



IRC
International Water and
Sanitation Centre

WHO Collaborating Centre

The Hague, The Netherlands

ANNUAL REPORT 1989

IRC INTERNATIONAL WATER AND SANITATION CENTRE

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 the latter it acts as a Collaborating Centre for Community Water Supply and Sanitation.

The centre aims to ensure the availability and use of appropriate knowledge and information in the water, sanitation and environment sector in developing countries.

Activities include capacity development for information management, exchange of available knowledge and information, and development and transfer of new knowledge on priority issues. All activities take place in partnership with organizations in developing countries, United Nations organizations, bilateral donors, development banks, and non-governmental organizations.

Emphasis in programme activities is on community-based approaches including rural and low-income urban water supply and sanitation systems, community participation and hygiene education, the roles of women, maintenance systems, rehabilitation and environmental management.

The multi-disciplinary staff provides support through development and demonstration projects, training and education, publications, documentation services, general information dissemination as well as through advisory services and evaluation.

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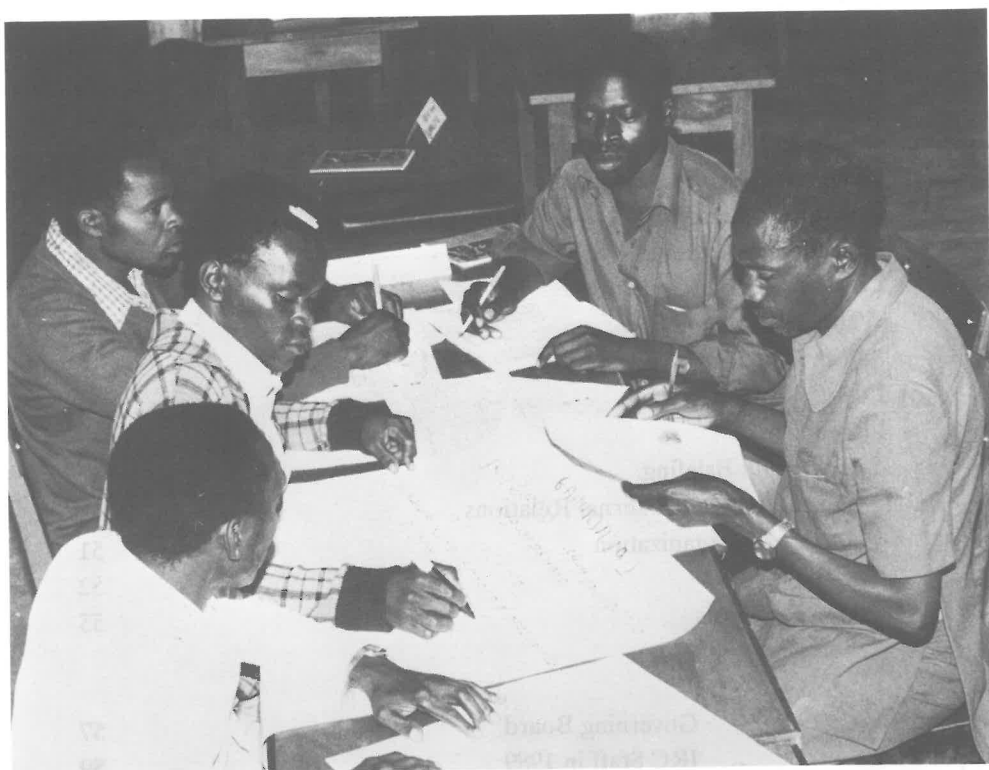
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IRC

INTERNATIONAL WATER AND SANITATION CENTRE

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Investment of knowledge in people is one of the key factors to the development of sustainable water supply and sanitation in developing countries. With the right knowledge at hand these maintenance mechanics in Africa can do their job. Generation and delivery of knowledge and information was IRC's work in 1989 and will remain its contribution to the sector during the 1990s.

Introduction

With the start of the 1990s the development of water and sanitation facilities and a safe environment for people in the developing countries entered a new phase. Worldwide environmental concerns, the growth of the world population, and the increasing problems in urbanization in many countries call for new and innovative approaches.

In addition to these challenges, the past has left us with continuing problems in water supply and sanitation. Although during the International Drinking Water Supply and Sanitation Decade (1981-1990) millions of people received their water from a safe supply and acquired decent sanitation facilities for the first time, many more millions of other people go on living under miserable circumstances without these services. As a result, every five seconds mothers around the world see one of their children die.

The Decade has been particularly successful in that it has brought us valuable experiences which are ready to be applied widely and built upon. In addition to experiences of a more operational nature, one of these is that stronger emphasis than before must be placed on activities in the countries themselves. External Support Agencies (ESAs) should find it their role to support these activities whenever needed and possible. In relation to this, increased co-operation between the many partners at country level is seen as an urgent requirement.

Efficient use of resources and effectiveness of water and sanitation programmes and projects, becoming of increasing importance to successfully overcome the above mentioned pressing problems, constitute IRC's overall goal. It works towards this through an information exchange and management role. More particularly it aims to ensure the availability of appropriate knowledge and information to personnel working in the water, sanitation and environment sector in developing countries, both at policy and implementation levels, through a process of communication and application.

During the years to come the focus on environmental issues will be built up gradually and will initially concentrate on water related issues: water source protection and water resources in general, gradually to be expanded to include water pollution and domestic waste issues as well as issues in environmental health. The resulting collective focus on the water, sanitation and environmental sector in its entirety, has the added benefit of greater alignment with most regional centres and many

developing country institutions, and also follows developments in the context of the ESA Collaborative Council. In line with this, the focus on sanitation (in this context to be understood as the safe disposal of human waste) will be gradually expanded.

In order to ensure an optimum application of IRC's resources it is crucial to focus on specific issues in somewhat more detail and concentrate on others somewhat less. The selected focus may change over the years; what will remain is the emphasis on socio-cultural issues. For the medium term prime concentration will be on community-based systems. The strong concentration of the past on rural areas will be expanded to include urban areas more extensively, particularly low-income urban areas.

An essential aspect of IRC's work is its partnership with institutions in the developing countries, with regional centres, and with UN agencies and other External Support Agencies.

In the new co-operative spirit of the 1990s IRC will work hard to jointly support knowledge and information development in the developing countries.

J.M.G. van Damme
Director

1. Highlights in 1989

Partnerships with Countries

Activities in 1989 reflected the partnership approach which is essential for IRC as an information generation and communication organization for water supply, sanitation and the environment. Apart from general information exchange through newsletters and documentation services, which receive continued support from the Netherlands Ministry of Housing, Physical Planning and Environment (VROM) and the Directorate-General for International Co-operation (DGIS) of the Ministry of Foreign Affairs, IRC assisted information-related sector activities in developing countries.

In Ethiopia, Indonesia, Tanzania, and Uganda various agencies are developing information exchange activities for better project performance in the sector, and are assisted in the process by IRC.

In other countries support was provided to national organizations' innovative integrated development and demonstration projects which are developing and testing community-based implementation strategies for water supply and sanitation programmes. In **Malawi and Zambia** the entry point for these joint agency/community projects was piped water supply system development. In **Colombia** it concerned development and dissemination of information and experience on pre-treatment and slow sand filtration. In **Colombia, Tanzania and Zimbabwe** national donor project staff expressed great interest in testing out IRC's approach in which villagers are encouraged and guided by community-based workers to improve their own water supply and sanitation facilities.

In Bangladesh, India and Tanzania assistance was provided to improve the monitoring and evaluation of water supply and sanitation programmes. In **India and Thailand** a start was made with national housing institutions to review the maintenance of low-cost sanitation systems in urban areas.

*Co-operation
with ESAs*

As an effective tool for exchange and - even more important - the generation of up-to-date information on a variety of important sector topics, IRC has increasingly been requested to collaborate with multi- and bilateral donors and other External Support Agencies (ESAs) in joint project activities.

Through **DGIS** the Dutch Government continued to support the longer-term development and demonstration projects in Malawi, Zambia and Colombia. Advice, monitoring and backstopping was provided to DGIS-supported projects in Cambodia, Guinea Bissau, India, Tanzania, Vietnam and Yemen Arab Republic. **VROM** supported IRC's environment-related work in 1989, which included a study on water source protection.

For **UNICEF** and **DANIDA** (Danish International Development Agency) monitoring and evaluation work in the Bangladesh Water and Sanitation Programme was carried out. French translation of earlier produced evaluation modules and a field study on water harvesting in five African countries were among the other activities with UNICEF.

For the **UNDP/World Bank** support was provided to the International Training Network (ITN) central unit, as well as to the ITN centres in the field. Standard basic library packages were shipped to the eight ITN field centres. A similar ordering service for key water and sanitation literature was provided to UNDP Resident Representatives and through them to their government counterparts. A start was made on the first of three planned updates of the earlier joint UNDP/IRC publication on the role of women.

In co-operation with the **World Health Organization (WHO)** joint work was done on operation and maintenance as well as resource coverage. This included participation in workshops in Geneva, Malawi and the Hague.

For **DANIDA** a field study and joint publication on water harvesting was begun.

For the **Finnish International Development Agency (FINNIDA)** appraisal and evaluation work was carried out in the Hanoi Water Supply Project in Vietnam and the Rural Water Supply and Sanitation Project in the Western Development Region in Tanzania.

For the **German Agency for Technical Co-operation (GTZ)** work was done on hygiene education and on guidelines for evaluation of human resources development in the sector.

Issues

Another perspective on IRC's work can be gained by looking at the issues embraced in joint projects in 1989 :

- **sustainability**: support of integrated development and demonstration projects on piped supplies in Malawi and Zambia, and on slow sand filtration in Colombia; a joint course on the subject was given with the Management for Development Foundation (MDF) in the Netherlands;

- **resources coverage**: participation in the various international consultations on this subject organized by WHO, and in the national workshop in Malawi to introduce and field test a guideline manual on this subject;

- **monitoring and evaluation**: substantive work for various donors in Bangladesh, India, Tanzania and Yemen Arab Republic; translation of the Course Modules and the Guide for Course Moderators of "Evaluating Water Supply and Sanitation Projects" into French for UNICEF; translation into Spanish of another title in the Technical Paper series on this subject by the Pan-American Centre for Sanitary Engineering and Environmental Sciences (CEPIS) in Peru;

- **health and hygiene education**: a literature review and annotated bibliography published with DGIS co-funding; a contribution to a working group established by GTZ;

Country support in 1989

KEY:

