Malawi and Zambia. At the end of the year, the Netherlands Directorate General for International Co-operation granted funds for project activities in these two countries for a three-year period.

#### **Malawi**

Activities were rounded off in the PSWS project, which concentrated on two mature schemes and two newly commissioned schemes under the Urban Communal Water Point Programme. During the year a comprehensive operator's manual was prepared by the Malawian project manager to guide Water Department Plant Operators in their task of supporting community-based administration of community water point

schemes. The guidelines presented in the manual are derived from experience in the schemes monitored under the project, and also from project seminars. The sections of the manual on tap committees and consumer groups have been translated into the Chichewa language for community use.

A two-week training workshop was held in Zomba in July. Water point plant operators were trained to assist in rehabilitating water points and in particular how to tackle the increasing number of debit balances. Methods used successfully in the PSWS monitored schemes were promoted in the workshop. The Water Department now plans to apply the PSWS findings to communal water point schemes in all three regions of Malawi.

A comparative review of experience in the PSWS project was undertaken by the project managers from Malawi and Indonesia. A draft final report and an overview of experiences and methodology were also produced.

The draft proposal and agreement for the follow-up PSSC project have been developed by the Water Department and the Ministry of Works and Supplies and are ready for approval by the Malawi Government and IRC. The new project has been broadened to cover mixed piped systems, including house connections, yard connections and neighbourhood taps. In this project, special emphasis is given to community involvement, financial issues and local organization, progressive development of service levels, options for cross subsidy, and integrated development of water supply, sanitation and hygiene education.

### **Zambia**

With the commissioning of the demonstration scheme in Sokosi village, four local schemes were operating in 1987. The project is supported by an active management committee. The chairman is the Director of the Department of Water Affairs and there are representatives of the project-participating institutions, the Ministry of Health, Department of Social Development, University of Zambia, and the National Water Decade adviser. The Committee has acted as the clearing house for inputs from the participating organizations and has promoted sharing of project findings. Importantly, the Committee has acknowledged the impact of the PSWS schemes in demonstrating community-based approaches.

A project overview and final report of the PSWS experience is now being prepared. A training booklet on sanitation and hygiene education, which is based on project experience, has been drafted by the Zambian project manager.

The national project team has prepared a detailed work plan, programme and budget for the PSSC project and a draft agreement between IRC and the Zambian government. The agreement submitted jointly by the three main participating agencies, was signed by the Zambian Ministry of Finance at the end of 1987.

In the new project, PSWS experience is to be strengthened, monitored, and wider types and mixes of piped water supplies and sanitation are to be investigated. Sharing of information and promotion of further application will be a key component. Inter-ministerial liaison groups are to be set up in the demonstration scheme districts to stimulate development and application of integrated approaches.

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*Community-based maintenance of piped supplies: storing water hygienically.*

## **Zimbabwe**

A number of ministries have expressed interest in the PSSC project. In September, the Blair Research Laboratory of the Ministry of Health carried out a study on piped water supplies for small communities in Zimbabwe as a foundation for the development of the potential project. It provides an overview and perspective for Zimbabwe and highlights current issues, which the PSSC project should address. By the end of the year, detailed plans had been prepared for the project and potential donors had been approached.

## **Indonesia**

The PSWS project has focused on four demonstration schemes in West Java. All schemes have been implemented with full community participation, based on a self-survey approach to problem identification and solution. Community workers from local and regional governments have been trained in this approach. Thus under the direction of Indonesian project staff, a workable, community-based approach to rural piped water supplies has been developed and demonstrated. This approach was developed within the existing framework of local government and community leadership structures. During 1987 there were clear indications that this approach had been accepted and that findings are now being incorporated into policy and training materials for wider application.

The project was developed by the Institute of Human Settlements, a principal government research and development institute for public works. Close links have been maintained with the other agencies involved, namely Cipta Karya, Ministry of Health and Ministry of Interior.

As a direct result of involvement in PSWS project activities, the Institute of Human Settlements was requested by the Indonesian Government:

- to advise the Directorate of Water Supply on 20 new schemes in West Java and to assist in training of community workers;
- to advise the Directorate of Housing on 900 new integrated rural development schemes throughout Indonesia and to assist in training of community workers;
- to develop and adapt the community-based approach in three other regions of Indonesia in nine new demonstration schemes.

Arising from its support to the PSWS project and its other activities, IRC has received a number of requests from Indonesian agencies to support planned follow-on activities. The Institute of Human Settlements, Bandung, asked for IRC's assistance with new activities on piped supplies. Cipta Karya's Directorates of Water Supply and

Programme Development have requested IRC's input on slow sand filtration and to information activities. These requests have led to a combined proposal for a two-year project for assistance with all three activities.

### **Sri Lanka**

The PSWS project covered four demonstration schemes serving approximately 11 000 people. Under this project a number of tools have been produced to stimulate use of the community-based approach. These include a manual on community participation, a video and slide/sound presentation illustrating the steps in this type of approach, and an operation and maintenance manual.

The co-ordinating institution, the National Water Supply and Drainage Board, made a statement on the project's achievements, which may be summarized as follows:

- promotion of the value of community education and participation in rural water supply and sanitation for technical staff;
- promotion of the involvement of local health staff, water committees, volunteers, and the school system in gaining community support for behavioural change in order to complete sanitation and water supply programmes;
- contributing to the growth of the new Community Support and Sanitation Section, now being developed with US AID support.

A number of other projects are now making use of the approaches developed in the demonstration project. They include the project for the rehabilitation of 49 rural water supply schemes supported by the Asian Development Bank, and the Ministry of Health's sanitation programme.

### **IRC support**

To support the country projects, IRC and participating countries undertook joint studies, which provided the basis for a number of publications on aspects of public standpost water supply. In 1987 these included "What Price Water?: user participation in paying for community-based water supply", in the IRC Occasional Paper Series (see Chapter 5); an overview of piped supplies in Zimbabwe published by the Blair Laboratory, Zimbabwe; and a literature review on community-based financial management and guidelines for community-based maintenance to be distributed in 1988. A start was also made on a new publication in the IRC Technical Paper Series to consolidate experience with piped supplies for small communities, including public standposts. During the year, IRC assisted in preparing in-country work plans, budgets,



proposals and draft agreements for the PSSC project in Malawi, Zimbabwe, Zambia, and also new activities in Indonesia.

## **SLOW SAND FILTRATION**

Promotion of wide-scale application of slow sand filtration for community water supplies was the key activity in the final year of this IRC supported development and demonstration project. In this project, slow sand filtration has been shown to be an effective, low-cost purification technique. Filters can be constructed locally and operation and maintenance is both simple and cheap. With funding from the Netherlands Directorate General for International Co-operation studies were carried out in Colombia and India to improve operation and maintenance, to simplify design and construction, and to train local caretakers.

### **India**

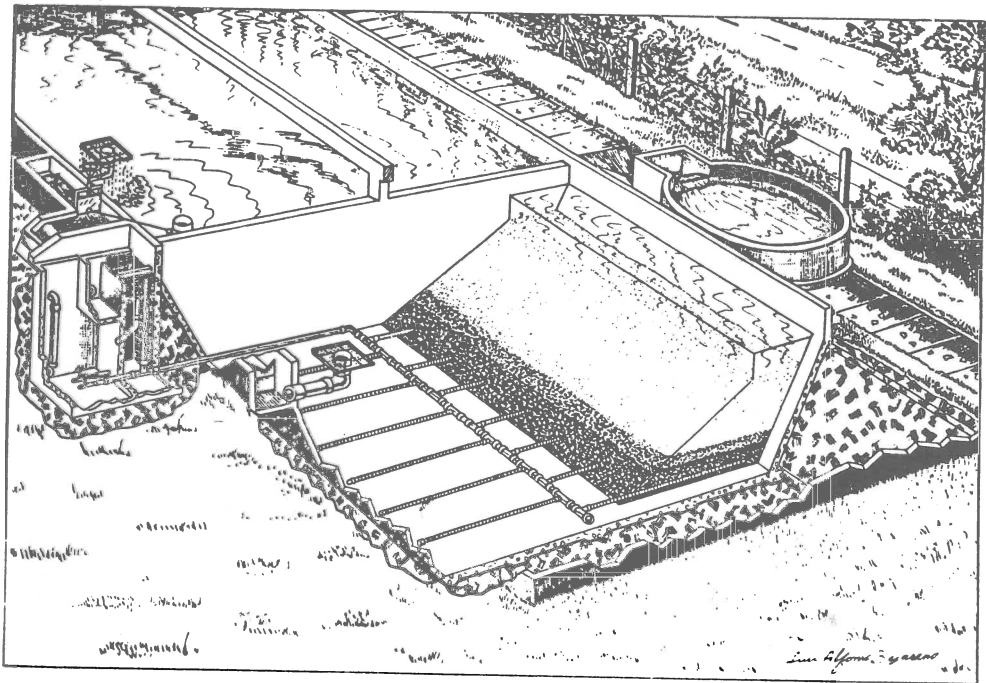
In January a three-day workshop on design and construction of slow sand filter plants was organized by the National Environmental Engineering Research Institute (NEERI), Nagpur. The opening session was attended by some 40 people, including chief engineers from Indian states working with or interested in slow sand filtration. Participants came from the states of Andhra Pradesh, Haryana, Maharashtra, Karnataka, Kerala, Gujarat and Himachal Pradesh. Five participants were sponsored by the project, five by UNICEF, one by DANIDA, and six by their own organization. During the workshop, 17 engineers and NEERI staff reviewed and scrutinized plant designs being used in various states. Suggestions for improvements were made and annotated design criteria agreed upon.

During the year, NEERI, the project participating organizations, completed a study on the flow indicator in slow sand filtration plants. The operation and maintenance manual was translated into Hindi and reviewed by water boards in various states. The manual will be printed early in 1988. NEERI carried out a study of pre-treatment pilot plants in Delhi. The planned review of riverbed filters throughout India had to be delayed until 1988 because of the drought. NEERI assisted the Kerala Water Authority to prepare a proposal for a study on water treatment using a combination of chemical coagulation and slow sand filtration. NEERI is actively promoting slow sand filtration in India, through the Technology Mission on Drinking Water in villages and related water management. This mission has been set up by the central Government to tackle drinking water problems in some 227 000 villages.

## Colombia

Considerable progress has been made on the introduction of slow sand filtration in Colombia. With plants being constructed in the Valle and Cauca regions, this technique is gradually becoming an important means of water purification in rural areas in Colombia. The Colombian project manager is preparing a detailed proposal for further promotion of slow sand filtration.

In June a three-day workshop was organized to review and test the Spanish translation of the caretakers manual on operation and maintenance. The workshop was organized by the training institution CENTRA, the Centro Regional de Desarrollo de Recursos Humanos para la Salud del sur-occidente Colombiano, together with the working group at the University of Valle, Cali. The workshop gave a detailed introduction to slow sand filtration and pre-treatment technology, discussed the caretakers manual, and carried out practical work on a slow sand filter. The 18 participants from all parts of the region suggested that a series of booklets on specific aspects of the slow sand filtration process be produced for caretakers.



*Isometric view of a slow sand filter made in Colombia.*

The work and approach of the working group has gained recognition at the University of Valle (UNIVALLE). Three of the group members have been made university teachers, thus providing a sound foundation for the group's continued work. During the year membership of the group increased to 30 professionals and support staff. As a result of an agreement between UNIVALLE and the University of Curativa, member of the Group visited Brazil to exchange experience on slow sand filtration, the use of natural polymers, leakage control, and quality control of materials.

UNIVALLE has designed slow sand filter plants for several organizations including Servicios Seccional de Salud de Valle y de Cauca and Comité Cafeteiros. By participating in construction, the group has also gained much experience and has developed several devices to facilitate operation and maintenance.