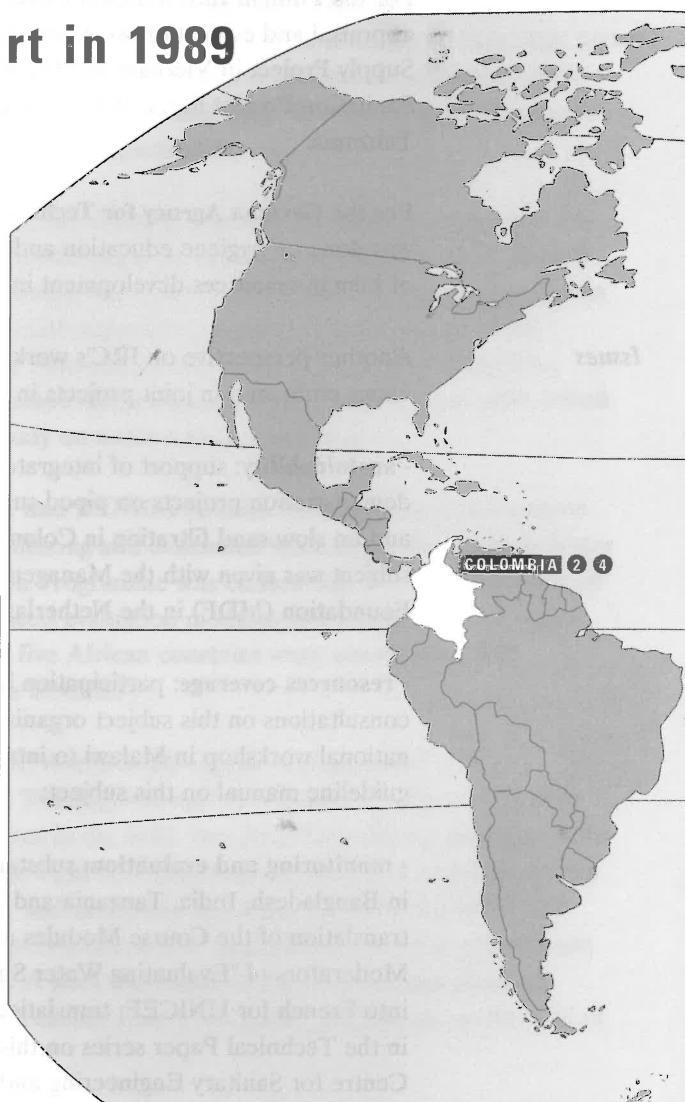
① Technical information support

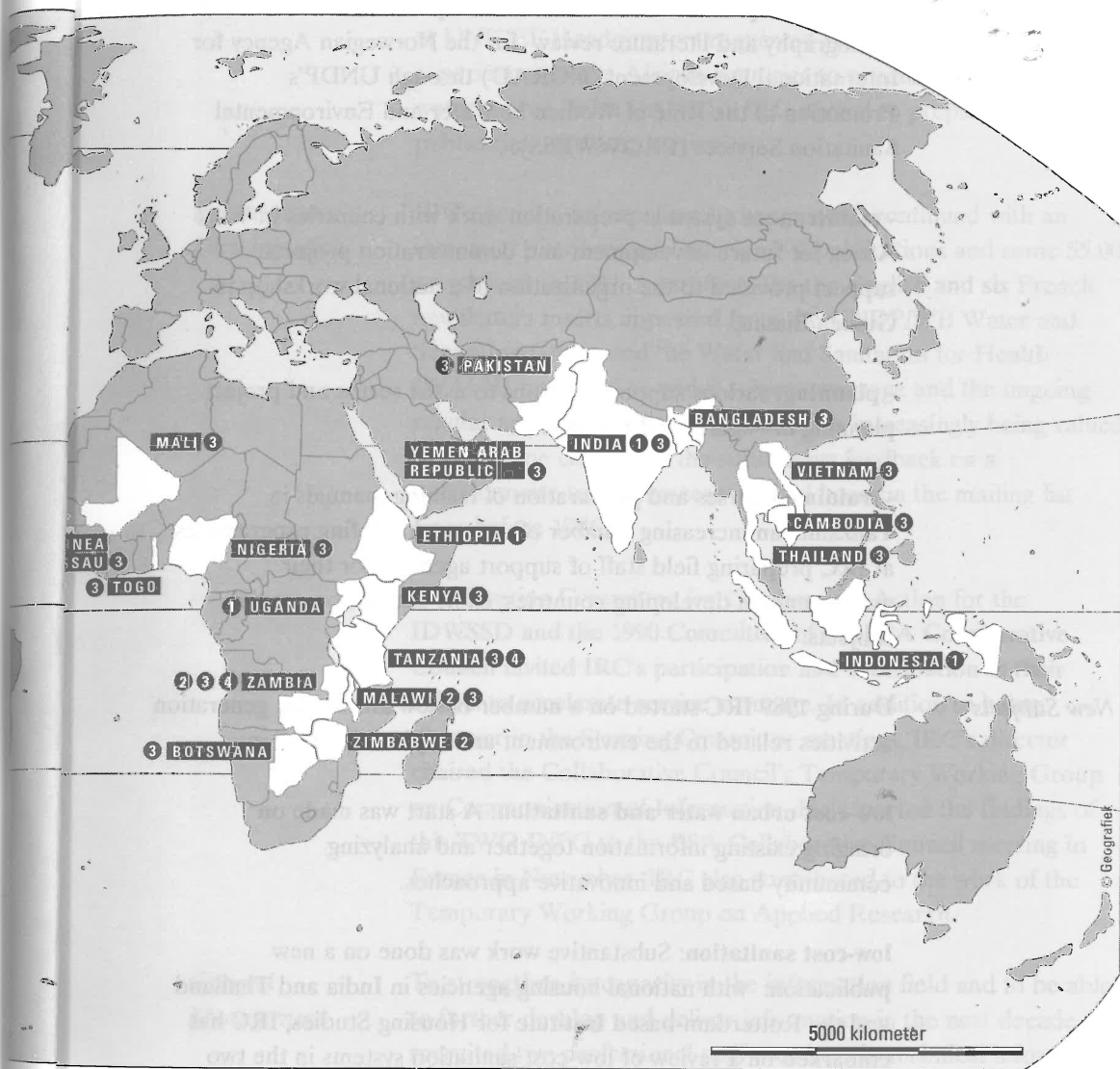
② Development & demonstration projects

③ Advice, monitoring & evaluation work, publications

④ Training & briefing

* See also matrix on page 69.





- **women:** preparation of the first annual update of the annotated bibliography and literature review for the Norwegian Agency for International Development (NORAD) through UNDP's Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS);

- **maintenance systems:** preparation work with countries in West Africa for future development and demonstration projects; support provided to the organization of a national workshop in Guinea Bissau;

- **planning:** various support missions to assist sector and project planning in Nigeria and Pakistan ;

- **training:** courses and preparation of training manuals in Tanzania; an increasing number of one-week briefing programmes at IRC preparing field staff of support agencies for their assignments in developing countries; short courses on special subjects.

New Subjects

During 1989 IRC started on a number of new knowledge generation activities related to the environment and rapid urbanization:

low-cost urban water and sanitation: A start was made on bringing existing information together and analyzing community-based and innovative approaches.

low-cost sanitation: Substantive work was done on a new publication: with national housing agencies in India and Thailand and the Rotterdam-based Institute for Housing Studies, IRC has embarked on a review of low-cost sanitation systems in the two countries. This study is funded by the Dutch Government and concentrates on maintenance of various systems.

community-based environmental management: Information collection and consolidation work in 1989 focused on water source protection and water source management (VROM).

water harvesting: The water and environmental sanitation section at UNICEF Headquarters requested IRC to make a field study of experiences in five African countries to promote wider use of this water source. With DANIDA IRC started to prepare a joint publication on water harvesting.

*Information
Dissemination*

IRC's general information exchange work continued with an increased distribution of nearly 6000 publications and some 55 000 newsletters in 1989. Apart from the ten English and six French newsletters inserts appeared from the UNDP/WB Water and Sanitation Group and the Water and Sanitation for Health (WASH) project. The wider subject coverage and the ongoing regular appearance of the newsletters is increasingly being valued. This became clear from the substantive feedback on a questionnaire to addressees who had been on the mailing list since before 1986.

The Steering Committee for Co-operative Action for the IDWSSD and the 1990 Committee of the ESA Collaborative Council invited IRC's participation and contribution in their efforts to accelerate service coverage. In addition to being observer in the Steering Committee meetings, IRC's director chaired the Collaborative Council's Temporary Working Group on Communication of Information. He reported the findings of this TWG-INFO to the ESA Collaborative Council meeting in France in November. IRC also contributed to the work of the Temporary Working Group on Applied Research.

*General
Management*

To strengthen its capacity in the information field and to be able to further develop and deliver information in the next decade, IRC recruited two professional staff members in technical information posts. To increase efficiency personal computers and staff training were introduced for all staff in 1989. The financial administration changed over to a new software programme. Together with the categorized address system this change facilitates general as well as project administration. Two international Governing Board meetings guided IRC planning for 1990 and the medium term.



Work at information units in Kenya.



2. Technical Information Management

CAPACITY

DEVELOPMENT

An important component of IRC's work deals with capacity development for information management in developing countries. The aim is to help develop self-sufficient facilities in countries dealing with information management for programme support. These facilities can be centres, units within existing institutions, co-operative arrangements or other forms. Their function at the national or sub-national level will be very similar to IRC's role at the global level, and they will gradually assume the country-oriented part of it. They will likewise deal with information development as well as information communication, which together form a comprehensive approach to information management.

IRC's work in this area centres around INFO-IMPACT, which is directed towards strengthening of information services in developing countries. INFO-IMPACT stands for Information Exchange Plan of Action, a framework for technical information exchange developed at an international workshop held in 1987 on request of the Steering Committee. Other activities in 1989 included support to the UNDP/World Bank International Training Network, and the development and update of information handling tools such as the Interwater Thesaurus, the structured listing of concepts and words for indexing.

Africa and Asia

Numerous international consultations in 1989 on the strategy for the 1990s and on communication of information have repeated and endorsed the need for more effective information exchange, especially at the country level. The ESA Collaborative Council requested IRC to take the lead in the development of information exchange activities at country level. At the regional meeting of the African Medical Research Fund (AMREF) in Nairobi in December IRC presented a draft action plan for country information development. As a result discussions on proposal development and support are going on with agencies in Ethiopia,

Tanzania, and Uganda in liaison with AMREF.

The Directorate General of the Ministry of Public Works and ITB, (Institute of Technology Bandung) in Indonesia continued to show interest in the INFO-IMPACT approach. With the Technology Mission in India, IRC backstopping support will be explored for the planned trial project on the establishment of a number of documentation units on community water supply and sanitation in one of the Indian states.

Preliminary consultations with the manager of the Country External Support Information (CESI) system at WHO have resulted in an understanding on the basis of which CESI and IRC will consider options for collaboration at the country level regarding the integration of the CESI system and the Technical Information Exchange (TIE) strategy. Work may initially begin in Africa in the context of country projects, provided that capacity and funding are available.

*Collaboration
with ITN*

In the last few years various activities have been undertaken in support of the UNDP/WB's International Training Network for Low-Cost Water Supply and Sanitation (ITN) project. Advisory support for the development of information tools was for instance provided to ITN/ITB in Indonesia. Also as part of the training series, a module on the value of information was prepared which was produced in bulk for ITN.

More recently standard basic libraries were shipped to each of the Regional Water Supply and Sanitation Groups and the ITN centres. These centres undertake initiatives regarding technical information exchange as part of, or in addition to their mandates regarding training and promotion in sustainable water and sanitation systems. IRC is discussing options of continued collaboration with the network and is exploring possibilities to offer its services to the development of information projects at the centres and their affiliates.

Such services may include the training of documentation staff at the centres, the maintenance and expansion of the documentation

holdings and the setting up of operational information exchange facilities.

In the meantime strong links have already been established with the ITN centre at AMREF in Nairobi, and a plan has been drawn up for information development support in the East African region.

Three IRC Newsletters carried an ITN insert with news from the network and the WB/UNDP Water and Sanitation Programme. With help from an outside consultant IRC prepared a draft of simple guidelines for setting up basic documentation services at the district or local level. The draft has been sent for review, after which it will be finalized.

Finalization of an annotated inventory of selected training materials in English, French and Spanish required more work than expected. Due to additional efforts needed to increase the number of training materials available in French and Spanish, work was still going on at the end of the year.

*Publication
Ordering
Service*

At the request of UNDP IRC initiated a publication ordering service from its "List of Basic Publications on Community Water Supply and Sanitation" for Resident Representatives for a one-year trial period. Discussions were started with UNDP about provision of tailor-made standard packages based on an updated list of publications.

*Technical
Information
Exchange*

As recommended at the International Consultation on Drinking Water Supply and Sanitation in the Hague in 1988 IRC, in a core group with UNDP, WHO and CEFRI GRE, organized the work for the Temporary Working Group on the Communication of Information (TWG-INFO), one of the two working groups formed at that meeting. The group, with 25 participants, met in Geneva from 6-8 February to discuss four components of information and promotion: public information/ promotion, project/sector information, management information systems at country level, and technical information exchange. Analysis and recommendations were discussed with developing country

participants during the Temporary Working Group's final meeting at IRC in April, in which 32 representatives from ESAs, other donor organizations and developing countries participated. The meeting finalized recommendations for strategies and outlined preliminary proposals, which were presented to the meeting of the Collaborative Council's 1990 Committee at the end of May.

Recommendations for action included: establishment of a common public information concept and strategy launched and supported on a continuous basis by a centrally co-ordinated public information action plan; promotion of systems at the country level for the collection, storage and dissemination of project and sector information (including more extensive use and support of CESI - country external support information - especially at the local level); promotion of use of Management Information Systems (MIS) at local and national levels; and finally, strengthening of the technical information exchange capacity within sector projects and institutions in the countries (supported by INFO-IMPACT) with an emphasis on intermediate/district level.

The TWG-INFO noted the close links between its recommended strategies for co-ordinated support to technical information exchange, project and sector and management information systems. Developing countries should be encouraged to enhance their information management capabilities in these fields together, preferably in combined demonstration projects.

In November 1989 the ESA Collaborative Council, in its meeting in Sophia Antipolis, near Nice in France, endorsed recommendations of the Temporary Working Group on Communication of Information regarding the four information components. The Council also confirmed the interrelationships between these components and specifically urged ESAs to support moves towards both the promotion of water supply and sanitation programmes and information management at country level. The latter needs to integrate management, - project/sector - and technical information, link them closely with monitoring and evaluation, and include public information where possible.

*Decade
Assessment*

On request of WHO IRC provided a short overview on technical information exchange achievements in the last ten years, for inclusion in the Decade Assessment Report being prepared by the United Nations.

*DOCUMENT-
ATION UNIT*

IRC's mission includes the collection and dissemination, in various ways, of information on water supply and sanitation and related environmental issues. The documentation unit thus plays a central role in all IRC's activities. In 1989 it served not only IRC staff but also received 70 visitors and handled 80 requests for documentation from outside. For IRC as a whole the number of visitors was 160 and the number of requests handled by the documentation unit and professional staff totalled 300. Together with the requests coming in to the publication department a total of 1,300 requests were handled in 1989.

The unit presently holds 8,000 publications (mainly grey literature). The subject coverage includes all aspects of water supply and sanitation in developing countries, in particular in rural areas. Urban water supply and sanitation and environmental aspects are gradually receiving more attention.

Computerization of documentation holdings has facilitated quick access to literature and contributes to efficient and inter-active literature searching and improved reference services. The entire IRC holding acquired since automation started in 1984 is now available in the automated database (IRCDOC in MINISIS).

IRC publishes the Current Awareness Bulletin (CAB), which besides current selections of contents from over 200 journals and newsletters, contains the latest information on research, new projects and other developments. The CAB is distributed externally on a subscription basis. To enhance the value and use of the CAB IRC intends to streamline the format and selection of items with a sharper focus on the sector. The publication of a more attractive and more defined product should lead to a larger number of subscriptions to the Current Awareness Bulletin.

3. Programme Activities

The second component of IRC's work consists of information-oriented programme activities. These comprise generation and delivery of knowledge and information regarding selected priority areas. The activities include:

1. research and development work such as fieldwork and collection of information and literature leading to systematization of information and publications;
2. training and briefing programmes to transfer knowledge and information more intensively;
3. development and demonstration projects particularly aimed at supporting national organizations in development and testing of community-based implementation strategies for water supply and sanitation programmes;
4. advice, monitoring and evaluation activities, often on request of third parties, through which knowledge and information are applied in implementation projects.

In this chapter activities undertaken under these four mechanisms, with the emphasis on country activities, are described and grouped under the relevant subject flag in the margin.

PIPED SUPPLIES Community-based sustainable rural water supply and sanitation systems is an area to which IRC has contributed considerably already, particularly through Piped Supplies for Small Communities (PSSC) development and demonstration projects. Implementation of the PSSC project in Malawi and Zambia continued. In 1989 this information development and demonstration programme developed encouragingly, although experience in both countries confirmed that new integrated projects take a long time to get off the ground.

Malawi

In **Malawi** local demonstration schemes have been selected and preparatory work with the local communities and institutions has commenced. An important development was the setting up of

inter-ministry, field-level local co-ordination teams at each of the existing and new demonstration scheme locations. This kind of integrated approach is new for Malawi.

"The project has made substantial achievements in further developing and sharing community-based approaches to piped water supplies for small communities in Malawi," reports B. H. Mwakikunga for the Secretary for Works of the Water Department in Malawi. "These developments are having, and I believe will continue to have, considerable wider impact on the water sector in Malawi."

The four existing demonstration schemes of the earlier Public Standpost Water Supplies (PSWS) project have been adopted as additional demonstration schemes in the PSSC project for longer term monitoring. Consolidated experience from those schemes has been used to recommend improvements for all 600 communal water points throughout Malawi, and also for a number of new schemes financed by two UN agencies, the Development Programme (UNDP) and the Capital Development Fund (UNCDF).

Using the methodology from the PSSC project the Water Department's Communal Water Point Programme has therefore benefitted from significant operational improvement, largely due to successful reactivation of tap committees and centre water councils and provision of low-key support to many of the user communities.

Zambia

In **Zambia** the project team managed to develop some useful activities in 1989, despite a difficult sector environment. The major achievement was the organization of a National Workshop on Piped Supplies for Small Communities held in Siavonga, Southern Province. The workshop was an important step in sharing experience and highlighting the information needs of piped supplies. As well as 32 participants from various institutions in Zambia, three members of the Malawian project were able to attend this workshop, together with a representative of the

Ministry of Energy, Water Resources and Development of Zimbabwe, funded by the United Nations Development Fund for Women (UNIFEM).

The participants reviewed the earlier developed support studies on key issues of community participation, sanitation and hygiene education, and appropriate technology.

From 25-28 July, the Zambia Department of Water Affairs held a workshop for guideline production in Lusaka. A consultant to IRC assisted in the workshop which was attended by 10 participants representing the project team and three government institutions. The workshop laid down steps for the preparation and production of three manuals in Zambia. One will concern identification of people's needs for water supply improvements, the second will concern the steps for setting up water committees, and the third will be an introduction on the improvement of sanitation and sanitary habits.

Using group exercises, the participants made rough outlines for each of the guidelines. These will be checked for relevance in the further development of the PSSC project. Subsequently a workplan was established for further development of the guidelines, and finally, a proposal was developed for a follow-up course on pre-testing and editing the guidelines.

"The PSSC project activities carried out so far have been encouraging and useful, particularly in planning for the further development of the earlier approaches by sharing and promoting wider use through activities such as workshops," Zambia's Permanent Secretary of the Ministry of Water, Lands, and Natural Resources reports, referring to the successful approaches generated in an earlier project which ran from 1983 - 1987.

IRC Support

With the aim to further strengthen the PSSC project in Zambia, the previous Decade Advisor in that country, started advising and supporting Zambian project staff on a number of issues. Among those included are supporting preparation of a detailed plan

regarding local demonstration schemes, supporting the project team, setting up and co-ordinating a replanning session for the second half of the PSSC project and supporting resulting workplans. The advisor will also develop a proposal to IRC and External Support Agencies (ESAs) requesting funding consideration for cost recovery activities in Zambia. Finally, advice and support will be lent to ongoing cost recovery and piped supplies activities in Malawi, and opportunities will be explored for further development and application of recent IRC initiatives including evaluation training and community self-improvement training and application.

A student from Ghana, following his Masters training programme in water supply and sanitation at the Water, Engineering and Development Centre (WEDC), University of Loughborough completed a three month assignment at IRC in connection with the Piped Supplies for Small Communities project. Aside from general assistance to the project, he prepared a literature review on financial aspects of sanitation.

To consolidate and disseminate the practical knowledge on factors contributing to successful piped supplies for small communities programmes, work continued on the manuscript to be published in the Technical Paper Series. Late in the year an outside consultant produced the second draft, which was still under review at the end of the year.

*Study of
Water Committees*

A Peruvian psychologist, also on a three-month consultancy at IRC, prepared a report concerning the functioning and organization of water committees in Latin America, with an overview of their performance. The report also examines the training process and inventories and analyzes existing materials, in order to be able to establish guidelines that will make the committees more efficient in their role as managers of water supply systems. With the information gathered, the consultant drafted an annotated outline for guidelines on the training of water committees.

SLOW SAND FILTRATION

In 1989 the Dutch Government agreed to contribute US\$2.35 million in support of a project to spread slow sand filtration technology throughout Colombia.

Colombia

The newly established Centro Inter-regional de Abastecimiento y Remoción de Agua (CINARA) which has its roots in the earlier working group of the University of Valle (UNIVALLE), together with IRC, has developed a plan for guided dissemination of the experiences gained in the Slow Sand Filtration demonstration project over the last five years, and for establishment of working groups in eight regions in Colombia. After a transition period these working groups will be able to guide the implementation of the integrated project concept and provide advisory services in their region. This approach ties in well with the current decentralization of the sector and the official government policy, which is concentrating on bringing services to the large number of smaller communities in Colombia.

Training

Early in the year two specific briefing and training programmes on slow sand filtration were organized at IRC for national staff from Egypt and Mozambique. IRC also advised projects and organizations in Ghana, Haiti, Malawi, Sri Lanka, Sudan, Tanzania and Zimbabwe concerning expert advice on design and problem solving.

IRC produced draft guides in English and French for training of caretakers of slow sand filters, which were under review at the end of the year. The guides are meant to be field tested and used in training programmes in developing countries where operation and maintenance of filters is a problem, as has already been reported from Cameroon. Organizations in Ivory Coast and Zaire also have expressed interest. Funding for the project comes from the Commission of the European Communities.

PRE- TREATMENT

Through co-operation between IRC and UNIVALLE in Cali, Colombia, and with funding from the Netherlands Directorate-General for Development Co-operation (DGIS), the International Reference Centre for Waste Disposal (IRCWD) in Switzerland



Community involvement in sewerage construction in Colombia.

and local organizations, a pretreatment testing plant was recently completed in Puerto Mallerimo. In June a two-day seminar was held around the initiation of the plant, which was attended by the Minister of Health and representatives from the Ministry of Works and Housing, the National Planning Department and many regional organizations such as Empresa Municipal de Cali and Comité Cafeteiros.

Colombia

At the plant, comparative tests of five types of pre-treatment methods will be carried out: horizontal roughing filtration, upflow roughing filtration in series, upflow roughing filtration in layers, downflow roughing filtration in series, and tilted plate settlers. The first four systems were chosen because they all can be constructed from materials locally available in most developing countries, and the fifth is included because tilted plate settlers, although often made of imported material, have a high efficiency and can be built into normal sedimentation tanks which are sometimes already a part of existing rural water supply systems. For each of the five systems, the efficiency in retaining turbidity, bacteria and colour will be tested and reviewed, for which a detailed test programme has been developed. Parameters included are: turbidity, filterability, suspended solids, sedimentation curve, total and faecal coliforms, colour and iron. This research is planned to take two years, during which several support visits from IRC staff will be made to guide the research and assist in interpretation of findings.

Over the last five years the working group at UNIVALLE in Cali involved in the slow sand filtration and pre-treatment projects has grown to comprise 40 staff. They have received support from international organizations, and to facilitate their work they have been transformed into a foundation called CINARA (Centro Inter-regional de Abastecimiento y Remoción de Agua). CINARA aims to be an interregional centre for development and integrated promotion of applied water supply and drainage technology. The centre will stimulate and carry out research in the field of water supply and drainage with emphasis on the needs and particularities of Latin America. It will advise, consult and

collaborate with regional, national and international organizations involved in the sector, provide an infrastructure for joint development research and promotion of technology, and will stimulate information exchange through exchange of publications, services, direct assistance, evaluation and advice. IRC has a seat on the Board of Directors of CINARA.

Publication

At the start of the pre-treatment development and demonstration project CINARA and IRC published an overview of pre-treatment techniques and experience entitled "Pre-treatment Methods for Community Water Supply". The following authors contributed chapters to this study: A. Castilla, C. Engels, G. Galvis, Professor L. Huisman, Professor K.J. Ives, T. S. A. Mbwette, M. Pardón, W. Poggenburg, E. Quiroga, J. P. Rajapakse, J.E.M. Smet, M. Wegelin, D. Wheeler, and H. Wolters. It was compiled by Jo Smet and Jan Teun Visscher of IRC.

Among the many techniques described in the book are: riverbed and riverbank filtration, downflow, upflow and horizontal-flow roughing filtration, modular sub-sand filtration and tilted plate settling. This document is a first step in establishing a knowledge base on pre-treatment methods and sharing information with professionals in the field, and will ultimately provide a basis for a more comprehensive state-of-the-art publication.

COMMUNITY SELF IMPROVEMENTS

Development of a 'demand driven' approach towards water supply and sanitation, in which the communities are encouraged and guided by community-based workers to improve their own water supply and sanitation facilities, is an important area for the expansion of water supply and sanitation coverage to the underserved smaller communities and more dispersed populations. An initial catalogue of simple but feasible improvements has been prepared entitled Community Self-Improvement in Water Supply and Sanitation (see page 66) with help of the Netherlands Ministry of Housing, Physical Planning and Environment. Further development and testing of this approach towards community self-improvements is being pursued.

Developing country national staff and project staff from various donors in the field express great interest to test this methodology, adapt it to the local situation and use it in training of community development workers and health workers. At the end of the year preliminary proposals had been developed for work in a few countries including Colombia, Tanzania and Zimbabwe.