In August, slow sand filtration was promoted at the international seminar on simple water treatment, organized in Colombia by the Asociacion Colombiana de Ingenieria Sanitaria y Ambiental, ACODAL - Seccional Valle del Cauca. A highlight of the seminar was the field visit of the 150 participants to the El Retiro slow sand filter plant. In view of the increased interest this technique in Colombia, the meeting agreed to ensure that new installations were built and operated to standard. The proceedings of the meeting were prepared by UNIVALLE.

### **IRC support**

IRC support to the various country activities concentrated on inputs in workshops and conferences, and publication and distribution of "Slow Sand Filtration for Community Water Supply", no. 24 in the IRC Technical Paper Series. This book consolidates ten years experience in demonstration projects in developing countries. The caretakers manual was translated in Hindi, Spanish and Thai by counterpart agencies with IRC support. IRC also assisted in preparing follow-up proposals for research and promotion of slow sand filtration in Colombia, Kerala state in India, Indonesia, and Zambia.

### **Pre-treatment**

Excessive turbidity is a major drawback to the functioning of slow sand filters. Therefore UNIVALLE and IRC initiated a pilot study on pre-treatment. A range of methods were tried out on a small scale. The results were promising for the reduction of turbidity and removal of bacteria and for restoration of the water to a colourless state.

Several full-scale plants have already been constructed in Colombia and are working satisfactorily. Collaboration is being developed in the project with other organizations, including the International Reference Centre for Waste Disposal (IRC/WD), Switzerland; Asian Institute of Technology, Thailand; and National Environmental Engineering Research Institute (NEERI), India. With support from the Netherlands Directorate General for International Co-operation, a comparative study of a number of pre-treatment techniques is to be undertaken in Puerto Mallerino, Cali, Colombia. The research will be carried out by the working group, Area de Abastecimiento Y Remocion de Agua, of the University of Valle, Cali, under the guidance of IRC and the International Advisory Group. The prime objectives are to study on technical scale, promising and simple pre-treatment systems. This will be done in order to develop guidelines for design, selection, operation and maintenance; and guidelines for suitable sites for demonstration plants based on both technical and socio-economic considerations. IRC has co-operated with the project staff in Cali and the international advisory group to prepare a detailed work plan for the pre-treatment study.

### **3. Advice and Evaluation**

Advisory support to water and sanitation projects and programmes in developing countries is a major component of IRC's work. In 1987 six new contracts were signed for evaluation and advice to internationally supported projects. This concerned projects supported by DANIDA, the Commission for European Communities, UNICEF, Netherlands Directorate General for International Co-operation, UNDP, World Bank, Netherlands Organization for International Co-operation (NOVIB), and Netherlands Development Organization (SNV). IRC services included support to project appraisal, formulation and evaluation and briefing and general backstopping of consultants and other project staff. New activities were undertaken in 1987 in the Yemen Arab Republic, Kampuchea, Zambia, Mali, Tanzania, Kenya and Sudan. Field contacts and generation of new information were important spin-offs from these activities.

#### **WATER-RELATED PROJECTS - YEMEN ARAB REPUBLIC**

IRC participates in the Netherlands-based Water Advisory Group which provides advisory services to a number of water-related projects supported by the Netherlands Government in the Yemen Arab Republic. IRC was a member of two joint Yemeni-Netherlands missions to evaluate three water-related projects: Tihama Basin Water Resources Project; Rada Integrated Rural Development Project; and Support Rural Water Supply Department Project. For the next phase of the last project, it was recommended that close co-operation be established with the primary health care activities in the area. IRC also participated in the advisory group for the Rada Urban Water Supply and Sanitation Project which is to start activities in 1988.

#### **URBAN SANITATION - KAMPUCHEA**

IRC was requested to evaluate the Urban Sanitation Project, being financed by the Netherlands Organization for International Co-operation (NOVIB), one of the main non-governmental agencies participating in the Dutch bilateral aid programme. Since 1982, NOVIB has financed various small-scale activities in garbage collection and solid waste management, implemented by Phnom Penh municipalities, Kampuchea.

A socio-economic study in July 1986 recommended an integrated approach for more effective sanitation in residential areas in Phnom Penh. NOVIB asked IRC to be team leader of the evaluation mission together with members of the Delft University of

Technology working under the umbrella of Community Development Consultants (CODE). This group had originally identified a number of small sub-projects in the Urban Sanitation Project. The mission made recommendations on garbage collection and community involvement. Agreements were reached on a clearly defined project organization and on co-ordination of activities. Technical solutions were identified for upgrading and rehabilitating sanitation facilities in two pilot areas. Levels of improvement will be determined on the basis of the user willingness to pay for maintenance and reinvestment in a more community-based organization.

#### **UNICEF PROGRAMME IN KAMPUCHEA**

To assist the Kampuchean Ministry of Health and the UNICEF-supported programme with a plan of action for health education and sanitation, IRC participated in a baseline study on water supply and sanitation in selected communities.

Recommendations for sanitation improvements included experiments with latrine designs, development of a hygiene education programme before introduction of latrines on a large scale, local production of slabs, and a school sanitation programme linked with hygiene education. The mission suggested a pilot scheme in 10-20 villages on hygiene education for introduction later on a larger scale.

#### **WATER OPERATORS TRAINING - ZAMBIA**

In November IRC was requested to evaluate the water operators training course organized by the Department of Water Affairs at the Lusaka Technical Trade Institute (LTTI) with finance from the Commission of the European Communities. The mission concluded that there is an urgent need for training in the water and sanitation sector. Training programmes need to be combined with improvements of operating conditions, such as provision of spare parts and chemicals for water supply schemes. The 18-month water operators course provides good basic training but this needed to be supplemented with short-term on-the-job training.

The mission recommended that job specific training courses, currently being given in various projects, need to be co-ordinated in a new national training unit. To identify the number and types of courses required, a detailed manpower study and development plan was suggested for the whole sector. Recommendations were made to increase output and efficiency, to strengthen the curriculum and to develop the water operators course in an integrated set up for period of three years. For this, external support will be needed to supplement Zambian funding.

## **RURAL WATER FOR HEALTH PROJECT - ZAMBIA**

For several years the Netherlands Organization for Development SNV has been supporting a dug well project being undertaken by the Department of Water Affairs in the North Western Province. A project evaluation in 1987 led to a request for IRC to work with Zambian and SNV staff in formulating new proposals. This resulted in a proposal for the Rural Water for Health Project 1988-1994, which was submitted by the Department of Water Affairs in late 1987 to the Netherlands Government for funding. The proposed project included construction of improved and new facilities, maximizing potential health benefits, and strengthening institutional capacity to manage, implement and support rural water and health activities.

## **RURAL DOMESTIC WATER SUPPLY AND SANITATION PROGRAMME - KENYA**

At the request of the Netherlands Directorate General for International Co-operation, IRC participated in a joint Netherlands and Kenyan mission to review progress of the Rural Domestic Water Supply and Sanitation Programme in Nyanza Province. The objective was to recommend changes required prior to continuation of the programme in 1989-1992. The mission concluded that high standards of well construction have been established and demonstrated in South Nyanza District and these are now being extended to Siaya and Kisumu Districts. However before the next project phase, improvements would need to be made to co-ordination and project management, the sanitation component, and decentralization of pump maintenance and training. Subsequently, a formulation mission was recommended to plan in detail phase two of the programme.

## **ARPON PROJECT - MALI**

The Royal Tropical Institute, Amsterdam, and the Amelioration de la Riziculture Paysanne dans la zone de l'Office du Niger (ARPON) project, Mali, requested IRC to define water supply and sanitation activities in the irrigated zones of the Office du Niger. This would provide the basis for continuation in the Ségou region of the project being funded by the Netherlands Directorate General for International Co-operation and the SNV Netherlands Organization for Development.

The mission recommended that attention be given to consultations with district authorities, project staff and villagers. Criteria were developed for pump selection. Emphasis was given to hygiene education and to establishing washing facilities near wells and pumps to reduce contact with bilharzia-infested canal water.



*Improved well with extended slabs, drainage channel, and laundry facilities in Mali.*

Further, it was recommended that traditional elevated latrines be used in preference to introducing double bin compost latrines, as proposed. It was recommended that villages be approached with water and sanitation facilities at the same time, taking into account capacities of villagers to pay for the services and to organize themselves. Future water supply and sanitation activities were discussed with all relevant technical departments and their individual roles in planning, organization, implementation and follow-up defined. Consensus was reached on establishing a technical committee to co-ordinate and monitor activities. The ARPON project would give the committee financial and logistic support. A proposed plan of activities was drawn up for five pilot villages to be worked out after the ARPON project has been formulated.

#### **UNDP PROJECTS**

During 1987 IRC Participated in three review missions of UNDP projects. One was a mid-term review of the women's involvement in a low-cost sanitation demonstration



project being carried out in Egypt as part of the UNDP project Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWESS INT/83/003)). The commitment at the highest level of the Egyptian government to a large-scale social component in technology dissemination projects was especially interesting.

For the same project, IRC assisted in planning and conducting a participatory training workshop for the Women's Development Section of the Nepalese Ministry of Panchayat and Local Development. This included development of training materials for course participants, giving attention to water, sanitation and health. For the World Bank, IRC participated in a review and evaluation mission of the UNDP Project Development and Implementation of Low-Cost Sanitation investment projects in India and Indonesia (INT/81/047).

#### **DANIDA PROGRAMME - TANZANIA**

In May 1987, DANIDA contracted IRC to evaluate the rural water supply programme being supported by their organization in Mbeya, Iringa and Ruvuma regions in Tanzania. IRC organized the mission, assembled the evaluation team including, three team members of its staff. The team was strengthened with an economist from the Project Planning Centre of University of Bradford, UK, and a water resources engineer from the Institute of Applied Geoscience, the Netherlands. The mission was carried out jointly with two Tanzanian Government officials from the Ministries of Water and of the Ministry of Finance, and an evaluation specialist from WHO. The mission found that community participation had been integrated in the implementation process. Villages appeared to have a feeling of ownership for the schemes. However, as handing over of completed schemes has been slow, the viability of village maintenance could not be verified.

Results in terms of coverage, costs, functioning, and use of the water schemes and the development of a village-based programme positively supported continuation of the programme. The mission recommended that in the following phase additional emphasis be placed on development and strengthening of village-based and financing of maintenance; integration of community participation into the Department of Community Development; the development of supplementary health and sanitation projects.

IRC was invited to discuss further co-operation with DANIDA in reviewing its water sector programmes in five countries in West Africa. This would include methodological guidance and organization of future evaluations, review of project

documentation, briefing of evaluation team members, and intensive participation of IRC staff.

#### **MONITORING - INDIA**

On behalf of the Development Co-operation Asia Department of the Netherlands Directorate General for International Co-operation, IRC has participated in the briefings and debriefings of missions for Netherlands' supported water supply and sanitation programmes in the Indian states of Uttar Pradesh, Andra Pradesh, Gujarat and Kerala.

IRC assisted in preparing the Terms of Reference for the review missions and organized meetings of review and support teams to discuss common themes, including community participation, maintenance and maintenance financing, and replicable sanitation programmes. An extensive briefing and preparatory programme was provided for the Co-ordinator of the Socio-Economic Unit in Kerala.

#### **GROUNDWATER DEVELOPMENT - SUDAN**

Following IRC involvement in the formulation mission for the subsequent phase of the Water Resources Assessment and Development Project in Southern Dafur in Sudan, IRC contributed to socio-economic and organizational aspects in 1987. The Sudan project manager, was given a three-day briefing programme at IRC.