RESOURCES COVERAGE

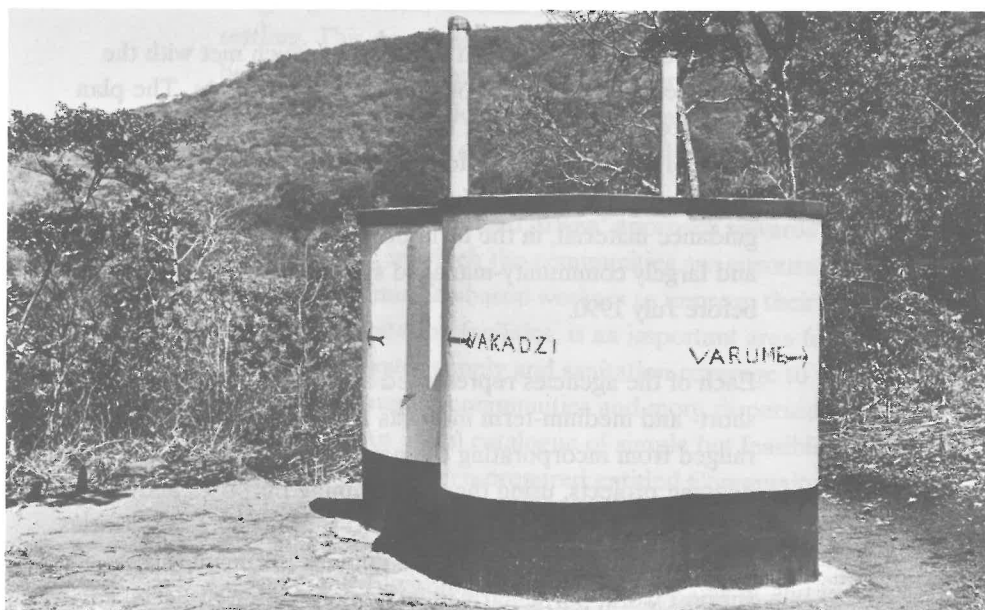
On 18 and 19 July, 12 representatives from ESAs and developing countries met at IRC for a WHO meeting to discuss and agree on a co-ordinated workplan for cost recovery and resources coverage, particularly for future support to country-level activities and supporting publications. The group came together to review recent country-level and international work, as well as to discuss how to proceed with current and planned activities. Finalization of the report from the WHO-led cost recovery consultations begun in 1988 and preparation of new user documents (cost recovery guidelines for users and a policy-level brief), as well as their promotion, dissemination and field application, were also on the agenda.

The meeting resulted in an action plan which met with the agreement of both developing countries and ESAs. The plan consisted of two elements: the further development of guidance material including a brief for policy makers from developing countries and ESAs, and further field applications. The main guidance material, in the form of guidelines for largely agency- and largely community-managed systems, should be completed before July 1990.

Each of the agencies represented at the meeting had specific short- and medium-term interests at the country level. These ranged from incorporating the newly developed materials into ongoing projects, using them for training purposes and responding to country requests, to initiating and supporting new activities. IRC will apply and promote the guidance principles in its ongoing support work, particularly in its demonstration projects, advisory and evaluation services, training, and publications. It also plans to



Washing facility near pump in Malawi.



Hygiene toilet model as used in Zimbabwe.

continue contributing through publications and continued support to country- and regional- level initiatives.

Malawi

In the context of a project funded through IRC by the Dutch Directorate-General for International Co-operation and carried out by the Malawi Ministry of Works and the Centre for Social Research at the University of Malawi, a series of resources coverage activities were carried out in Malawi. IRC is supporting and backstopping these activities through its Piped Supplies for Small Communities project. One activity was the field testing of a cost recovery guideline manual, developed by WHO with important input from IRC and 20 other partners worldwide. At a national workshop in Malawi the manual was introduced to ministerial and institutional individuals concerned with water supply and sanitation, who were briefed on practical field use of the guidelines and data collection methodology. They formed a team which is now carrying out the field testing, with as objectives to improve on the manual, to check resources coverage and sustainability of four projects, and to study, catalog and make recommendations on any cost recovery and community cash raising mechanisms. Upon completion of the field tests and analysis of the data, a preliminary report will be drafted.

Case Studies for World Bank

For the World Bank IRC produced two case studies on community financing in Tanzania and Malawi, and one on health extension in Zambia.

MONITORING AND EVALUATION

The attention given to management and organization aspects in evaluation of donor-assisted projects in developing countries is insufficient and needs to be improved. This was the main conclusion of a study on this subject by two graduating students from the Agricultural University of Wageningen. In their three-month study at IRC they looked at an initial selection of 270 reports dealing with evaluation of community water supply and sanitation projects and programmes. For their actual research they selected and screened 47 reports and interviewed experts within and outside IRC.

Overall, the researchers conclude that most evaluators report problems without revealing the underlying causes. Problems are not related to other components, as a result of which the evaluators' recommendations stand by themselves. The researchers feel that evaluations should also consider the decision making processes behind the problems.

The study resulted in a framework consisting of six components which need to be taken into consideration in evaluation of management and organization aspects of water and sanitation projects in developing countries. They are: objectives of the project, financial management, personnel management, logistics, organization and information.

IRC is currently developing a checklist for its future evaluation work, and is also looking into possibilities of a publication on this subject.

HRD Guidelines

IRC took part in the initial phase of guidelines preparation for evaluating human resources development projects in the water and sanitation sector for a joint German Agency for Technical Co-operation (GTZ), USAID and WASH project. The input concentrated on social aspects of evaluation in community-based projects. The guidelines are to be field tested in projects in Honduras and Sri Lanka.

Evaluation Modules Translated

The "Guide for Course Moderators" and "Course Modules" for evaluating water supply and sanitation projects, which were financed by UNICEF and prepared by IRC, have been translated into French. The training course, which appeared in English in 1988, is intended primarily for government officials and staff who are responsible for the management and evaluation of water supply, sanitation and hygiene education projects. Emphasis lies on evaluations directed at improving performance in ongoing and new projects.

India

IRC's input to the Netherlands-supported water supply and sanitation programmes in four Indian states was adapted in 1989 as a result of an evaluation of the review and support structure of the project. Briefings and debriefings of review and support missions

are now being carried out by the Dutch Embassy in Delhi. IRC input concentrates on policy aspects and preparation of discussion papers on key issues such as maintenance, sanitation and institutional development, which are common to the projects in all four states. At the end of the year an agreement was reached with DGIS for IRC's input in the programme for the next two and a half years.

An evaluation mission was carried out in late September to Kerala. For DGIS, IRC staff took part in a joint Indo-DANIDA-Dutch mission to review progress of a rural water supply programme comprising eleven comprehensive water projects. Performance of socio-economic units, which were established in 1985 to enhance an integrated approach to water supply and sanitation and to improve sanitary conditions, were also evaluated.

On request of the Embassy staff in Delhi parameters and measurement methods were developed for a Management Information System.

Special emphasis was placed on the social aspects of the water projects. At the end of the year the methodology was still being refined. A background paper and terms of reference were prepared for a policy planning mission to Kerala, and IRC prepared a discussion paper concerned institutional development.

Yemen Arab Republic

Three missions were carried out to water related projects in the Yemen Arab Republic which are supported by the Dutch. In January IRC participated in a monitoring mission together with team members from the Institute of Hydraulic and Environmental Engineering (IHE) and the Netherlands Ministry of Traffic and Waterworks. The team reviewed the Rada Urban Water Supply and Sanitation Project, which aims to improve the public health situation in the Rada urban area through improved water supply, sanitation, rainwater drainage, solid waste disposal and public health education. The project had just completed its inception phase and with Yemeni authorities, the mission's task was to

review the inception report and agree in principle with all parties involved on the follow-up of the project.

Together with a management expert a review mission was carried out to the Support Rural Water Supply Department Project. IRC also participated in an evaluation mission to the Rada Integrated Rural Development Project. This was the fourth evaluation of this project to which IRC contributed, together with Yemeni and other Dutch mission members.

IRC also participated in and contributed to the 'advisory group land and water' which is based in the Netherlands. This group comprises specialists from various disciplines and provides advisory services to the Netherlands Government in support of these projects in the Yemen Arab Republic.

Bangladesh

In 1989 IRC took part in three missions to review the DANIDA/UNICEF-supported Water Supply and Sanitation Programme in Bangladesh. The objectives of the review were to assess the progress achieved with the integrated approach to water, sanitation and health education that has been implemented since 1986. Furthermore, specific recommendations on the further development of the integrated approach were made and advice was given on the establishment of a monitoring system for the programme. The draft report has been submitted to the government of Bangladesh, UNICEF and DANIDA.

Tanzania

Advisory support to the Netherlands-funded Participatory Rural Water Supply Project in the Morogoro and Shinyanga regions in Tanzania continued. In a one-week working meeting in July IRC staff assisted advisors from DHV Consulting Engineers and implementors from the Ministries of Water, Health and Community Development in Morogoro in reviewing and further developing a monitoring system for both regions. Both regions had already developed a reporting system to monitor progress and to detect implementation problems. The IRC-developed system focused more on the longer-term cost effectiveness of community-managed systems.



Community participation and hygiene education under the trees of Zimbabwe.



Community participation and hygiene education under the trees of Rwanda.

The revised monitoring system includes registration of financing, use, hygiene and financial aspects, as well as community contributions to maintenance, sanitation and hygiene improvement, special attention was paid to the assessment of women's involvement. At the end of the year the system was being field tested. The Environmental Health Engineering Division at WHO in Geneva is now reviewing it for possible use by its regional offices.

Other contributions to the programmes in Tanzania included: a draft training manual for community development assistants to train village water committees on financing and financial management of their water system, revision of a bookkeeping system for village water supply, and a draft village sanitation and hygiene programme.

HEALTH AND HYGIENE EDUCATION

Community Participation and Hygiene Education (CPHE) is an area in which IRC has been involved for some time already, and which is addressed by many of its publications. The efforts of the informal working group on CPHE established in 1989 by GTZ have contributed to further development of this area. The Institute for Medical Cooperation in Germany and IRC have compiled different tools for wider promotion and implementation of CPHE under the aegis of this working group. Many projects do not yet integrate community participation and hygiene education. IRC will contribute to further fine tuning of the approaches to facilitate projects orientation towards these issues.

Books

"Hygiene Education in Water Supply and Sanitation Programmes, literature review and annotated bibliography", Technical Paper no. 27, was the first IRC publication to become available in 1989. The book was produced with co-funding from the Section for Research and Technology of the Dutch Directorate-General for International Co-operation. The authors reviewed 600 documents and incorporated feedback from 80 projects and individuals. Among others, the book contains chapters on the importance and purpose of hygiene education, organization and cost, manpower characteristics and training, audio-visual tools, and school hygiene

education. TP 27 is primarily intended for those concerned with public and community health in relation to water supply and sanitation.

Occasional Paper no. 13, "Water Supply and Sanitation in Primary School Education in Developing Countries", was made possible by WHO and prepared by an IRC consultant and staff member. Over 200 teaching and reference materials were collected and reviewed for this publication. This desk study contains suggestions for strengthening school hygiene education, and contains four annexes providing country overviews, examples of teaching materials, information on pre-testing audio-visual materials, and a list of organizations concerned with development and production of school hygiene education materials. The main conclusion was that urgently required strengthening of school hygiene education facilities cannot occur in isolation: it must be combined with educational efforts that are being improved simultaneously.

For DGIS, IRC prepared a first draft of a key issue paper on planning and implementation of hygiene education in water supply and sanitation projects which it circulated for review.

Disease Control

The International Child Development Centre in Florence, Italy invited IRC participation in a working group meeting to prepare for a critical assessment of the impact of parasite reduction on health and development of children. Following this meeting IRC was commissioned to prepare a chapter on sanitation for a publication on children and parasites.

IRC continued to participate in the working group on endemic fluorosis which has been operating in the Netherlands since 1985.

Zambia

Three support missions were carried out to the Zambian Department of Water Rural Water's for Health Project. The project in the North Western Province is assisted by the Netherlands Development Organization SNV, with funding from the DGIS. IRC support concentrated on community participation,

health and technical aspects, project management and review of the 1990 and longer-range planning.

The project's advisor was advised on participation and education during a short visit to IRC. Backstopping was provided via desk review and correspondence to SNV project staff in Zambia, who earlier had participated in briefing programmes at IRC.

ROLE OF WOMEN

Another area which received continued emphasis was the current and potential roles women can play in the development of sustainable water supply and sanitation facilities. The work of UNDP/ PROWESS and the joint PROWESS/IRC literature review published as Technical Paper no. 22 clearly show the great potential for womens' involvement in the sector. To continue knowledge development in this important area the Norwegian Agency for International Development (NORAD) contracted IRC through PROWESS to prepare annual updates of the annotated bibliography and literature review for the next three years. The first of the series is to be published in late 1990.