## **4. Training and Education**

Training seminars, workshops and working meetings have always been an important IRC activity, especially in the generation and development of new ideas and strategies. In 1987 these activities ranged from workshops for trainers of slow sand filtration plant caretakers in Colombia to development of training materials. In 1987 the preparatory programmes and training courses for technical assistants for work in water supply and sanitation were expanded to include students from developing countries, researchers and technical assistance staff from institutions outside the Netherlands.

### **EVALUATION MODULES**

Course modules in project evaluation and a moderator's guide were prepared for UNICEF to train project staff and their counterparts in developing countries. After fieldtesting in Nigeria, the modules were finalized by IRC in 1987. The modules were developed for use in one-week training sessions conducted by two trained moderators. UNICEF has been assessing interest of country offices in regional workshops to train moderators to guide country level training workshops.

### **PREPARATORY PROGRAMMES FOR FIELD STAFF**

Interest is steadily increasing in the preparatory courses at IRC for water supply and sanitation staff. These courses were started in 1986 for staff of the Netherlands Organization for Development SNV. Since then SNV staff have received information specific to the country and job, and have been able to draw on IRC experience in key issues in community water supply and sanitation. Evaluation indicated that the programme contributed to the effectiveness of field staff, and that the information obtained at IRC was being used in the projects. In August, the contract with SNV was renewed for a further year.

In all, 18 programmes were prepared in 1987 for SNV staff, consultants to Netherlands Government supported projects, and consultants and students from both developed and developing countries. Programmes were tailored to the specific requirements. During the year IRC designed programmes for participants from developing countries attending the post-graduate water supply and sanitation course at Tampere University, Finland. Consultants working with Swedish International Development Agency (SIDA) were given special briefing and introductory programmes. Other donors have also expressed interest in using such programmes for consultants and their staff.

## **COMMUNITY PARTICIPATION - TANZANIA'**

For a number of years IRC has assisted in developing effective community education and participation in the Tanzanian rural water supply programme. At the request of various donors, IRC has contributed to their projects in the context of the Arusha Action Plan of 1986 which identified steps for strengthening water supply and sanitation activities.

In the Netherlands supported projects in Shinyanga and Morogoro regions, a pilot strategy in community participation and education and participatory health education had been tested on a large scale, with technical support from IRC. Results of this were incorporated in a field manual for district staff of the Departments of Water, Health and Community Development. In 1987 the manual was translated into Ki Swahili. It has also been translated by the Christian CARE Water Programme in Zimbabwe.

In 1987 IRC carried out a mission to initiate the development of an action plan for integration of health and sanitation activities in the Netherlands assisted Rural Water Supply Project in Morogoro and Shinyanga regions. In Dar es Salaam the Nordic donors, UNICEF, and the Ministry of Health gave views on their approach to overcome prevailing problems in primary health care and community involvement. Following an evaluation mission in August to the Netherlands assisted Rural Water Supply and Sanitation Programme, the Netherlands Directorate General for International Co-operation decided to continue with a new phase of the water programme for which an overall programme is yet to be established.

## **COMMUNITY PARTICIPATION TRAINING**

Community participation for better use and maintenance of water supply and sanitation facilities has become part of donor policy in the water supply and sanitation sector. In 1987 it was decided to organize a training programme for consultants and government agencies to formulate, prepare and implement water supply projects with an integral community participation component. With financial support from WHO and the Netherlands Directorate General for International Co-operation the first course for six participants was prepared and organized by IRC early in 1987. Subsequently, a policy meeting on community education and participation in the Netherlands was organized in December and attended by 18 participants from 11 organizations.

IRC prepared the discussion paper for the meeting on the basis of inputs from participants. Two approaches to community participation, the social marketing and the

community organization were discussed and recommendations made for more effective community participation in the water supply and sanitation programmes supported by the Directorate. Three working groups were set up to prepare proposals for integrated training on community participation; guidelines on Terms of References for identification and review of participatory water and sanitation projects; and a system to monitor cost benefits of participatory projects at user level.

### **OTHER TRAINING MATERIALS**

In 1987 "Training Skills For Supervisors" was published in the IRC Training Series. Positive feedback was received on the fieldtesting of the manual. It has been translated into Thai, Arabic, Bahasa Indonesian and Amharic and Sinhalese. This practical material has been used for the training of trainers in Egypt, Ethiopia, Kenya, Malawi and Sudan.

"Case studies in Human Resources Development for Water Supply and Sanitation" has been prepared for the Training Series and will be more widely distributed early in 1988. The study includes five ongoing programmes in Philippines, Sri Lanka, Thailand, Togo and Zaire. Draft copies have been sent to a number of agencies, which had expressed interest in using the material in training courses. The preparation of these case studies was supported with funds from the Directorate for Development of the Commission of the European Communities.

With funding from the same donor the caretakers manual and trainers guide for slow sand filtration was translated for use in French speaking West Africa. A number of projects in the region have expressed interest in the pilot training programme for which these manuals have been expressly translated. IRC is discussing possible ways of collaboration with SODECI, Société de Distribution de la Cote d'Ivoire, the national water enterprise in Ivory Coast and with regional training institutions.

### **TRAINING COURSES**

IRC has been involved in numerous other training activities, apart from those in the demonstration projects on slow sand filtration and public standpost water supplies. Staff have lectured at international courses organized by Netherlands universities, and also by voluntary agencies including the International Institute for Hydraulic and Environmental Engineering (IHE) Delft; Institute for Housing Studies, (IHS) Rotterdam; Delft University of Technology; Wageningen Agricultural University; and Royal Tropical Institute, Amsterdam. Co-operation has increased with announcements

made in the IRC newsletter of the IHE and IHS courses and IRC publications were made available at discount prices.

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*Community-based maintenance of piped supplies: involvement needed in all project phases.*

## 5. Publications

1987 was a productive year for IRC publications. A number of new titles appeared in all three series. In the Technical Paper Series, there were two new publications. This series aims to integrate technical issues and software components, such as community involvement and operation and maintenance of water supply and sanitation. Books in this series are prepared jointly by IRC staff and consultants, and after external review, are published in paperback for wider distribution. During the year three new titles appeared in the IRC Occasional Paper Series. Activities and progress of ongoing work at IRC are reported in this low-key series. Three new training manuals were produced and distributed for fieldtesting during the year. This brings the number to four in the IRC training series which has recently been introduced.

### RENEWABLE ENERGY SOURCES

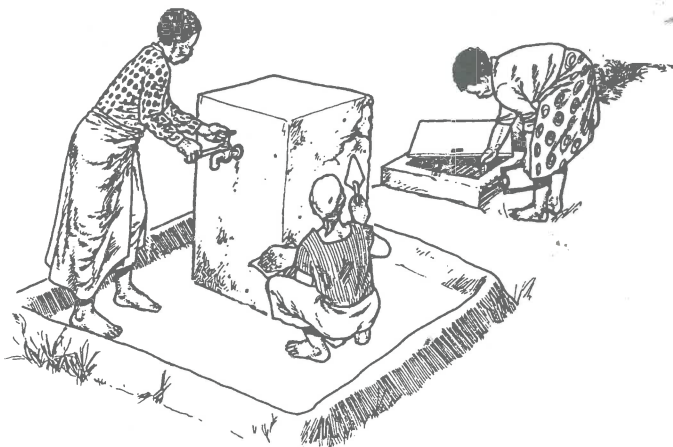
"Renewable Energy Sources for Rural Water Supply" is no. 23 in the Technical Paper Series. This book which was issued in April, was co-funded by the Netherlands Ministry of Housing' Physical Planning and Environment and the Directorate General for International Co-operation. A systematic review is given of renewable energy sources for small-scale community water supply in rural areas. Factors for consideration, selection methodology and technical information are presented on wind energy, solar energy, hydropower and biomass energy for water pumping.

### SLOW SAND FILTRATION

"Slow Sand Filtration for Community Water Supply" (no.24) was added to the Technical Paper Series in 1987. The information and guidelines on this technique are the result of ten years experience in the IRC development and demonstration project (see Chapter 2). Knowledge and experience with this simple and easily maintainable purification technique have been generated by participating agencies in five developing countries. The book pays particular attention to the integration of technology issues with community involvement and operation and maintenance. It aims to serve project planners, professional engineers and non-technical staff working with slow sand filtration.

### MAINTENANCE SYSTEMS FOR RURAL WATER SUPPLIES

"Maintenance Systems for Rural Water Supplies" was one of the three new titles in the IRC Occasional Paper Series. This review on current thinking on maintenance of rural



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*Community-based maintenance of piped supplies: women can play a vital role.*

water supply was prepared in response to demand from the field. It deals with factors affecting maintenance in donor supported programmes, and key aspects in the development of suitable maintenance systems. A checklist on maintenance is provided for use in project preparation and assessment. This publication results from a study carried out with financial support from the Research and Appropriate Technology Section, Netherlands Ministry of Foreign Affairs.

#### **ARTIFICIAL GROUNDWATER RECHARGE**

A study of "Artificial Groundwater Recharge for Water Supply of Medium-sized Communities in Developing Countries" was carried out with funding from the Netherlands Ministry of Housing, Physical Planning, and Environment. Resulting from this study, an IRC Occasional Paper was prepared to provide planners and engineers with practical information to assess the potential of artificial groundwater recharge schemes. Information is given on basic technology, planning and organization, types and basic design of schemes, and costs.

#### **WHAT PRICE WATER**

Initially prepared for use in the IRC-supported Public Standpost Water Supplies demonstration project, "What Price Water? user participation in paying for



community-based water supply", has now been published for wider readership in the Occasional Paper Series. A range of issues are dealt with including the mechanisms available for cost recovery and their merits and limitations. Attention is paid to introducing the options to the community and to organizational development at the local level to support the revenue generating systems.

This book gives practical guidelines on revenue generation for project staff involved in the planning, implementation and management of piped community water supplies. It is also useful for policy advisers concerned with charges for rural and peri-urban communities.

### **EVALUATION COURSE MODULES**

"Evaluating Water Supply and Sanitation Projects", comprising training course modules, and a guide for course moderators was produced by IRC for UNICEF. The modules provide the basis for training programmes primarily for government officials and staff responsible for management and evaluation of water supply, sanitation and hygiene education projects (see Chapter 4). The 15 modules take the user step-by-step through the evaluation process, from initiation to implementation of projects. The guide for course moderators outlines a course structure and content and gives specific suggestions for each training session in a one-week course.

### **CASE STUDIES IN HUMAN RESOURCES DEVELOPMENT**

With funding from the Commission of the European Communities, five case studies entitled "Human Resources Development for Water Supply and Sanitation" were produced. The case studies are drawn from programmes in Togo, Sri Lanka, Philippines, Zaire and Thailand. They are designed as training material and background reading for managers, planners and all those involved in mobilizing human resources.

### **TRAINING SKILLS FOR SUPERVISORS**

"Training Skills for Supervisors" was published during the year in the IRC training Series. This manual has been used in Kenya and Malawi, and has been translated into Arabic for use in Egypt and Sudan, into Amharic for use in Ethiopia, and into Sinhalese for Sri Lanka. Feedback from training programmes in these countries on content and presentation was positive. The manual presents technical training techniques in a manageable and realistic manner. Training advisers in water

programmes reported that the materials are presented in a manageable and realistic way and that the methodology is easy to use in training exercises.

## **INFORMATION EXCHANGE PUBLICATIONS**

Terminology and overview publications to support technical information exchange have been prepared, including:

- "List of Basic Publications on Community Water Supply and Sanitation: a selected bibliography and glossary of expressions", prepared for the WHO and UNDP (see Chapter 7);
- "Interwater Thesaurus for Community Water Supply and Sanitation (see Chapter 7).

## **TRANSLATIONS**

In 1987, CEPIS, Pan-American Centre for Sanitary Engineering and Environmental Science, Lima, Peru, translated into Spanish two titles in the IRC Technical Paper Series. These were "Community participation in Water Supply and Sanitation: concepts, strategies and methods" (no.17) and "Guidelines on health aspects of plumbing" (no.19). Under the standing co-publication agreement of 1984, CEPIS has translated six IRC publications and by the end of the year translation of a further two titles in the Technical Paper Series was nearing completion.

In the Slow Sand Filtration demonstration project (see Chapter 2) participating agencies in Colombia, Thailand and India have translated the caretakers manual, into Spanish, Thai and Hindi.

## **PUBLICATIONS IN PREPARATION**

Manuscripts initiated in IRC projects or originating from the knowledge base were developed a step further during 1987.

### **Hand Pumps**

A new manual on hand pumps is being prepared jointly by IDRC and IRC for the Technical Paper Series. This will replace the manual on this subject published in 1978 and distributed in 8000 copies in three languages. The revised and updated edition will complement the World Bank report on hand pumps, which was published in 1987. At the end of the year the manuscript was being reviewed externally and it will be published in 1988.

## **Options for Self-Improvement**

By the end of the year, a manual entitled "Options for Self Improvement in Community Water Supply, and Sanitation" was nearing completion. Containing more than 100 illustrations, it will provide technical information on simple and practical solutions to household water supply, sanitation and hygiene problems for village health workers and other community-based development workers. Preparation of this manual, which is intended for use in training community workers, has been financed by the Netherlands Ministry of Housing, Physical Planning and Environment.

## **Hygiene Education**

A literature review and a selected and annotated bibliography on hygiene education has been prepared with financial support from the Netherlands Directorate-General for International Co-operation. The final draft, which was ready for external review at the end of the year, contains 300 references and 25 abstracts. An Advisory Group of five Dutch specialists in hygiene education helped shape this work. The further research area in this project concerning key issues in hygiene education planning and management will be ready for publication in 1988.

## **Piped Supplies**

In 1987 work began on updating information on piped water supplies. This will incorporate and consolidate findings of the IRC demonstration project on Public Standpost Water Supplies. Consolidation of information was completed and an outline and first draft produced for publication in 1988.

## **Sanitation**

With the aim of consolidating work done by IRC in its various projects on sanitation, a publication is being prepared for the Occasional Paper Series. It is directed to field-workers and volunteers and will emphasis practical improvements to basic sanitation practices by upgrading facilities and procedures.

## **Nepal Case Study**

Following the field study of the Community Water Supply and Sanitation Programme in the Western Development Region of Nepal, IRC prepared with support from UNICEF and the Swiss Association for Technical Assistance (SATA) a report entitled "Ten Years of Experience". The developments described since 1976 are not

unique, similar ones are taking place in the other four development regions. The draft report sent to UNICEF at the end of the year, is planned for publication in the first half of 1988.

### **School Hygiene Education**

At the request of WHO, IRC carried out a study of the status of hygiene education in primary schools in developing countries. This also included an overview of teaching materials and their use. Examination of over 200 educational materials revealed great variation in artistic quality, clarity of images, and overall quality. The study indicates that limited development research goes into message design, pre-testing and evaluation. At the end of the year preparations were being made to publish the findings in the Occasional Paper Series.

### **REPRINTS**

Reprints were made of "Small Community Water Supplies", Technical Paper Series no. 18, and the "Directory of Sources of Information and Documentation on Community Water Supply and Sanitation", for which a bulk order (400 copies) was received from the US Peace Corps.

## 6. Knowledge Base Development

Knowledge base development at IRC implies research on specific subjects to increase access to information. It is the basis for the various IRC projects described in earlier chapters. In turn, these projects generated new knowledge and experience, which were fed into the knowledge base. Special attention in strengthening the knowledge base was paid to the following subject areas: community education and participation, women's involvement, maintenance systems development, community-based financial management, hygiene education, evaluation, artificial groundwater recharge, hand pumps, sanitation and particularly solid waste.

### COMMUNITY PARTICIPATION

The knowledge base on community participation and involvement of women in all phases of drinking water supply and sanitation programmes was expanded as a result of IRC's many activities throughout the year. They included development and demonstration projects, evaluation missions and training and education projects described in earlier chapters.

Three presentations were given in seminars and workshops (see Chapter 8). The practical implications of community involvement in water supply and sanitation were introduced to Dutch development specialists in the one-day workshop organized by IRC on development co-operation, policy and implementation. IRC received WHO funding for the development and promotion of this and other training efforts in relation to community participation.

### MAINTENANCE SYSTEMS DEVELOPMENT

Maintenance was a key issue in 1987. The knowledge base on this subject was enriched with the work done for the publication on maintenance systems development (see Chapter 5). Follow-up proposals were drafted and discussed with various donor agencies, particularly for a maintenance project in West Africa. This project aims to assist in the development of viable maintenance systems through co-ordinated efforts at project and national levels and through regional discussions and workshops. Case studies and pilot activities in various projects in the region will lead to exchange of experience between project staff and national staff.

Together with the Comité Inter Africain d'Etudes Hydraulique (CIEH), IRC has prepared a proposal for this project. The Comité Inter Etat pour la Lutte contre la Sècheresse au Sahel (CILSS) has confirmed interest in participating in the studies, and

so have three village water supply projects in Niger and Burkina Faso. During 1987 preliminary activities were undertaken by CIEH in collaboration with the national Water Ministry and with support from DANIDA.

### COMMUNITY-BASED FINANCIAL MANAGEMENT

Experience in the public standpost water supplies and slow sand filtration demonstration projects was used in developing the knowledge base on appropriate financial management for water supply and sanitation. During the year a wealth of information on the subject was assembled and consolidated in "What Price Water? user participation in paying for community-based water supply", in the IRC Occasional Paper Series. A literature review on revenue generation for piped supplies was also finalized for publication early in 1988.

Participation in international meetings contributes new knowledge and experience to IRC staff and to the centre's knowledge base. At the invitation of Norconsult, IRC presented an introduction to community-based financing to the third annual seminar entitled Water, Health and Development, in Oslo, Norway in August.



*Community-based maintenance of piped supplies: cost recovery needed for sustained functioning.*

IRC participated in the Second Informal Consultation on Institutional Development dealing with cost recovery in community water supply, which was held at WHO, Geneva, in October. At the request of the meeting convener, the contents of "What Price Water?" was presented to the meeting. The participants, who were directors or senior staff of consultancy firms, reviewed a number of case studies on financial and price policies for rural and urban water supply. Action plans for improved cost recovery were formulated and recommendations made on project preparation, and the role of donors, especially WHO.

A paper entitled "Revenue Generation for Water Supply to Low-Income Urban Areas: a need for innovation", was presented at the Afro-Asian Conference on Integrated Water Management in Urban Areas held in Bombay, India.

### **EVALUATION**

Project evaluation and efficient feedback are essential for consolidation of old and improvement of new programmes. The knowledge base was strengthened by evaluation work done in Yemen Arab Republic, Tanzania, Kampuchea, Kenya, Mali and Zambia (see Chapter 3). IRC assisted various external support agencies in these countries to evaluate projects supported by them.

Development and application of appropriate methods and procedures for evaluation by national staff was brought a step further with the publication of the course modules for training in evaluation of water supply and sanitation sector. (see Chapter 5). Proposals have been discussed with WHO and IDRC, for in-country regional training on self-evaluation, to be followed by a series of practical evaluations on key issues, such as hygiene education. These activities are developed in accordance with WHO's "Minimum Evaluation Procedures".

### **BASELINE STUDIES**

Baseline studies are important in project formulation and development and also evaluation. IRC's review of studies used in a range of projects showed wide variation in quality of baseline studies, sometimes to the extent that they were of little or no value. During the year, a consultant worked on guidelines to assist both project staff and research staff in the planning and implementing of baseline studies in water supply and sanitation projects.

## **SANITATION AND SOLID WASTE**

IRC is currently reviewing literature in preparation for a publication on practical improvements in sanitation (see Chapter 5). A list of selected references on solid waste management has also been prepared. Insight into the links between water supply and sanitation has been gained in countries participating in the integrated Public Standpost Water Supplies demonstration project. At the end of the year outlines had been prepared for the compilation of information on related subjects, such as on site sanitation and solid waste management.

## **HAND PUMPS**

IRC's extensive knowledge base on hand pumps has been used to prepare the new manual on hand pumps to be published in the Technical Paper Series (see Chapter 5). This is being done jointly with IDRC and in close contact with the World Bank Hand Pump Testing Project. In April, IRC participated in the Hand Pump Research and Development Meeting in Harpenden, UK, organized by the Association for Consumer Research in collaboration with the World Bank Project.

## **ARTIFICIAL GROUNDWATER RECHARGE**

An overview of available information on artificial groundwater recharge was published in the Occasional Paper Series in 1987 (see Chapter 5). Small artificial recharge schemes in developing countries were shown to be quite feasible for the water supply of small and medium sized communities. Possible follow-up in selected countries had been discussed with the Infiltration Committee of the Netherlands Institute for Water Testing (KIWA).

## **HYGIENE EDUCATION**

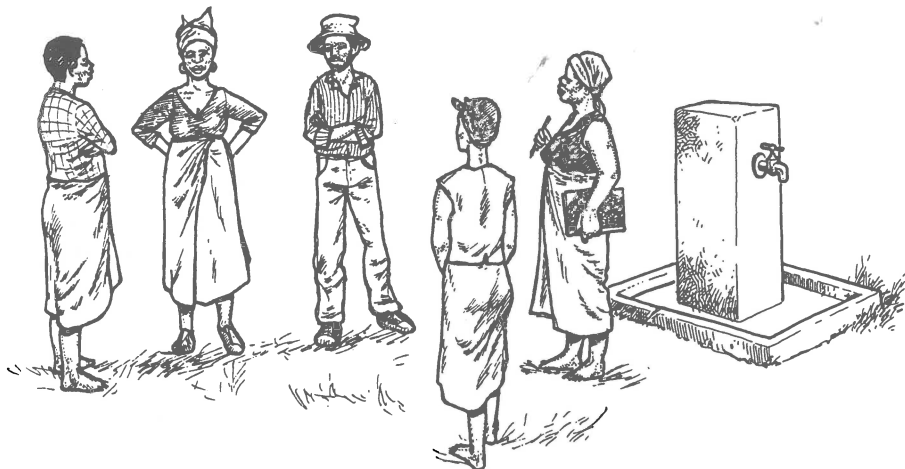
With publications in the pipeline on hygiene education, school hygiene education and households options for self-improvements, the knowledge base on this subject was greatly expanded in 1987. A large collection of experience, documents and audio-visual materials has been built up on hygiene education. This in turn has contributed to inputs in advisory missions and the Public Standpost Water Supply demonstration project.

The IRC Advisory Group on Hygiene Education which has guided the literature review (see Chapter 5), met twice in 1987. This group of six specialists has also advised on the development of the document for managers on key issues in hygiene education



planning and management. These activities have been funded by the Netherlands Directorate General for International Co-operation. WHO and UNDP have expressed interest in the literature review and are considering activities for further development in this area. A selection of hygiene education materials has been made for use in the IRC preparatory programmes for field staff (see Chapter 4).