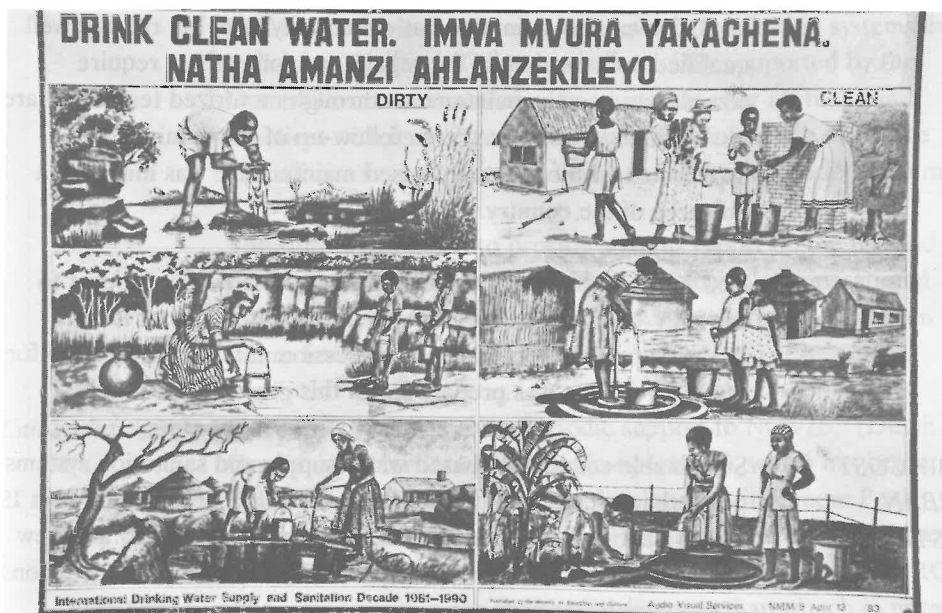
For DGIS IRC prepared the "Women, Water and Sanitation" sector paper which was published in June 1989. The paper is being distributed as a policy operations guideline to all Dutch water and sanitation missions which are preparing, supporting and evaluating Netherlands-assisted water and sanitation projects.

Particular attention is needed for practical planning of integrated projects and the establishment and testing of suitable indicators which adequately address community participation, community management and hygiene behaviour. IRC collaborated with PROWESS and other agencies in the development of a common approach.

IRC continued to be involved in training engineers in post-graduate courses on reasons and means for women's involvement.



Posters used in Zimbabwe, produced by the Ministry of Education and Culture.



*MAINTENANCE
SYSTEMS*

Knowledge on this key subject increased as it came up in virtually all the development and demonstration schemes and advisory support work by IRC. Existing organizations in Burkina Faso, Guinea Bissau and Niger have prepared draft reports on the state-of-the-art in their countries. They are also interested to get involved in a demonstration project for which a proposal was still under discussion with various donors at the end of the year.

Guinea Bissau

Assistance was provided to the organization of the National Seminar on Maintenance and Social Activation held in April by the Ministry of Resources and Industry in Guinea Bissau. The main purpose of this seminar was to establish a draft framework for maintenance of rural water supply in the country. After five days of intensive discussions in group and plenary sessions the national and international participants adopted a range of conclusions and recommendations. Key items for follow-up discussion at the ministry include: community participation, aspects of cost recovery co-ordination, standardization of pumps and decentralization of maintenance. One of the groups reviewed in detail ten different pumps in use in Guinea Bissau. They concluded that only one can be maintained at low cost at village level, five can be maintained at community level but require well qualified area mechanics for repair, and four others require complex and costly maintenance through motorized teams and are less suitable in this country. In follow-up of this seminar an experiment with community-based maintenance was initiated in one area of the country.

IRC input in this seminar forms part of the advisory support to the SNV-executed and DGIS- funded Maintenance of Rural Water Supply Project H 14. A discussion note on the strategy for the H 14 project was prepared with this project's staff.

*LOW-COST
URBAN
SYSTEMS*

Sustainable community-based water supply and sanitation systems in peri-urban areas is another area in which IRC became active in 1989. Urbanization of developing countries is growing rapidly and new approaches will be required, in particular to serve poorer sections of the population with adequate water supply and sanitation

facilities. In the peri-urban areas the linkage between water supply and sanitation is already much clearer than in rural areas. In many cases serious drainage problems and very unhealthy situations have resulted from provision of water supply systems alone. Much information has already been generated by different organizations including UNDP and the World Bank. Bringing this information together and particularly analyzing community-based and innovative approaches which have been tried out, will form a solid base for further development of this important field.

Low-cost sanitation in peri-urban areas has received more attention over the last years. Nevertheless operation and maintenance aspects of existing systems have not been studied adequately. It is now becoming apparent that due to this neglect valuable assets are becoming inoperable, jeopardizing valuable efforts.

Together with the Housing and Urban Development Corporation and the Human Settlements Management Institute in India, the National Housing Authority and Chiang Mai University in Thailand and Institute for Housing Studies in the Netherlands, IRC has embarked on a review of low-cost sanitation systems in India and Thailand. This study is financially supported by the Dutch Government and aims to review the user attitudes and practices with respect to operation and maintenance of on-site and off-site sanitation in low-cost housing and upgrading schemes.

The study is expected to provide a status report on the use and performance of different systems and to formulate operational recommendations for the planning, design and implementation of future low-cost sanitation schemes.

Cambodia

Since 1987 IRC has given periodic support to NOVIB, (Dutch Organization for International Co-operation), which has been involved in urban infrastructure development in Phnom Penh, Cambodia, since shortly after Pol Pot was forced out of Cambodia by the Vietnamese. In 1987 the evaluation mission in which IRC participated recommended that an integrated approach in water

supply, sanitation and drainage involving several municipal departments (including water, sewage, solid waste and hygiene) would be more effective than the purely logistic support to the sewage and refuse departments given up to then. In 1989 the Slum Improvement in Phnom Penh project began aiming for improved living conditions, particularly water supply, sanitation and drainage in two pilot areas. The general objectives are to test the viability of an integrated approach and to develop a co-ordination structure between municipal services. Major problems in the project are the very limited capacities and planning experience within the municipal departments, so NOVIB has appointed a sanitary engineer to advise and assist the municipality in project execution. IRC is advising and backstopping NOVIB and the project on project components including institutional development, training, technology, community participation and hygiene education. In March IRC headed an inception mission to start off the project. For early 1990 a mission is planned to review the project progress and problems with an emphasis on the institutional aspects, and to assist in the planning for 1990.

Vietnam

In September and October IRC co-ordinated a mission to Vietnam to evaluate the second phase of the FINNIDA-financed Hanoi Water Supply project. The mission was carried out jointly with team members from SITTRA (Finnish National Fund for Research and Development), and the Water Supply Company of Friesland (Netherlands). All aspects of the project were looked into, and recommendations were made in view of a third phase. Furthermore, the project's viability was evaluated against the background of the macro- and micro-economic situation in Vietnam and Hanoi respectively.

WATER RESOURCES

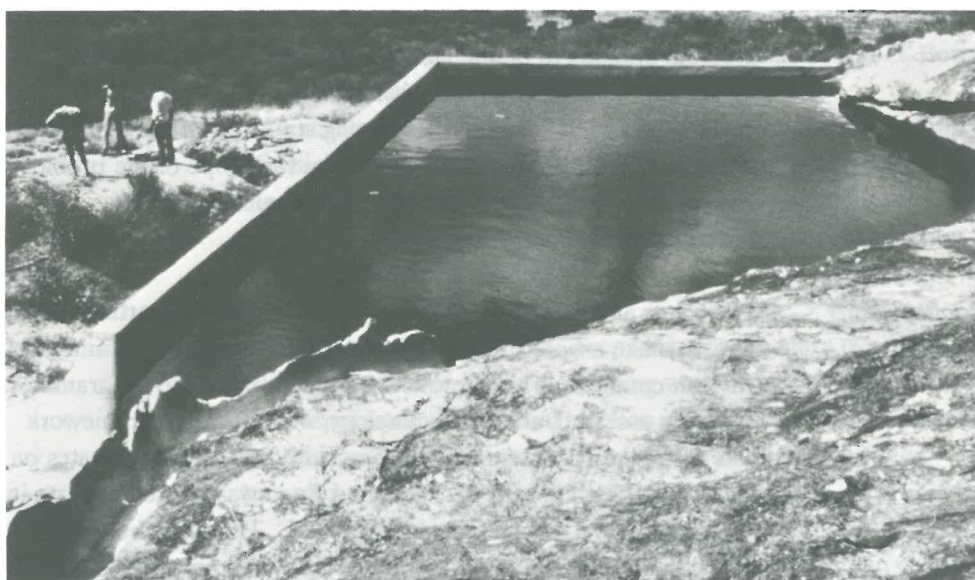
Community-based environmental management is a recent focus at IRC. The work in 1989 was directed to water source protection and rainwater harvesting.

Water Source Protection

A three-month consultancy at IRC funded by VROM resulted in an assessment on the current state of affairs concerning water source protection (WASP), including an analysis of available



Womens Mwetthya self-help group participates in the construction of a village rock catchment dam at Mitono, in Kitui district, Kenya.



Rock catchment constructed by local women and artisans to store roughly 900 cubic metres of water at Mitono in Kitui district, Kenya.

information and identification of information gaps. Together with an IRC staff member, the consultant wrote a first draft report on the various WASP methods that can solve or reduce environmental problems adversely affecting drinking water quality, quantity and reliability.

This report is now being expanded and will include an assessment of the current perceptions of the importance of WASP as a community water supply component, a summary of the most important aspects of each WASP method, a bibliography, a listing of individuals and institutions with expertise in each WASP method, and a series of brief case studies illustrating WASP implementation and its degree of success.

A related issue is water resources management, of which water source protection is an important component. The first findings of earlier work by IRC show that existing water sources are becoming polluted by inadequate disposal of solid and liquid waste and by uncontrolled use of fertilizers and pesticides. There is growing evidence that water sources are decreasing in quantity due to deforestation, erosion and over-utilization. A main problem appears to be the lack of awareness concerning water source problems among authorities and communities in developing countries, as well as among staff from ESA-supported projects. More information is needed on the scope of the problem and on possible technical and socio-economical solutions including legislative measures.

Rooftop Water Harvesting

The water and sanitation section at UNICEF Headquarters requested IRC to make a field study of rainwater harvesting programmes in five African countries. The relevance and potential of the programmes has been assessed, and the technology, organizational framework and social approaches analyzed. The study, which concentrates on Botswana, Kenya, Mali, Tanzania and Togo was carried out late in the year by three consultants hired by IRC. The study hopes to contribute to the wider promotion of rainwater harvesting as a complementary water source in general, and for arid and semi-arid areas in particular.

*Surface Water
Harvesting*

More and more information is becoming available on rooftop harvesting. However, limited information has been published on catchment and storage of run-off surface water. To remedy this DANIDA and IRC jointly undertook the preparation of a publication on surface water harvesting. It will treat design and other technical aspects as well as social components which need to be addressed for successful systems of surface water harvesting. A draft manuscript scheduled to be published in the fall of 1990 was under discussion at the end of the year.

*ALTERNATIVE
ENERGY
SOURCES*

With funding from VROM, IRC's Technical Paper no. 23, "Renewable Energy Sources for Rural Water Supply", was translated into Spanish by the Colombian foundation CINARA and should be available in May 1990. The Pan-American Health Organization (PAHO) in Washington D.C. has already placed an advance order for 1000 copies to be included in their textbook distribution programme for the Latin American region.

The third and last insert on this subject in the IRC Newsletter was produced with contributions from Consultancy for Wind Energy in Developing Countries (CWD) in the Netherlands and IT Power from the United Kingdom.

As a result of a recommendation by a short term advisory group of which IRC was a member, CWD's operation was reviewed and discussions have commenced with CWD to investigate the possibility of taking over part of their reference and information development work.

At the request of DGIS IRC prepared a preliminary overview of animal traction for lifting of drinking water. The literature shows increasing interest in animal traction in general, but documented experiences on animal traction for communal drinking water pumping were found to be rather scarce.