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*Community-based maintenance of piped supplies: hygiene education is an essential component.*

## 7. Information Exchange

Exchange of technical information for better drinking water supply and sanitation is one of IRC's key activities. IRC provides documentation and information services to some 900 clients, and has developed information tools including directories, glossaries, a thesaurus, list of basic publications and an information slide/sound module. In 1987 IRC contributed to the development of a Framework for Technical Information Exchange, arising out of two international meetings on technical information exchange for water supply and sanitation. 1987 was an important year for the recognition of the value of technical information to enhance the efficiency and effectiveness of water and sanitation projects. In various international meetings technical information exchange has been recognized as one of the components to be included in Decade action.

When planning information exchange activities, the word "information" needs clearer definition from a global and regional perspective. A distinction may be made between management information (statistical data and other information as a basis for decision making towards project development and monitoring), public information (information primarily directed to the general public), operational project information (data on projects in developing countries which have received or are seeking external support), and technical information. Under that latter heading comes "how-to" information about appropriate technology, hygiene education, community participation, human resources development, institution building, evaluation, financial resources, and a variety of other issues.

### **INFO-IMPACT**

INFO-IMPACT stands for information exchange plan of activities, a process towards implementing technical information exchange activities in water and sanitation projects and also at national level in developing countries.

IRC is executing this joint effort together with key donor and implementing agencies in the sector, on behalf of the Steering Committee for Co-operative Action for the Decade. Following the IRC presentation to the Steering Committee in 1986, a technical workshop was held at the IRC office in The Hague in June 1987. In total 22 information specialists, discussed in-depth key issues on improved technical information exchange: market analysis, product development and delivery, awareness and promotion, compatibility and tool development, automation, training of information staff and use of institutional facilities. This was the groundwork for an information plan of action to cover local, regional and global needs.

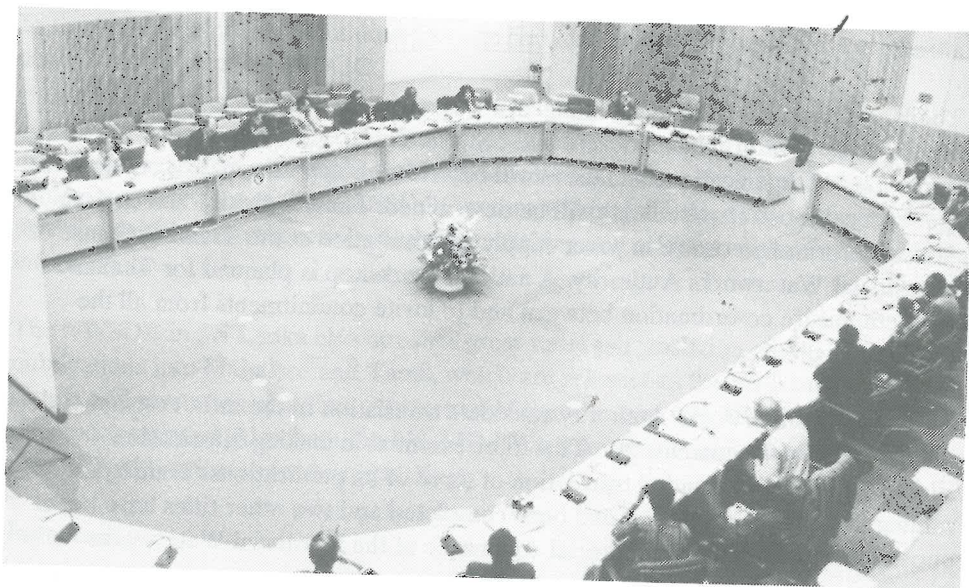
The report and recommendations of the technical workshop were the starting point for a working meeting on information exchange for water supply and sanitation, held at the Ministry of Foreign Affairs in The Hague, 22 - 24 September 1987. Co-sponsored by UNDP, Netherlands Directorate General for International Co-operation and IDRC, the meeting was attended by representatives from seven developing countries, three United Nations agencies, six bilateral donor agencies, as well as five regional and international information, research and training centres. The working meeting aimed to develop ways of implementing technical information exchange activities, and to outline practical proposals for such activities in selected developing countries as well as ways to organize regional and global support. Discussions on these issues in working groups and plenary sessions resulted in a Framework for Technical Information Exchange. This entails a fundamentally new approach to implementing information exchange activities in the water supply and sanitation sector. The four elements, assessment of needs and resources, product development, capacity building, and promotion, reflect the meeting's general consensus that constraints can be overcome by a phased approach, taking into account perceived needs of beneficiaries and whether the benefits support the cost.

It was agreed that the best way to illustrate the benefits of information exchange is by demonstration projects. This is done by building up an information exchange component in a single water supply and sanitation project so that rapid and demonstrable benefits can be achieved. The framework provides an opportunity for countries, with donor assistance to implement technical information exchange in a phased and cost-effective way, and so achieve the benefits of improved performance and capacity building through more successful water supply and sanitation projects.

Ways to implement the agreed strategies were considered for the regions of Asia, East Africa and West Africa. Country sketches were produced for Indonesia, Kenya, Niger, Sudan, Tanzania, Thailand and Zimbabwe. Ways were identified in which regional and international agencies could take specific actions to support the recommended new approaches. This resulted in recommendations for regional and global activities.

Representatives of donor agencies present at the meeting unanimously endorsed the framework approach as a cost effective way of implementing information exchange activities in developing countries. Each representative indicated ways in which the outcome of the working meeting might influence strategies within their agencies.

The general conclusion was that technical information exchange facilitates and enhances the effectiveness and efficiency of water supply and sanitation projects at all



*The September INFO - IMPACT meeting in progress.*

levels. This readily justifies investment in information exchange. It is clear from the statements of the donor agencies present that the chances of funding for technical information exchange components in water supply and sanitation projects have considerably increased as a result of the meeting.

The draft "Framework for Technical Information Exchange" was circulated to participants in the Donor Consultation Meeting in Interlaken, Switzerland, October 1987. The document and the approach outlined were endorsed by the 15th Steering Committee Meeting in Santo Domingo in November. Follow-up activities at the end of the year included recruitment of additional staff to help implement INFO-IMPACT, and seeking donor support for development of technical information capacities in East Africa and West Africa.

#### **SUPPORT TO COUNTRY INFORMATION SYSTEMS**

In Thailand, Indonesia, and Sri Lanka, follow-up activities to the earlier programme on exchange and transfer of information were carried out in combination with the INFO-IMPACT initiative. New technical information exchange activities are being funded in all three countries by IDRC.

## **Thailand**

In Thailand Unisearch of the Chulalongkorn University started in September with a national survey of information sources and centres. The specific information requirements of organizations and users will be assessed, and information services and output to meet those requirements will be determined. These activities aim to develop a national information centre in water supply and sanitation at the Training Centre of the Provincial Waterworks Authority. A national workshop is planned for Thailand 1988 to emphasize co-ordination between and to invite commitments from all the institutions involved.

The Provincial Waterworks Authority considers translation of the most relevant and applicable English documents into Thai to be essential in making information available. In 1987, IRC funded translation of three of its publications. Translation of "Training Skills for Supervisors" had been completed and two other titles have been proposed for approval by the editorial committee of the Provincial Waterworks Authority.

Work by the Mahidol University on a bibliography on rural water supply and sanitation in Thailand continued in 1987, under a co-funding arrangement between UNDP and IRC. This project has been developed jointly by the Library and Regional Documentation Centre (LRDC) of the Asian Institute of Technology and Mahidol University. All documents in Thai are being examined by the Mahidol University and the entire bibliography will be published in Thai by the University. The LRDC will deal with all documentation in English and will publish the bibliography in that language.

## **Sri Lanka**

As a result of earlier information exchange proposal development, to which IRC contributed, the Water Supply and Sanitation Documentation Centre started in 1987. The IDRC provides external funding for this three-year WASSDOC project, and the National Water Supply and Drainage Board provides counterpart funding. First equipment including IBM compatible PC hardware and Micro CD/ISIS software for the project arrived. The project staff will receive training in documentation work and library automation at AIT in Bangkok.

The WASSDOC centre works in co-ordination with a network of government departments, information centres and NGO's working in the water and sanitation field. In November the quarterly newsletter "Links" published (also in Sinhalese and Tamil)

by the NGO Water and Sanitation Decade Service, carried the first of the regular contributions from WASSDOC.

A start was made with expansion of the WASSDOC documents collection by exchanging selective microfiche holdings with ENSIC in Bangkok and IRC. Information services of the WASSDOC centre will include quarterly bibliographies on new acquisitions, retrospective database searching and selective dissemination of information.

The NWSDB in Sri Lanka also attaches great value to translation of English publications into Sinhalese and Tamil, which are relevant to the Sri Lanka water supply and sanitation situation. At the end of the year and with IRC funding, the selected translated titles from the US AID "Water for the World" material and from the IRC publication series were printing.

### **Indonesia**

The Indonesian Government has requested IDRC to support its efforts to establish a national water and sanitation documentation and information network. This project was initiated by and guided during formulation by IRC. It will be implemented in the period 1988-1990, with IDRC funding.

The executing agency, Cipta Karya, also requested IRC to assist in preparing six case studies in Indonesia. The topics selected include piped supplies, slow sand filtration, low-cost sanitation and solid waste collection and disposal. The combined proposal is awaiting further formulation and foreign funding.

### **INTERNATIONAL TRAINING NETWORK FOR WATER AND WASTE MANAGEMENT**

During 1987 IRC continued work for the International Training Network (ITN) for Water and Waste Management of the World Bank/UNDP. A training module was drafted on the use and value of technical information. This will be part of the Network's series of slide-sound presentations. After external review at the end of the year, the information module, including a storyboard with the text and pictures, participants and instructors notes, was being finalized in consultation with the ITN staff. International Training Network newsletter supplements were included and distributed in three IRC Newsletters during 1987.

In November a draft follow-up proposal for IRC contributions to network activities in

1988 was submitted to the World Bank to be used as a basis for detailing of further activities. These include strengthening of technical information components in network centres particularly in Indonesia; provision of packages of selected documents for these centres; regular supplements for the IRC newsletter; producing copies of the finalized information module; and guidelines on setting up primary information services within district level institutions.

### **NETHERLANDS WATER NETWORK**

Following the European "Solidarité Eau" initiative to link water projects in developing countries requiring funding with local authority fundraising in Europe, the Netherlands Ministry of Housing Physical Planning and Environment sponsored the development of the Netherlands Water Network. In 1987 a steering committee, to which IRC is observer, of voluntary agencies concerned was set up, with a small secretariat to test the viability of the network in a pilot phase. In the Netherlands situation provision of funds by local communities is combined with awareness raising action in these communities. In December 1987 the steering committee decided to increase awareness of the network.

### **LIST OF BASIC PUBLICATIONS**

In the framework of the UNDP Interregional Project for the Decade (INT/86/002/A/01/14) and at the request of WHO, IRC prepared a list of basic publications on community water supply and sanitation, a selected bibliography, and a glossary of expressions. With additional funding from UNDP, 5000 copies were printed. The first copies were presented at the 15th Steering Committee Meeting in Santo Domingo in November. This list of some 90 documents was designed to assist both general and specialist staff working in the sector to retrieve technical information. A glossary of commonly used expressions was included to facilitate communication between staff of widely varying professional and cultural backgrounds involved in the Decade. At the end of the year arrangements were made with United Nations agencies participating in the Steering Committee for bulk distribution to their field offices. Ways were being explored for organizing ordering of documents from the reference list.

### **INTERWATER THESAURUS**

By the end of the year, computer processing of the new Interwater Thesaurus had been completed. The Thesaurus is in English, French and Spanish with an alphabetical lists of 1752 descriptors in all three languages. A controlled and structured vocabulary

is provided for use in indexing, storage and retrieval of information on nine subject categories in water supply and sanitation. IRC has received financial support for this work from IDRC.

Information specialists from five institutes collaborating with IRC have contributed to the development of the thesaurus. These agencies are: Pan-American Centre for Sanitary Engineering and Environmental Science (CEPIS), Peru; Association Française pour l'Etude des Eaux (AFEE), France; Water Research Centre (WRC), UK; Comité Inter Africain d'Etudes Hydraulique, Burkina Faso; and the Environmental Sanitation Information Centre (ENSIC) at the Asian Institute of Technology (AIT), Thailand. At the end of the year, CEHA, WHO Eastern Mediterranean Regional office in Amman had decided to have the thesaurus translated into Arabic. Through CEPIS, contacts had been made to translate the document into Portuguese. The thesaurus working group recommended future adaptation by IRC of the thesaurus on the basis of suggestions from users.

### **DIRECTORY OF SOURCES**

By the end of the year, about 80% of the descriptors for the planned "Interwater Glossary of Terms" had been defined, and a number of revisions and additions made to the "Interwater Directory of Sources of Information and Documentation on Community Water Supply and Sanitation". The second revised edition with over 250 information suppliers was published in 1986, and information is received regularly for inclusion in updated editions. At the technical workshop for INFO-IMPACT, in June, recommendations made to improve the next edition, included: a list of acronyms of participating organizations, distinction between national and regional institutions, indication of the costs of information services, and availability of automated data bases. The Peace Corps ordered 400 copies (in bulk) for all their field offices, thus justifying an extra print run.

### **DOCUMENTATION SERVICES**

The documentation unit handled almost 250 requests for information from many sources, the largest number coming from consultants and university students. The highest number of inquiries were on software issues, such as hygiene education, training, community involvement, women's participation, evaluation, and financial management. Almost 30 requests were on technology issues including water treatment and wells and hand pumps. Numerous inquiries were handled for country specific information, the country of the highest interest being Indonesia.



An informal differential pricing system for external documentation services was started in 1987. A special arrangement was made for developing country students attending courses at Tampere University, Finland, and who spent a week at IRC. Five current awareness bulletins were produced and distributed internally and also to several subscribers. A total of 327 documents, mainly unpublished, difficult to obtain, have been placed on microfiche. This facilitates information exchange with centres, having microfiche reading and printing facilities.

In all, 748 documents were added to the IRC holding, bringing the total number to 8000. During the year preparations were made to convert the data base to the new Minisis software for the HP 3000 minicomputer, and 3500 of the most recent records have been transferred. Monthly printouts are made for IRC professional staff on the basis of their interest profiles. During the year documentation staff carried out 31 on-line searches in external data bases.

The documentation unit has been receiving an increasing number of slide/sound and video presentations. They include the training modules of the International Training Network for Water and Waste Management of the World Bank, and the prototype of the training modules "Women, Water Supply and Sanitation", produced jointly by the UN International Research and Training Institute for the Advancement of Women (INSTRAW) and the International Labour Organization (ILO).

#### **PUBLICATION MANAGEMENT**

1987 was a top year for publication distribution, 5246 copies were sent to over 1000 clients. Sales exceeded Dfl 70 000 (approximately US\$ 38 000). Europe, USA and Canada purchased more than 3500 copies, at least half being redistributed to developing countries through the US Peace Corps, WHO, and books-by-post operations of appropriate technology groups. There was a large increase in sales of French titles in Europe as result of the promotion and distribution contract with the French distributor who also serves francophone countries in Africa. Similar contracts were prepared with distributors in Canada, Singapore and East Africa.

The two new publications in the Technical Paper Series were among the top selling titles: "Renewable Energy Sources for Rural Water Supply" and "Slow Sand Filtration for Community Water Supply". The best seller in 1987, however, was the "Directory of Sources of Information and Documentation on Community Water Supply". "Small Community Water Supplies in Developing Countries" (no. 18 in the TP Series) continued to sell well in paperback from IRC (English and French) and in hardcover from John Wiley and Sons.

In the Occasional Paper Series, "Making the Links: guidelines for hygiene education in community water supply and sanitation", was by far the most popular. Considerable interest was also shown in "Maintenance Systems Development" and "What Price Water?", two new books in the series this year.



*Participants of the INFO - IMPACT meeting held at the Netherlands Ministry of Foreign Affairs, The Hague.*

## 8. External Relations

The nature of IRC's work, generation and transfer of knowledge and information, demands close collaboration with many organizations and individuals in both developing and industrialized countries. They may be a source of specific information, generator or consolidator of knowledge, or user of information. They may also support IRC's activities and the outcome of its work. External relations are therefore vital to IRC and developing of new contacts and maintaining old contacts received due attention throughout the year. Important events in 1987 which contributed to these contacts included:

- two international meetings organized by IRC on Technical Information Exchange in June and September (see chapter 7);
- a working visit by the Netherlands Minister of Housing, Physical Planning and Environment in April and more than 350 visitors to IRC throughout the year;
- IRC presence at important Decade meetings (Interlaken Consultation and the meeting of the Steering Committee for Co-operative Action for the Decade)).

Several visits to developing countries in the context of ongoing programmes, and to various international agencies and institutions on a variety of specific topics, also played a role in this respect. As part of wide spread special information exchange but with an added public relations role, the IRC Newsletter reached over 5000 readers, and IRC staff presented ten papers on various issues. A categorized address system has been designed so that specific information services can be undertaken for selected target groups.

### **VISIT OF NETHERLANDS MINISTER OF HOUSING, PHYSICAL PLANNING AND ENVIRONMENT**

In April the newly appointed Minister of Housing, Physical Planning and Environment, Mr Ed Nijpels, together with staff of the Ministry, paid a working visit to IRC. The Minister took a keen interest in IRC's work on key issues in drinking water supply and sanitation as well as its potential role as information centre on environmental issues related to water.

The slide sound presentation used for the Minister's visit "Water: a basic need" was later put on video for use in introductory programmes. A new brochure entitled "IRC: a profile", was produced as general introduction to IRC's work.

## DECADE MEETINGS

Co-operation with the United Nations agencies participating in the Steering Committee for Co-operative Action for the Decade was intensified throughout the year. The Framework for Technical Information Exchange was developed on behalf of and in consultation with the Steering Committee (see Chapter 7). IRC was invited to participate in the 15<sup>th</sup> meeting in Santo Domingo in November to report on this development. The proposal that agencies incorporate technical information exchange in their programmes and arrange for the required funding, was endorsed by the meeting.

Closer linkage and co-operation was also established with other external support agencies, not only in technical information exchange, but also on community participation, women's involvement, maintenance, and hygiene education. IRC also participated as observer to the Donor Consultation Meeting in Interlaken, Switzerland, in October. At this meeting the major donor agencies and United Nations agencies set the scene for accelerated progress in community water supply and sanitation in the Decade and for a Decade Plus programme of co-operative actions for organizations active in the sector after 1990.

## NEWSLETTER

In 1987 the IRC newsletter continued to be an important means of information exchange. The newsletter in English and French reaches a wide audience of approximately 5000. More than 50% of readers live in developing countries. Information is given on technical developments, software issues, news from organizations, announcements of new publications, and conferences and courses.

Seven newsletters were distributed in 1987. Recognizing the need for wider dissemination of information on hand pumps, IRC devoted one issue to "The Hand Pump Option", the World Bank publication, produced in 1987. A supplement of news from the World Bank International Training Network for Water and Waste Management was included in three issues. These supplements in the IRC newsletter will continue in 1988.

A contract was signed in 1987 with the Ministry of Housing, Physical Planning and Environment for similar one-page supplements on renewable energy sources for water supply. Two agencies, IT Power in the United Kingdom and CWD, Consultancy Wind

Services in Developing Countries in the Netherlands, have submitted contributions for inclusion in the Newsletter in 1988.

### **CATEGORIZED ADDRESS SYSTEM**

IRC's address system was transferred to the Minisis software on a HP minicomputer. Provision was made for the addition of project, subject and organization categories to each address. This will allow more selective searches to be made and print outs for mailing and marketing purposes.

### **IRC WORKSHOPS**

In the context of the demonstration projects, five workshops were held in developing countries with IRC support in 1987:

- a three-day workshop on Slow Sand Filter Design and Construction, organized jointly by the National Environmental Engineering Research Institute (NEERI) and IRC, in New Delhi, India in January;
- a two-day seminar and workshop on Public Standpost Water Supplies in Indonesia, organized by the Institute of Human Settlements in Bandung, Indonesia, in January;
- a three-day workshop on training of Slow Sand Filtration Plant Caretakers, organized jointly by CENTRA, the Centro Regional de Desarrollo de Recursos Humanos para la Salud del sur-occidente Colombiano, and the Co-ordination group on Slow Sand Filtration technology at Valle University, in Cali, Colombia, in June;
- a five-day training seminar for project field assistants in the Public Standpost Water Supply project, organized by the Malawi Project Manager with support of the District Community Development Office, in Salina, Malawi, in July;
- a workshop of the co-ordination group on technology for Slow Sand Filtration at Valle University, Cali, Colombia, in August.

Two international meetings for INFO-IMPACT, Technical Information Exchange, were organized by IRC in The Hague, the Netherlands: a three-day technical meeting in June and a four-day working meeting in September (see Chapter 7).

### **INTERNATIONAL MEETINGS**

IRC was invited to contribute to a number of international meetings during the year including:

- Seminar for International Training Network on Water and Waste Management co-organized by WHO/CWS and World Bank, in Geneva, Switzerland in April;
- Handpump Research and Development meeting, Harpenden, UK, organized by the

- Association for Consumer Research in collaboration with the World Bank Handpump Project, in April;
- International Conference on Resource Mobilization for Drinking Water Supply and Sanitation in Developing Nations, organized by the American Society of Civil Engineers, in Puerto Rico, in May;
  - 19<sup>th</sup> Session ESCAP Interagency Task Force on Water for Asia and the Pacific, Bangkok, Thailand, in May;
  - 14<sup>th</sup> International Health Conference of the National Council for International Health topic: "Influencing health behaviour: communication and marketing" in Washington DC, USA, in June;
  - Forum Equipping Poor Farmers, organized by the Intermediate Technology Development Group (ITDG) in Rugby, UK, in June;
  - Third annual seminar, Water Health and Development - the Soft Side, organized by Norconsult in Oslo, Norway, in August;
  - International seminar on Simple Water Treatment, organized by ACODAL in Colombia, in August;
  - Second Informal Consultation on Institutional Development: cost recovery in community water supply, organized by WHO, in Geneva, Switzerland, in October;
  - Promotion of autonomous development, organized by the Netherlands Directorate General for International Co-operation and co-funding agencies, in Noordwijkerhout the Netherlands, in October;
  - Task Force on Women in the International Drinking Water Supply and Sanitation Decade, held in conjunction with the Steering Committee Meeting in Santo Domingo, in November;
  - Consultation on Sanitation and Drinking Water Supply and on Assessment of the IDWSSD in Europe, organized by WHO Regional Office for Europe in Nancy, France, in November;
  - Workshop on Export of Renewable Energy: introduction of renewable energy in developing countries, organized by the Organization for Renewable Energy and University of Twente, in Enschede, the Netherlands, in November;
  - Afro-Asian Conference on Integrated Water Management in Urban Areas, organized by the Indian Water Works Association, in Bombay, India in December;
  - Advisory Group Meeting on Information Exchange on Water Supply and Sanitation, organized by the Center for Environmental Health Activities of the WHO Regional Office for the Eastern Mediterranean, in Jordan, in December.