*LOW-COST
SANITATION*

Work on low-cost sanitation progressed more slowly than expected, but a start was made to develop the information base on this subject. IRC staff prepared a reader on sanitation, initially for use by the field workers undergoing preparation and briefing

programmes at IRC. Emphasis is put on issues such as human waste disposal, drainage, wastewater treatment, and solid and hazardous waste disposal.

The collective waste issue is becoming recognized as one of the most important problems facing society, because environmental degradation involves considerable health risks and threatens the large investments already made in the sector. The scope of the problem in developing countries, although not fully known, appears to be considerable. Attacking the problem calls for a joint and co-ordinated effort involving the main agencies in the sector, as is being expressed in many international meetings. Adequate information support and development of appropriate community-based solutions for waste disposal and drainage are required.

Work continued on a manual for community-based on-site sanitation. To integrate the social aspects with the technical information a social scientist was hired to finalize the document, which was nearly completed at the end of the year. The manual provides information on:

- how to identify the need for sanitary improvements;
- background information needed for programme development;
- upgrading existing sanitation systems and practices;
- new facilities with dry systems such as pit latrines;
- new facilities with wet systems such as pour-flush latrines.

A start was made on a guide providing a range of technical and programmatic options for the construction, use and maintenance of school sanitary facilities. A mail survey is planned to collect field experiences, which could be reviewed by an expert group on this subject. A proposal was being worked on at the end of the year for discussion with various donor agencies.

PLANNING

Sector and project planning is an area where IRC's information overview and expertise has been gradually expanded over the years. Apart from documents on this subject, knowledge and experience is acquired from (and applied in) the development and

demonstration projects and support missions to projects in, for example, Bangladesh, Guinea Bissau, Tanzania and Zambia as well as training and briefing programmes.

Pakistan

On request of DGIS, IRC participated in two missions to Pakistan to review consultants' inception reports regarding provincial investment programmes for each Pakistan province. Organized by the World Bank, the missions aimed to obtain commitments from several invited External Support Agencies to support provincial investment plans and projects. It was found that budget restrictions, operation and maintenance, sanitation coverage and hygiene education are the chief issues needing attention in the provinces. The terms of reference indicated the exploration of possibilities for Netherlands involvement in Baluchistan and North West Frontier Province, which could occur in the form of project support.

The second mission in July found that despite significant progress by the provincial study teams in the two provinces, strategy development and identification of possible projects for funding needed additional attention. Two projects were recommended for Netherlands support. One project would provide institutional support to the provincial government of Baluchistan. The other would lend institutional support to the Local Government and Rural Development Department in North West Frontier Province.

Nigeria

Substantial IRC support was provided to formulate a sector plan for Anhambra state in Nigeria. It comprised participation in a mission by a Netherlands-based consultant, who was contracted by the World Bank to assist with the sector planning.

TRAINING AND BRIEFING

Training and briefing activities are of particular importance for IRC's work. They provide a useful tool for information generation, particularly because the number of project field staff and participants from developing countries is increasing. They also provide a very useful mechanism to transfer information to IRC's target groups, by making efficient use of its knowledge base. In 1989 a gradual expansion of the general as well as the

'tailor-made' briefing programmes at IRC took place. A three week training course 'Management for Sustainability' was organized for the first time in May together with the Netherlands-based Management for Development Foundation (MDF). It was well received and was repeated in November.

Together with the Institute of Housing Studies of Rotterdam IRC organized a two-week special course on environmental sanitation for low-income urban communities in November. People from water and sanitation agencies in Honduras, Kenya, Lesotho, Tanzania and Zambia participated in this course.

Forty-three staff from 18 agencies going to or coming from various field posts took part in one-week standard briefing programmes at IRC. They concerned job-specific work in Benin, Bolivia, Botswana, Burkina Faso, Cambodia, Chad, Colombia, Egypt, Ghana, Guinea Bissau, India, Indonesia, Kenya, Mali, Mozambique, Namibia, Nepal, Nicaragua, Niger, North Yemen, Philippines, Rwanda, Sri Lanka, Sudan, Tanzania, Zambia, and Zimbabwe.

4. Public Information and External Relations

Visitors

During 1989 IRC received 160 individual visitors and two groups of students, 16 from the MSc course in Water Resources Engineering of the University of Birmingham, and 21 from the International Health Development Course of the Royal Tropical Institute in Amsterdam. At the Ministry of Housing, Physical Planning and Environment (VROM) special presentations were given on IRC's work to staff of the environment and international sections of the ministry. VROM is one of the Dutch ministries which provide the core subsidy for IRC work.

Newsletter

The IRC Newsletter (10 issues in English and 6 issues in French annually) is gradually developing into an information carrier for the wider sector. Agencies such as ITN/WB and WASH contributed special inserts to the newsletter in 1989. For the VROM IRC prepared the last of three contracted inserts on Renewable Energy Sources. The newsletter also carried news from all the ESA Collaborative Council meetings.

Feedback from readers indicates appreciation for the trends in special subjects. In 1989 these included operation and maintenance, resource coverage, community involvement, local production of handpumps, and key issues for development of community water supply and sanitation.

How much readers value receiving the newsletter was evident from the reactions to a questionnaire mailed to old addressees. Nearly 30 % of the questionnaires were returned, which is generally regarded as a high feedback on a mail survey. All of these addressees wished to continue receiving the newsletter.

Categorized Address System

In the address system (which operates in the MINISIS software programme) considerable updating and cleaning was done on addresses which were over five years old. At the end of the year the system contained 5100 addresses, of which 4200 receive the

English and 600 the French IRC Newsletter. Categorization through addition of subject interests and type of organization to all addresses was refined, facilitating better targeted mailings.

*Publications
Distribution*

For IRC's most visible and widest reaching product - publications - 1989 was a top year. Over 5800 copies were distributed to over 1000 orders from 600 clients, resulting in the highest turnover ever. Over 40 percent of distribution and turnover comes from bulk orders from agencies in the industrialized world, which subsidize redistribution to project staff in developing countries.

The Pan-American Centre for Sanitary Engineering and Environmental Sciences (CEPIS) in Lima, Peru completed the translation of two IRC titles into Spanish: "Evaluation for Village Water Supply Planning", and "Small Community Water Supplies in Developing Countries", nos. 15 and 18 respectively in the Technical Paper Series. This brought the total number of Spanish translations under the co-publishing contract to seven since 1984.

Public Relations

At the end of the year an outside consultant began an analysis of IRC's public relations efforts. A comparison between the image experienced by outsiders and the desired image, and review of key messages for various target groups should result in recommendations for PR policy and action on the short as well as the longer term. This could also have impact on IRC's house style, for which a consultancy is in the pipeline.

In the continuing PR workplan for 1989 promotional leaflets were produced and contributed selectively on the briefing and preparation programmes, information and documentation services, the courses on special subjects, and on the new hygiene education publications.

Lectures

Several IRC staff members were invited to give lectures at various international courses. Early in the year two staff members provided three days of inputs in the post-experience course on planning, appraisal, and implementation of water supply and sanitation projects of the University of Bradford in the United

Kingdom. Subjects of the lectures were operation and maintenance, and community participation and involvement of women. On the latter subject Tampere University in Finland also requested three days of IRC input in one of their courses.

In the Netherlands inputs were given to international courses given by Technical University Delft, Royal Tropical Institute in Amsterdam, the Universities of Wageningen and Nijmegen, and six times to courses at the International Institute of Hydraulic and Environmental Engineering (IHE) in Delft. Apart from the subjects mentioned in the paragraph above areas covered were: monitoring and evaluation, slow sand filtration, pre-treatment, hygiene education, sewage treatment and water re-use, household drinking water supply, and rural development.

Support to DGIS

The Netherlands Directorate-General for International Co-operation invited IRC to participate in preparation of a study meeting with sector specialists in the Netherlands. Subjects of this meeting at the end of the year were sustainability, community involvement and financial management, in light of the policy paper on water and sanitation published by DGIS in early 1989. IRC contributed a presentation on the rural focus and women. IRC also produced the meeting report.

*Dutch
Organizations
Inventoried*

The Netherlands Ministry of Housing, Physical Planning and Environment's Directorate for Environmental Management requested IRC to undertake a three-month study of Dutch non-commercial organizations which are active in the water supply and sanitation sector and environment in developing countries. The study, financed by the ministry, primarily inventoried which organizations are active and precisely what type of work they do, so as to better co-ordinate future work in the sector.

*Participation in
Workshops*

During 1989 IRC staff participated in the following workshops and conferences:

- National Workshop on Piped Supplies for Small Communities, organized by the Department of Water Affairs of the Ministry of Water, Lands and Natural Resources, the



Water storage tanks in Bangkok, Thailand.



Drinking water supply by truck in Merauke, Irian Jaya, Indonesia.

Department of Social Development of the Ministry of Labour, Social Development and Culture, and the Ministry of Health, held in Siavonga, Zambia, 23 - 28 January;

- Sub-regional Working Group Meeting on Cost Recovery and Resources Coverage, organized by the Department of Water at Mongu, Zambia, 30 January - 3 February;
- Working meeting of the Temporary Working Group on Communication of Information of the ESA Collaborative Council, organized by IRC, held at WHO in Geneva, Switzerland, 6 - 8 February;
- "Our Common Future", discussion meeting about the Brundtland Report, organized by German Agency for Technical Co-operation (GTZ), held in Frankfurt, Federal Republic of Germany, 16 February;
- Working meetings on Operation and Maintenance, organized by WHO in Geneva, Switzerland, 16 - 17 February;
- Working meeting organized by the Working Group on Endemic Fluorosis, the Netherlands, 6 March and 29 September;
- Working meeting of the Temporary Working Group on Applied Research of the ESA Collaborative Council, organized by the Commonwealth Science Council, held in London, United Kingdom, 16 - 17 March;
- Final meeting of the Temporary Working Group on Communication of Information, organized by IRC, held in the Hague, the Netherlands 11 - 13 April;
- Working group meeting on Community Participation and Hygiene Education, organized by GTZ, held at IRC, the Hague, the Netherlands, 8 - 12 May;
- Meeting of the 1990 Committee organized by UNDP/WHO in Geneva, Switzerland, 30 May - 3 June;
- Seminar on Transfer of Slow Sand Filtration and Pre-treatment, organized by CINARA, held in Cali, Colombia, 20 - 22 June;
- Consultation and Planning Meeting on Cost Recovery in Community Water Supply and Sanitation, organized by IRC for WHO, held in the Hague, the Netherlands, 18 - 19 July;

- Training Course on Guideline Production in the Piped Supplies for Small Communities project, held in Lusaka, Zambia, 25 - 28 July;
- Working group meeting "Impact of Intestinal Parasites on the Health and Development of Children", organized by the International Child Development Centre, held in Florence, Italy, 2 - 4 October;
- 17th meeting of the Steering Committee for Co-operative Action for the International Drinking Water Supply and Sanitation Decade, held at the United Nations Department of Technical Co-operation and Development, New York, USA, 23 - 24 October;
- Collaborative Council for Co-operative Action meeting, organized by UNDP/WHO, held at CEFIGRE in Sophia Antipolis, France, 28 -30 November;
- Symposium on the Role of Development Aid Organizations in Health Projects in Central America, in Nijmegen, the Netherlands, 2 December;
- First Study Day, Drinking Water and Sanitation Sector, organized by the Directorate-General for International Co-operation, the Hague, the Netherlands, 8 December.

Articles Published During 1989 IRC staff published the following articles:

- "Slow Sand Filtration - a Simple and Reliable Method to Purify Drinking Water", by Hielke Wolters and Jan Teun Visscher, in AT Source Vol.17 no. 2, June 1989;
- "Water Decade Nearing End: 500 People Receive Clean Drinking Water", by Dick de Jong, in UNICEF Nieuws, June 1989.

Papers Presented The following papers were presented by IRC staff:

- "Women, Water and Sanitation: Practical Issues of Participation", a discussion paper presented by Mary Boesveld at the PSSC workshop in Zambia, January;
- "Community Participation and Involvement of Women", series of papers presented by Christine van Wijk during the post-graduate course on Rural Water Supply and Sanitation at Tampere University of Technology, Finland, 11- 13 April;

- "Participation for Sustainability: Community Management", presented by Christine van Wijk at the DGIS sector day in The Hague, The Netherlands, December.