## **OTHER PUBLIC RELATIONS ACTIVITIES**

IRC publications were displayed on a number of occasions during 1987:

- African Water Technology Conference, in Nairobi, Kenya, in February;
- Symposium Extension Work, Rural Development and Women in Amsterdam, the Netherlands, in September;
- Meeting on the Netherlands Union for Women, in the Netherlands, in September;
- Frankfurt Bookfair in Frankfurt, Federal Republic of Germany, in October;
- Information Market at the International Agricultural Centre, Wageningen, the Netherlands, in November.

In June 1987, a presentation entitled "Nomination of the Multi-Country Public Standpost Water Supplies Project 1983-1986" was submitted for the Netherlands Award on Environment and Development 1987. Press statements made at the time of the INFO-IMPACT meetings were featured in numerous international and national periodicals. Two leading Netherlands journals on development co-operation published full page articles on the outcome of the September working meeting.

## **PAPERS PRESENTED BY IRC STAFF**

During 1987, IRC staff presented papers to international meetings and seminars as well as publishing articles in a number of professional journals.

- Community Participation in Water Supply and Sanitation, presented by Christine van Wijk-Sijbesma to the course, "Development Co-operation, policy and implementation", for the Netherlands Directorate General for International Co-operation on, 19 January 1987;
- Involvement of Women in Urban Development, presented by Christine van Wijk-Sijbesma to the International course at the Institute of Housing Studies, in Rotterdam, the Netherlands, on 16 February 1987;
- Development of Water supply and Sanitation Institutions - moderatorship in track area Human Resources, by Hans van Damme to the International Conference on Resource Mobilization for Drinking Water Supply and Sanitation in Developing Nations, San Juan, Puerto Rico, 26-29 May 1987;
- Why community participation? Keynote address by Christine van Wijk-Sijbesma to the third annual seminar Water: Health and Development - the Soft Side, organized by Norconsult, Oslo, Norway, 3 August 1987;
- Cost recovery through community financing and management systems, presented by Christine van Wijk-Sijbesma at the Second International Consultation on Institution

- Development: Cost Recovery in Community Water Supply and Sanitation, Geneva, Switzerland, 5-9 October;
- The development of the multi-lingual information thesaurus, background paper presented by Toon A. van Dam for Minisis User-group meeting, Mexico City, Mexico, 19-23 October;
  - Revenue generation for water supply to low-income urban areas: a need for innovation, presented by Michael Seager to the Afro-Asian Conference on Integrated Water Management in Urban Areas, Bombay, India, 3-6 December;
  - Framework for Technical Information Exchange, presented by Hans van Damme to the Advisory group meeting on Information Exchange in Water Supply and Sanitation, Amman, Jordan, 7-10 December.

#### ARTICLES BY IRC STAFF

- H. Dietvorst, The application of Mikro Polydoc in IRC, in: the Application of Mikro Computers in Information, Documentation and Libraries. Elsevier Science Publishers, North-Holland, 1987.
- E.H. Hofkes, J.T. Visscher, and A. van Dam, Application of artificial groundwater recharge for rural water supply. in World Water 1986, Thomas Telford Ltd London 1987.
- Christine van Wijk-Sijbesma, Drinking water and Sanitation: women can do much in World Health Forum, 8,1.
- Christine van Wijk-Sijbesma, and J.T. Visscher, Handpump projects: avoiding neglect, in World Water, May, 1987.
- Dick de Jong, Kennisoverdracht draagt bij tot betere drinkwatervoorziening (Knowledge exchange contributes to improved drinking water supply). in Internationale Samenwerking, November 1987.
- J.M.G. van Damme, Planning Water and Sanitation systems in drought-prone areas, in Water Supply, 5, 1987.



## 9. Management and Organization

### GOVERNING BOARD

The international Governing Board met twice in 1987, in April and October. The April meeting reviewed the annual programme and discussed various projects vis-a-vis activities of partner organizations. Broadening the scope of IRC's activities to include environmental issues was considered and agreed to in principle. The meeting also noted with satisfaction IRC initiatives on information exchange, following the recommendations of the Steering Committee for Co-operative Action for the Decade in September 1986.

The October meeting discussed the outcome of the Consultation at Interlaken, and the implications for IRC's programme. The Framework for Technical Information Exchange developed during the two information meetings held in 1987, was considered together with the input to the forthcoming meeting of the Decade Steering Committee. The Indicative Medium-Term Plan 1988-1990 and the Indicative Annual Plan and Budget for 1988 were reviewed and approved.

During the year there were a number of changes in the Governing Board. The secretary, Mr. J. Haykens, resigned from the Board. Mr. A.H. Rotival, UNDP/WHO Co-ordinator for the Decade, who is based at WHO, Geneva, replaced Dr. P.D. Lowes. Mr. M.A. Acheson, Manager of the Community Water Supply and Sanitation Unit, WHO, replaced Mr. O.A. Sperandio as observer (see Appendix I).

### MANAGEMENT TEAM

The Management Team comprises the Director, two Senior Programme Officers, for Knowledge Generation and Transfer, and for Information Exchange, and the Administrator. This year recruitment of both professional and support staff was an important item on the agenda. Initiatives were taken to improve the reporting system as part of the overall planning process. Decisions were made on 15 new projects and on the development of an IRC training series. As the basis for the proposed emphasis on general and public information as well as technical information exchange, the management team prepared plans for an internal re-organization.

## **BUDGET**

IRC operates with a core budget from the Netherlands Government, supplemented with extra budgetary resources from various sources for specific programme activities and by a modest amount from sale of publications and services. The generation of the extra budgetary resources, as well as knowledge base development, documentation acquisition and general management are defrayed from the core budget.

In 1987 the core budget was approximately US\$ 950 000 (Dfl 1.9 million). The additional programme budget in 1987 amounted to approximately US\$ 850 000 (Dfl 1.7 million), of which 33% was financed through international channels and 67% through Dutch funding for various projects. With the positive developments in recent years, IRC can be considered to be in a sound financial position.

## **PERSONNEL**

IRC has a total staff of 30, who are employed from core budget funding as well as extra budgetary project resources (see Appendix II). During the year there were several staff changes, James G. Wilson, Programme Officer, assigned particularly to work on sanitation, joined IRC in August, and Jo E.M. Smet, Project Research Officer, working on technology issues joined the staff in March. Lizette Burgers, who has been a consultant to IRC was appointed to a staff position. Dr. Barry Karlin left the staff after a 18-months consultancy. Following the initiatives in information exchange (INFO-IMPACT), it was decided to recruit additional staff in that area. Advertisements were placed in several newspapers and international periodicals. Courses in automation and various languages were followed by staff members in 1987.

## **AUTOMATION**

The most important development in automation during 1987 was the installation of the Hewlet Packard 3000 mini computer, with the Minisis software package, specially designed for documentation retrieval. Most of the inevitable transition problems in introducing a new system had been resolved at the end of the year. The address system was the first to be converted to the new computer and by the end of the year was almost fully operational. Work on transferring the documentation holding continued throughout the year.

A personal computer was installed for desktop publishing and automation of time registration. To improve administrative efficiency, use of personal computers by administrative staff is being investigated.

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*Community-based maintenance of piped supplies: latrines require regular upkeep.*

## 10. Programme Plan 1988

IRC will celebrate its 20th anniversary in 1988. With the endorsement of the Framework for Technical Information Exchange by the Decade Steering Committee, IRC will place emphasis on follow-up activities in its 1988 programme plan. Together with those countries which prepared plans for more effective technical information exchange, IRC will support realization of the framework for country specific as well as global action. IRC will also contribute to the Decade Plus programme, for which the Interlaken Donor Consultation set out the course in late 1987.

In 1988 the three-year development and demonstration projects in Piped Supplies for Small Communities will start in Malawi and Zambia. These projects will be developed by national staff working through country-level institutions. Building on the experience of the Public Standpost Water Supplies project, demonstration villages will be selected and the community involved in each project stage. Proposals for additional funds will be worked out with other interested countries and donors. The work plan for 1988 also includes development of knowledge on incremental service levels, and enhancement of existing systems.

The final phase of the IRC development and demonstration project in slow sand filtration is due for completion in July 1988. Activities will include fieldtesting of the caretakers manual and trainer's guide, study of design and promotion of further application of this technique in developing countries. In India, research on slow sand filtration will be combined with research on pre-treatment. This issue will also be taken up in the follow-up research programme in Colombia. The work plan for 1988 includes construction of test plants, laboratory and on-site experiments with underdrains, monitoring of existing dynamic filters and planned horizontal roughing filters.

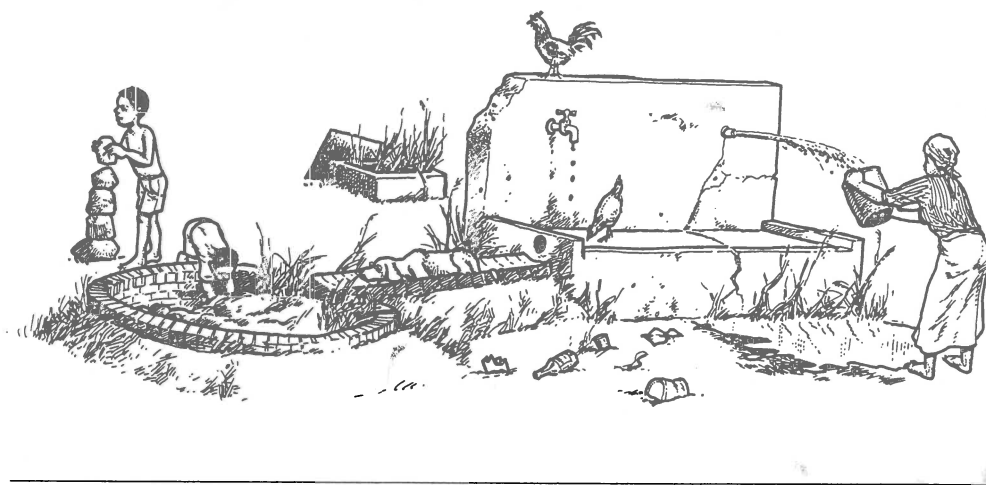
IRC will advise and monitor input in water supply and sanitation programmes supported by the Netherlands Government in Sudan, India and Yemen Arab Republic. Other bilateral and international donor agencies will also benefit from IRC's advisory services. A list of selected readings will be developed, as well as a practical evaluation methodology and a discussion note on monitoring.

Training and education activities, including seminars and symposia will be gradually increased in 1988. Planned activities include assisting UNICEF with evaluation courses at regional level, training and preparatory programmes for field staff to be held at IRC offices, training of slow sand filtration caretakers in francophone countries, and training in community participation for consultants and programme planners.

In the generation and transfer of knowledge and information exchange area emphasis will be given to publication of project findings. On the basis of work done in 1987, it is planned to add six new titles to the IRC publication series. A number of technical papers are planned to be translated into Spanish in collaboration with CEPIS, Peru, and the University of Valle, Colombia. Based on requests from the field, translation of other publications into local languages will be promoted.

Knowledge base development is the core of all IRC activities. In 1988 the IRC knowledge base on community participation and women involvement in water supply and sanitation, will continue to be updated. In particular, attention will be given to community-based financial management, development of maintenance systems, evaluation, hygiene education and sanitation. Environmental issues related to water are planned to be added later in 1988. Areas to extend information on hand pumps will be explored.

Ten issues of the IRC newsletter in English and six issues in French are planned for 1988. Supplements from the International Training Network of World Bank/UNDP, and special interest features, such as renewable energy sources for water supply, will be included in seven newsletters.



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*Community-based maintenance of piped supplies: when everything goes wrong...*

## APPENDICES

### I. Governing Board

- |  |   |
|--|---|
| Mr. H. Scheltema<br>(Chairman)                       | Former Ambassador   |
| Mr. J. Haijkens<br>(Secretary)<br>(until April 1987) | Head, Water Supply Planning<br>Department,<br>Directorate General for Environmental Protection,<br>Netherlands Ministry of Housing,<br>Physical Planning and Environment.               |
| Mr. W.J. Kakebeeke<br>(Treasurer)                    | Head, International Environmental<br>Affairs Department,<br>Directorate General for Environmental Protection,<br>Netherlands Ministry of Housing,<br>Physical Planning and Environment. |
| Mr. G. Ringnalda                                     | Chief, International Organizations Department,<br>Directorate General for International Co-operation,<br>Netherlands Ministry of Foreign Affairs.                                       |
| Dr. R.C. Harkema                                     | Chief, Sector Programmes<br>Co-ordination and Technical Advice Department<br>Directorate General for International Co-operation,<br>Netherlands Ministry of Foreign Affairs.            |
| Dr. M.G. Beyer                                       | Senior Policy Specialist,<br>Water and Environmental Sanitation Team,<br>United Nations Children's Fund.  |
| Mr. A.H. Rotival                                     | UNDP/WHO Co-ordinator for the Water and Sanitation<br>Decade, United Nations Development Programme.   |

**Mr. C. Carnemark**

**Chief, Infrastructure Strategy, Management and Assessment  
Division,  
The World Bank.**

**Mr. M.A. Acheson  
(observer)**

**Manager, Community Water Supply and Sanitation Unit,  
Division of Environmental Health,  
World Health Organization.**

## II. IRC Staff in 1987

### DIRECTOR

- \* Hans M.G. van Damme

### KNOWLEDGE GENERATION AND TRANSFER

- |                                       |   |
|---------------------------------------|---|
| * Jan Teun Visscher                   | Senior Programme Officer<br>Knowledge Generation and Transfer   |
| Teun F. Bastemeijer                   | Project Research Officer<br>Training and Maintenance Development                                      |
| Ms. Marieke T. Boot                   | Project Research Officer<br>Evaluation, Hygiene Education   |
| Ms. Lizette A.M. Burgers              | Support Officer<br>Hygiene Education  |
| Ebbo H.A. Hofkes<br>(until July 1987) | Programme Officer<br>Water Supply Technology  |
| Dr. Barry Karlin                      | Consultant<br>Hygiene Education   |
| Michael Seager                        | Programme Officer<br>Piped Supplies for Small Communities and<br>Community Based Financial Management |
| Jo E.M. Smet<br>(from March 1987)     | Project Research Officer<br>Technology  |
| Ms. Christine van Wijk-<br>Sijbesma   | Project Research Officer<br>Community Education and Participation and Roles<br>of Women               |

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- \* Members of Management Team



James G. Wilson  
(from August 1987)

Programme Officer  
Sanitation

### INFORMATION EXCHANGE

- |   |  |
|---|--|
| * Toon A. van Dam                         | Senior Programme Officer<br>Information Exchange |
| Dick de Jong                              | Information Officer                              |
| Ms. Bettie E. Westerhof                   | Senior Documentalist                             |
| Cor H. Dietvorst                          | Documentalist                                    |
| David Moreno<br>(from December 1987)      | Assistant Documentalist                          |
| Ms. Antoinette A.M. Oosterveer            | Information Assistant                            |
| Ms. Inge Stargardt<br>(until August 1987) | Documentation Assistant                          |
| Eric van Veen                             | Documentalist                                    |
| Ms. Lia Wahab                             | Publication Assistant                            |

### ADMINISTRATION AND FINANCE

- |                         |                      |
|-------------------------|----------------------|
| * Krijn M. Peterse      | Administrator        |
| Michel Lugtmeijer       | Financial Officer    |
| Ms. Nicolette Wildeboer | Management Assistant |
| Ms. Hilda W. de Vries   | Staff Assistant      |

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\* Member of Management Team

Ms. Janine Bauer (until August 1987)	Programme Assistant
Ms. Anneke Groenendal	Programme Assistant
Ms. Brigitte M. Guillalet (from November 1987)	Programme Assistant
Ms. Karin de Korte	Programme Assistant
Ms. Christine Barden (until September 1987)	Word Processing
Ms. Carmen Sloot (from December 1987)	Word Processing
Ms. Lauren Wolvers	Word Processing
Ms. H. Cusell - Schaap (from August 1987)	Bookkeeper
Hein Bodrij (until March 1987)	Bookkeeper
Ms. Izabel Wimmers	Receptionist
Michel van der Leest	Office Assistant

N.B. Mr. T.K. Tjiok, until 1986 Programme Officer at IRC (Water Quality and Treatment), was nominated as Adviser.

### III. IRC's Organization and Strategy

In 1981, coinciding with the beginning of the Decade, IRC became an independent non-profit making organization. This allowed for impartial and effective expenditure on projects. The international character of IRC is reflected not only in its mandate, staff and working relationships, but particularly in its Governing Board. This comprises representatives of international agencies, WHO, the World Bank, UNDP and UNICEF and of the two sponsoring Netherlands ministries, the Ministry of Housing, Physical Planning and Environment, and the Ministry of Foreign Affairs (Directorate General International Co-operation). The members of the Governing Board are listed in Appendix I. IRC acts as Collaborating Centre for Community Water Supply and Sanitation for WHO.

IRC's overall strategy to achieve its objective is the generation and transfer of knowledge and information. In this context, these include knowledge and experience; technology and methodology and public information. Knowledge is transferred to the target groups through four main transfer mechanisms, which are listed here in order of increasing impact, but decreasing geographic coverage:

- \* publications
- \* training and education
- \* evaluation and advice
- \* development and demonstration.

Closely related to these mechanisms is knowledge base development (knowledge generation). IRC also has a more general role in providing technical information exchange which includes general information dissemination, documentation services, and support to information activities in developing countries. Projects, which in principle require external funding IRC's are developed directly and indirectly in consultation with target groups and their support agencies. An overriding consideration in IRC's multidisciplinary work is the integration of various technical and non-technical aspects. 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. IRC works closely together with UNDP, UNICEF, WHO and the World Bank. It also co-operates with other UN agencies, financial donors and non-governmental organizations.

## IV. List of Available Publications

### TECHNICAL PAPER SERIES

- . Participation and education in community water supply and sanitation programmes: a literature review. (TP 12\*\*) 2<sup>nd</sup> revised edition, 1981.
- . Public standpost water supplies. (TP 13\*\*) 1979.
- . Public standpost water supplies: a design 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.
- . Participation of women in water supply and sanitation, roles and realities (TP 22) 1985.
- . Renewable energy sources for rural water supply. (TP 23) 1987.
- . Slow sand filtration for community water supply (TP 24) 1987.

\*) Also available in French.

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

### BULLETIN SERIES

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- . Manual for caretakers of slow sand filtration. (TS 1) 1985.
- . Evaluating water supply and sanitation projects, course modules and guide for course moderators. (TS 2) 1987.
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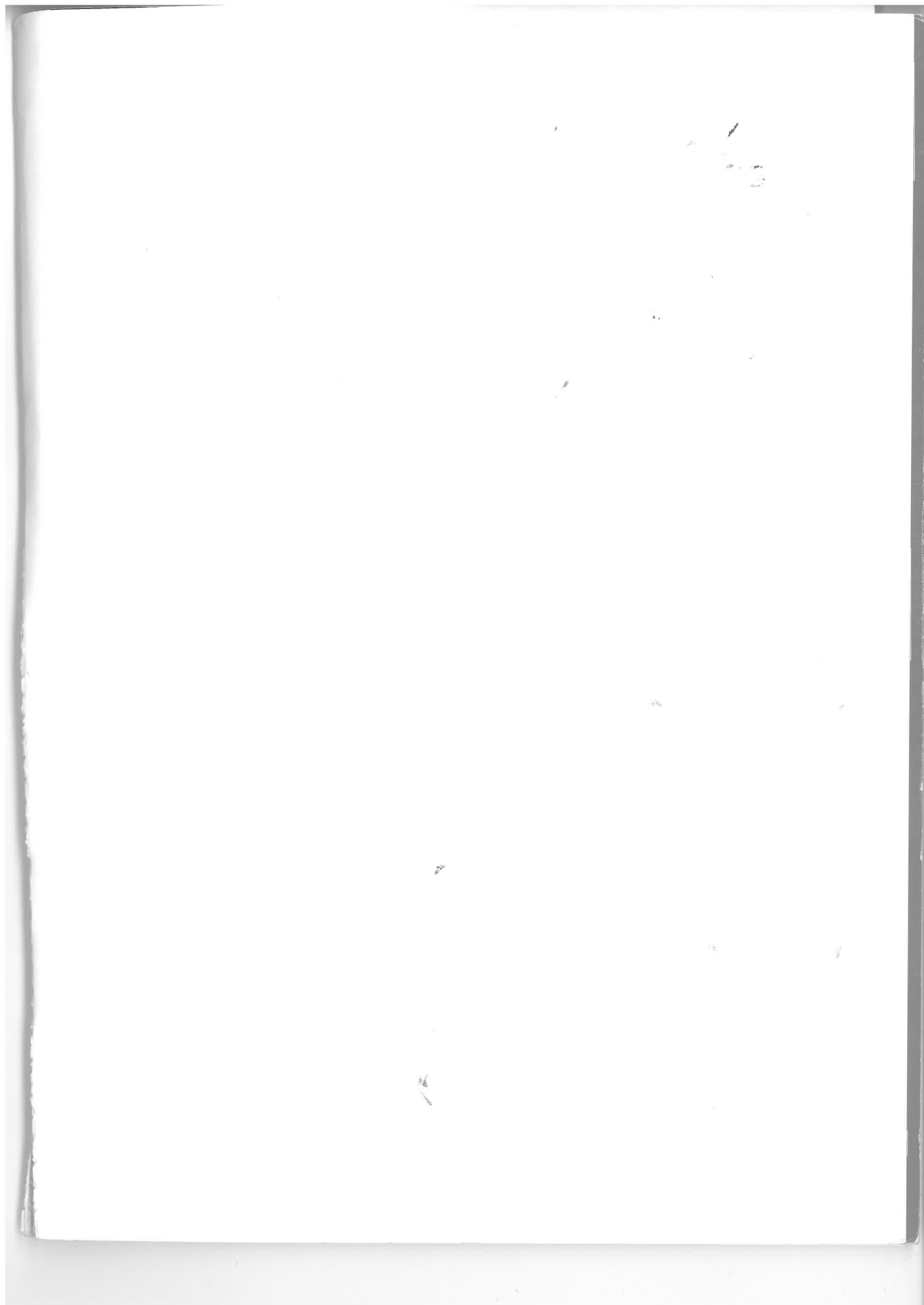
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## APPENDIX IV

### Country/ Project MATRIX

This matrix contains a list of countries in which specific projects are undertaken, in addition to general information exchange in more than 100 countries.

Activities Countries	Slow Sand Filtration	Piped Supplies	Advice/Evaluation	Training	Technical Information Projects
<b>AFRICA</b>					
Burkina Faso (Regional)					*
Kenya			*		
Malawi		*			
Mali			*		
Sudan			*		
Tanzania			*	*	
Zambia			*	*	
Zimbabwe		*			
<b>ASIA</b>					
India	*		*		
Indonesia		*		*	*
Kampuchea			*		*
Malaysia (Regional)					*
Nepal			*		
Sri Lanka		*			*
Thailand	*				*
<b>EASTERN MEDITERRANEAN</b>					
Egypt			*		
Jordan (Regional)			*		*
Yemen Arab Republic			*		
<b>LATIN AMERICA</b>					
Colombia	*				





Photographs: IRC

Drawings: IRC/Kors de Waard; from the forthcoming publication  
"Community-based Maintenance of Piped Supplies."