Temporary Working Group on Communication of Information (TWG-INFO) From 11-13 April, 32 representatives from ESAs, other donor organizations and developing countries convened at IRC to hold the final meeting of the TWG-INFO. The group, formed as a result of The Hague Consultation in November 1988, worked according to terms of reference drafted at that consultation and updated by the 1990 Committee in Paris in December. The first meeting, at WHO in Geneva in February, analyzed problems, ongoing activities, gaps and constraints, and outlined preliminary recommendations concerning various components of communication of information. The April meeting finalized recommendations for strategies and outlined preliminary proposals concerning public information and promotion. They were presented to the meeting of the 1990 Committee of the Collaborative Council at the end of May, together with a report from an outside consultant on the required strategy, organization, actions and timing.

A core group consisting of IRC, UNDP, WHO, CEFIGRE and the UNDP/World Bank Programme guided the TWG-INFO, with IRC in the leadership role. The TWG-INFO's analysis of information issues confirmed that communication of information is a matter of priority importance in future plans for accelerating the provision of sustainable water supply and sanitation programmes in developing countries. The emphasis in the work of the TWG has been on the assessment of measures needed to strengthen the motivation and the capacity of developing country governments to increase priority given to the water supply and sanitation sector in the 1990s, and to meet the new challenges which have emerged in recent years.

Mobilization of additional resources for the WSS sector in the 1990s is going to depend substantially on the right approach to promotion and marketing of the sector. The ESA Collaborative Council called for a clear commitment on the part of the ESAs to

provide resources for a sustained and co-ordinated campaign at global and country levels, which must draw on the lessons of the promotion for the International Drinking Water Supply and Sanitation Decade. The first priority must be to develop a global strategy in time for the launch of a water supply and sanitation programme for the 1990s, and the aim is to have a complete corporate strategy prepared, endorsed and ready to implement before the planned Global Consultation in India in September 1990.

*Temporary Working
Group on
Applied Research
(TWG-Research)*

In March IRC participated in the meeting of the TWG-Research in London, which, like TWG-INFO, was formed as a result of The Hague Consultation in November 1988. The group endorsed the view that applied research should address problems and obstacles which impede the ability of those active in the sector to achieve the major service objectives for the 1990s. In London the group identified applied research priorities over a wide spectrum of sector needs, and agreed on four global objectives which would need to be met in the sector in the 1990s, viz.: expanded and enhanced services, benefits of improved water supply and sanitation services, system sustainability and environmental sustainability. It also developed terms of reference for a Temporary Working Group on Environmental Pollution, recognizing that environmental issues are closely linked with the water and sanitation sector.

5. Management and Organization

Governing Board In 1989 IRC's international Governing Board met in April and November. The April meeting focused on the outcome of the meeting of the Temporary Working Group on Communication of Information, and on the potential implications of the role of IRC in the future, particularly in the area of promotion and public information. The Annual Plan 1989 and Indicative Medium Term Plan 1989-1991 were reviewed and advised upon by the Board members against the background of their organization's involvement in the topics addressed.

In the November meeting IRC's plans for 1990 were presented to the Board in presentations on technical information management, community-based management and training and briefing programmes. The Indicative Medium Term Plan (IMTP) 1990-1992 as well as the Indicative Annual Plan and Budget for 1990 were discussed, and attention was given to IRC's increased programme emphasis on urban fringe and environmental issues for the coming years. The Board approved both the IMTP 1990-1992 and the Annual Plan and Budget 1990. It also discussed the potential IRC involvement in the ESA Collaborative Council meeting in Nice in late 1989 and in the planned Global Consultation "Safe Water 2000" in September 1990 in New Delhi.

In 1989 the Governing Board saw several changes in its membership. The April meeting was the last meeting for Dr. Martin Beyer, a member of the Board since 1981. Dr. Beyer, who retired from both the Water and Environmental Sanitation Team at UNICEF and the Governing Board, was succeeded in both posts by Dr. Joseph Christmas. Mr. Michael Acheson, Manager of the Community Water Supply and Sanitation Unit of the Division of Environmental Health at WHO in Geneva, retired shortly after the meeting and was replaced by Dr. Dennis Warner, both at WHO and as observer on the Governing Board. Mr. Gerben Ringnalda, who left his post as Chief of the Directorate of

International Organizations at the Netherlands Ministry of Foreign Affairs' Directorate-General for International Co-operation, left the Governing Board early in the year. He was temporarily replaced by Mr. Jan Zaadhof. In November the temporary post occupied by Mr. Zaadhof was filled by Mr. Pieter Feith, who also represented the Directorate-General for International Co-operation on the Board.

Management Team In 1989 the Management Team was composed of four members: the Director, Administrator, and Senior Programme Officer were joined by a newly recruited Senior Information Officer late in the year. An important task was the compilation of a new Indicative Medium Term Plan for the coming three years, and policy decisions concerning financial planning, publication management, and staff education were made. Recruitment was again an important matter in 1989.

PERSONNEL IRC employs a staff of 30 individuals of various nationalities. In 1989 the programme staff of IRC was comprised of six engineers (planning, public health and sanitary), three sociologists/anthropologists, a journalist, one information specialist and two documentalists. Of the total programme staff, 40% are women. With the management and support staff included this percentage increases to 60.

In addition to its permanent staff, IRC also employs consultants to carry out various short and long term assignments. In 1989 IRC engaged in consultancy agreements with 22 individuals and agencies for work in the areas of, among others, technical information management, project management, project monitoring and evaluation, analysis of water source protection and rainwater harvesting experiences, piped supplies for small communities, on-site sanitation, and various translations and desk studies.

Stephen Parker, information specialist, joined IRC at the end of the year to assist IRC in the implementation of its technical information strategy. He developed initiatives and proposals in

support of information exchange activities in developing countries and development of information products and services.

Staff Changes

Jim Wilson, employed by IRC since August 1987, left as of 15 August to join the United Nations Development Programme in Lilongwe, Malawi.

Madeleen Wegelin, an urban planner with a social anthropology background and recent field experience in Indonesia and Thailand, was hired to complete an earlier begun publication on sanitation. She also provided inputs to the environment and urban projects which were started up in 1989.

Eirah Gorre-Dale completed her one-year assignment at IRC on secondment from UNICEF. From May 1988 until May 1989 she managed the various technical information management projects in which IRC was involved.

Han Heijnen joined IRC as of 14 August to fill the vacant post of Senior Programme Officer, Information. Most recently, he was assigned to the Sarvodaya Rural Technical Services (SRTS) in Sri Lanka as Senior Technical Advisor. In addition, Han Heijnen represented Helvetas, a Swiss NGO, as its programme director for Sri Lanka.

Other Staff Matters As a result of the increased efficiency made possible by automation, the programme support staff at IRC was able to devote more time to financial and management tasks than before.

IRC had one staff meeting during the year, at which the staff physician from the Ministry of Housing, Physical Planning and Environment was the guest. Discussions concentrated on medical problems facing staff members travelling in developing countries.

Staff training was once again an important contributor to the smooth functioning of the organization. Courses were followed in public relations, automation, project management, languages, office management and personnel work.

The continuation of IRC's pleasant working climate was assured by the social activities held during the year.

Automation

To increase efficiency IRC's fleet of Tulip personal computers was expanded for professional and support staff. Textprocessing, spreadsheet and database programmes were the major applications.

The possibilities of the Hewlett Packard 3000 system continue to be explored as IRC's automation expertise increases.

Downloading the address system to the Tulip PCs is among the challenges for 1990.

The financial administration was fully automated, which, aside from simplifying the bookkeeper's task, has resulted in the availability of timely information for programme staff on finance and time inputs.

Budget

The Netherlands Ministry of Housing, Physical Planning and Environment and the Ministry of Development Co-operation continued to provide a core operating budget as a basis for IRC's work. This core subsidy increased slightly to Dfl 2,061,000 (US\$ 1,030,000) in 1989. This budget basically paid for IRC's core functions of information exchange and clearing house, as well as development of knowledge, general management and acquisition of externally funded work. The extra-budgetary resources made available for work with and in developing countries by a variety of funding agencies increased substantially in 1989 to Dfl 2,900,000 (US\$ 1,450,000).

6. Programme Emphasis 1990

IRC's plans for 1990 form part of the Indicative Medium Term Plan 1990-1992, which was approved by the Governing Board in November. IRC's work is organized through two closely related components of the information issue: information management and information-oriented programme activities. In addition to the water and sanitation work already being done, IRC's general approach lends itself particularly well to expanding work in the 1990s to include pursuing of the mounting environmental and peri-urban problems facing developing countries.

The focus of information management will be on activities concerned with the development of information facilities and services which increase the sector's awareness of available knowledge and information and give it access to this resource. The programme activities component, consisting of publications and training and demonstration programmes, will be limited to a community-based approach. This approach will be concerned with five interlinked areas: rural and peri-urban water supply and sanitation systems, community participation, hygiene education and environmental management. Furthermore, most of IRC's activities will concentrate in four to six countries, which have yet to be selected by mutual agreement.

Training and briefing programmes will continue to be expanded. Attention to public information will be directed to raising the profile of the sector at large, and of the role of IRC as part of it.

I Governing Board

Mr. H. Scheltema
(Chairman)

Former Ambassador

Mr. G.W Ardon
(Secretary)

Head, Water Supply Division
Directorate General for
Environmental Protection
Netherlands Ministry of Housing,
Physical Planning and Environment

Mr. W.J. Kakebeeke
(Treasurer)

Head, International Environmental
Affairs Department
Directorate General for Environmental Protection
Netherlands Ministry of Housing,
Physical Planning and Environment

Mr. G. Ringnalda
(until March 1989)

Chief, International Organizations Department
Directorate General for International
Co-operation
Netherlands Ministry of Foreign Affairs

Mr. J. Zaadhof
(March - November)

Deputy Chief, International Organizations Department
Directorate General for International
Co-operation
Netherlands Ministry of Foreign Affairs

Mr P. Feith
(from November 1989)

Chief, International Organizations Department
Directorate General for International
Co-operation
Netherlands Ministry of Foreign Affairs

Dr. R.C. Harkema

Chief, Sector Programmes
Co-ordination and Technical Advice Department
Directorate General for International Co-operation
Netherlands Ministry of Foreign Affairs

Mr. A.H. Rotival

UNDP/WHO Co-ordinator for the
International Water Supply and Sanitation Decade
United Nations Development Programme

Dr. M.G. Beyer
(until March 1989)

Senior Policy Specialist
Water and Environmental Sanitation Team
United Nations Children's Fund

Dr. J. Christmas
(from March 1989)

Senior Policy Specialist
Water and Environmental Sanitation Team
United Nations Children's Fund

Mr. C. Carnemark

Chief, Water and Sanitation Division
Infrastructure and Urban Development Department
The World Bank

Mr. M.A. Acheson
(observer)
(until March 1989)

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

Dr. D. Warner
(observer)
(from March 1989)

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

II List of IRC Staff Members

Director

- * Hans M.G. van Damme

Programme Activities

- * Jan Teun Visscher Senior Programme Officer
Dept. Head Programme Activities
- Teun F. Bastemeijer Programme Officer
Training and Maintenance Development
- Michael Seager Programme Officer
Piped Supplies for Small
Communities and Community-Based
Financial Management
- Ms. Marieke T. Boot Project Research Officer
Evaluation, Hygiene Education
- Jo E.M. Smet Project Research Officer
Technology Development
- Ms. Christine van Wijk-
Sijbesma Project Research Officer
Community Education and
Participation and Roles of Women
- Ms. Lizette A.M. Burgers Support Officer
Hygiene Education
- Ms. Mary Boesveld Consultant, Community Participation and
Demonstration Project Support

* *Members of Management Team*

Michael D. Lee
from 18 September

Consultant, Technology Development

Dr. I.L. Nyumbu

Consultant, Piped Supplies for Small
Communities and Community-Based
Financial Management

Ms. Madeleen Wegelin-
Schuringa
from 31 May

Consultant, Social Sciences

Hamed A. Bakir
until 30 March

Temporary Support Officer
Pipe Supplies for Small Communities

Eugene Larbi
from 25 September

Temporary Support Officer
Pipe Supplies for Small Communities

Hielke Wolters

Temporary Support Officer
Pre-treatment

Ms. Anneke Groenendal

Programme Assistant

Ms. Brigitte M. Guillot

Programme Assistant

Technical Information Management

Eirah Gorre-Dale
until 1 May

Programme Information Officer

* Han Heijnen
from 15 August

Senior Information Officer
Dept. Head Technical Information
Exchange

Ms. Bettie E. Westerhof

Senior Documentalist

Cor H. Dietvorst

Documentalist

** Members of Management Team*

Stephen Parker Consultant, Technical Information Exchange

Ms. Hanneke Barten Project Assistant

Public Information

Dick de Jong Public Information Officer

Ms. Irene van Dieten Public Information Assistant

Administration and Finance

* Krijn M. Peterse Administrator

Ms. Nicolette Wildeboer Management Assistant

Ms. Hilda W. de Vries Staff Assistant

Ms. Hanneke Cusell -
Schaap Bookkeeper

Ms. Izabel Wimmers Receptionist

Ms. Carmen Slood Publication Assistant

Ms. Lia Wahab Publication Assistant

Ms. Lauren Wolvers Typist

Michel van der Leest Office Assistant

Mr. T.K. Tjiook serves as Advisor, with particular emphasis on relations with East Asian countries and water quality and treatment issues.

** Members of Management Team*

III IRC's Organization

In 1981, coinciding with the beginning of the International Water Supply and Sanitation Decade, IRC became an independent non-profit organization, which allowed for impartial and effective expenditure on water and sanitation-related projects. The international character of IRC is reflected not only in its mandate, staff, and working relationships, but particularly in its Governing Board. The latter comprises representatives of the 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 for 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.

A management team oversees the work of IRC, which is organized through three matching components. The first one deals with Technical Information Management. This concerns activities on the development of information facilities as well as the rendering of services that make the sector aware of available knowledge and information, and giving access to this resource. With sector information staff as primary target group, activities comprise support to the development of information capacities in developing countries, the development of information handling methods and tools and the provision of documentation services.

The second component consists of information-oriented Programme Activities. These comprise generation and delivery of knowledge and information regarding selected priority areas. They can be seen as the logic companion of the first component and vice versa, and will in the long term contribute to the same goal of wide availability of knowledge and information.

The activities include: (i) information research and development (including collection of information, literature review and work in the field) leading to condensing and structuring of information in new publications; (ii) development and demonstration projects particularly aimed at supporting national organizations in developing and testing community-based implementation strategies for water supply and sanitation programmes; (iii) training and briefing programmes for more intense transfer of knowledge and information;

(iv) advice, monitoring and evaluation activities, often on request of third parties, through which knowledge and information are applied in implementation projects in developing countries.

A third, smaller component is concerned with Public Information and includes promotion, public relation and public information activities, directed to raising the profile of the sector at large, and of the role of IRC as part of that sector.

Together these three components form an effective approach towards provision and application of knowledge and information.

Activities at IRC are organized as projects, which in principle require external funding, and 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, donor 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**) 2nd 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
- Handpumps, Issues and Concepts in Rural Water Supply Programmes (TP 25) 1988
- Ten Years of Experience: Community Water Supply and Sanitation Programme, Pokhara Western Development Region, Nepal (TP 26) 1988
- Hygiene Education in Water Supply and Sanitation Programmes (TP 27) 1988

OCCASIONAL PAPER SERIES

- Making the Links: Guidelines for Hygiene Education in Community Water Supply and Sanitation with Particular Emphasis on Public Standpost Water Supplies (OP 5) 1984
- Maintenance Systems for Rural Water Supplies (OP 8) 1987

**) Also available in French*

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

- Artificial Groundwater Recharge for Water Supply of Medium-Size Communities in Developing Countries (OP 9) 1987
- What Price Water? User Participation in Paying for Community-Based Water Supply (OP 10) 1987
- Training Community Motivators in Water Supply and Sanitation (OP 11) 1987
- Community Participation and Women's Involvement in Water Supply and Sanitation Projects, a Compendium Paper (OP 12) 1988
- Water Supply and Sanitation in Primary School Education in Developing Countries, a Preliminary Study (OP 13) 1988

BULLETIN SERIES

- Global Workshop on Appropriate Water and Waste-Water Technology for Developing Countries. Report on Proceedings (B7) 1973
- Slow Sand Filtration for Community Water Supply in Developing Countries: a Selected and Annotated Bibliography (B9) 1977
- Participation and Education in Community Water Supply and Sanitation Programmes: a Selected and Annotated Bibliography (B13) 1979
- Community Education and Participation in the IRC Slow Sand Filtration Project. Report of Proceedings (B14) 1979
- Report of a Global Seminar on a Modular Approach in Small Water Supply Systems Design, Jakarta, Indonesia (B17) 1981
- Informe del Seminario Internacional sobre Filtración Lenta de Arena Para el Astecimiento Público de Agua en Países en Desarrollo (B18) 1983

TRAINING SERIES

- 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
- Human Resources Development for Water Supply and Sanitation, Case Studies on Togo, Sri Lanka, the Philippines, Zaire and Thailand (TS 3) 1987
- Training Skills for Supervisors (TS 4) 1987
- Community Self-Improvements in Water Supply and Sanitation (TS 5) 1988

**) Also available in French*

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

REFERENCE SERIES

- Directory of Organizations involved in Community Education and Participation in Water Supply and Sanitation (RS1) 1983
- Interwater Directory of Sources of Information and Documentation on Community Water Supply and Sanitation (RS2) 1986
- Interwater Thesaurus for Community Water Supply and Sanitation (RS4) 1987
- INFO-IMPACT - Report on a Working Meeting on Information Exchange for Water Supply and Sanitation (RS5) 1988
- Framework for Technical Information Exchange (RS6) 1987

OTHER PUBLICATIONS

- Symposium on Community Water Supply in Developing Countries. Report of Proceedings 1977
- Procédures Simplifiées pour l'Examination de l'Eau 1983
- Volanta-Pompe à Main, Instruction d'Entretien 1986

V Country/Subject Matrix

This matrix contains a list of countries in which specific activities were undertaken in 1989, (see also map page 4 and 5) in addition to general information exchange in more than 100 countries.

COUNTRIES	ACTIVITIES											
	Technical Information Management	Piped Supplies 1)	Slow Sand Filtration 1)	Pre-treatment 1)	Resource Coverage 2)	Monitoring and Evaluation 2)	Health/Hygiene Education 2)	Women 2)	Maintenance Systems 2)	Low-cost Urban Systems 2)	Water Resources 2)	Alternative Energy Sources 2)
Africa												
Botswana											*	
Ethiopia	*											
Guinea Bissau									*			*
Kenya						*				*		
Malawi		*			*							
Mali										*		
Nigeria												*
Tanzania					*	*	*			*		*
Togo										*		
Uganda	*											
Zambia		*				*						*
Zimbabwe		*										
Asia												
Bangladesh						*						
Cambodia									*			
India	*					*			*		*	
Indonesia	*											
Pakistan					*							*
Thailand									*		*	
Vietnam									*			
Eastern Mediterranean												
Yemen Arab Republic					*							*
Latin America												
Colombia		*	*							*		*

1) development and demonstration projects

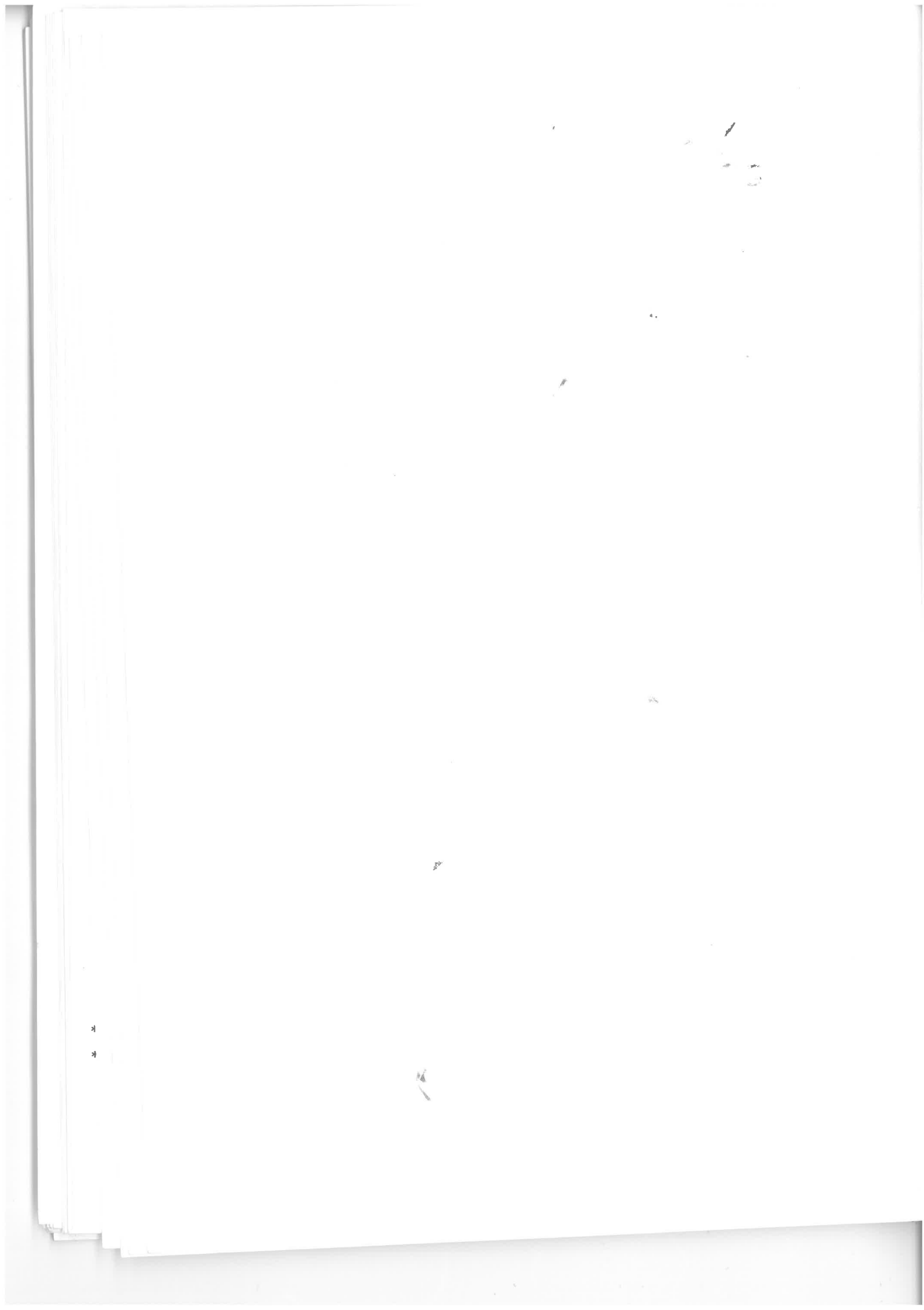
2) advice, monitoring and evaluation work and/or publications

VI List of Abbreviations

AMREF	African Medical Research Fund (Kenya)
CEC	Commission of European Communities
CEPIS	Pan-American Centre for Sanitary Engineering and Environmental Sciences (Peru)
CESI	Country External Support Information
CIEH	Inter-African Committee for Water Resources Studies (Burkina Faso)
CINARA	Centro Inter-regional de Abastecimiento y Remoción de Agua (Colombia)
DANIDA	Danish International Development Agency
DGIS	Directorate-General for International Co-operation (The Netherlands)
ESA	External Support Agency
FINNIDA	Finnish International Development Agency
GTZ	German Agency for Technical Co-operation
IDWSSD	International Drinking Water Supply and Sanitation Decade
IHS	Institute for Housing Studies (The Netherlands)
IHE	Institute of Hydraulic and Environmental Engineering (The Netherlands)

INFO-IMPACT	Information Exchange Plan of Action (process towards the implementation of technical information exchange)
IRC/WD	International Reference Centre for Waste Disposal (Switzerland)
ITB	Institute of Technology Bandung (Indonesia)
ITN	International Training Network for Low-Cost Water Supply and Sanitation
MDF	Management for Development Foundation (The Netherlands)
NORAD	Norwegian Agency for International Development
NOVIB	Netherlands Organization for International Development Co-operation
PAHO	Pan-American Health Organization
PROWESS	Promotion of the Role of Women in Water and Environmental Sanitation Services
PSSC	Piped Supplies for Small Communities
SITTRA	Finnish National Fund for Research and Development
SNV	Netherlands Development Organization
TIE	Technical Information Exchange
TWG-INFO	Temporary Working Group on the Communication of Information

UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Fund for Women and Development
UNIVALLE	University of Valle (Colombia)
USAID	United States Agency for International Development
VROM	Ministry of Housing, Physical Planning and Environment (The Netherlands)
WASH	Water and Sanitation for Health Project (United States)
WASP	Water Source Protection
WEDC	Water, Engineering and Development Centre, University of Loughborough (United Kingdom)
WHO	World Health Organization



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