

TABLE OF CONTENTS

	P
* IRC PAPER ON ARTIFICIAL GROUNDWATER RECHARGE	1
* SLOW SAND FILTRATION BOOKLET	1
* DECADE MEETING GUATAMALA	2
* COMPUTERS FOR PLANNING WATER SUPPLY	2
* LOW EFFICIENCY LATIN AMERICAN LABORATORIES	3
* PLANNING COURSE AT BRADFORD	3
* NEW PUBLICATIONS	3

IRC PAPER ON ARTIFICIAL GROUNDWATER RECHARGE

Artificial groundwater recharge can be an appropriate water treatment technique for medium-sized rural communities (5,000 to 15,000 people) which are dependent on surface water for their drinking water supply. Artificial recharge schemes can produce hygienically safe water for drinking and domestic use, without requiring any special treatment of the water. This follows the current trend of avoiding treatment plants, especially for rural communities and small towns in developing countries where the organizational infrastructure is often weak, supplies of power and chemicals unreliable, financial resources limited and skilled staff hard to obtain.

With the financial support of the Netherlands' Ministry of Housing, Physical Planning, and Environment, IRC has carried out a survey of current knowledge, the main results of which are presented in a recently published Occasional Paper (OP). There were few references to viable applications of this technique to smaller scale water supplies in developing countries. However, it appears that artificial groundwater recharge has substantial potential for rural water supply in developing countries, and the IRC OP gives planners and engineers a review of selected information with which to assess its potential application under these conditions.

The OP is titled: "Artificial groundwater recharge for water supply of medium-size rural communities in developing countries". It can be obtained from IRC at a pre-paid cost of US\$ 7.50.

SLOW SAND FILTRATION BOOKLET

Slow Sand Filtration (SSF) is attracting increasing attention all over the world. This

technique is of special interest to developing countries since SSF is a simple, reliable and highly efficient technology for the treatment of surface water. This is well illustrated in the new booklet "Slow Sand Filtration: a low-cost treatment for water supplies in developing countries", published for WHO's Regional Office for Europe by the Water Research Centre (WRC), the United Kingdom, in collaboration with IRC.

DIFFERENT PRICES FOR IRC PUBLICATIONS

In 1987 IRC has introduced a differential pricing system for its publication and services to match the various products closer to various market norms. This means that prices for clients in the industrialized world have been increased for the first time in five years. In a number of countries distribution agents will take over the distribution of IRC publications. In line with IRC's publication policy special arrangements for limited free of charge distribution for clients from developing countries remains possible.

Ever rising costs and the lower dollar rates have forced IRC to raise the prices of its publications. Updated publication catalogues reflecting the new situation will be mailed to all clients who ordered books in 1986 and will also be available on request. For the Netherlands a separate price list in Dutch guilders will apply.

Although we regret this unavoidable price increase, we trust that our clients will realize that the new prices enable IRC to recover only part of increasing publication costs.

The growing interest in this technique is due to positive research results over the last years, recent information on the cost effectiveness of SSF and the potential for community involvement in construction and management of the system. Over the past years research has been carried out by institutions in developing countries in the context of IRC's Research and Demonstration Project on SSF. This research has proved the efficiency of the biological, bio-chemical and physical processes involved in SSF. It also emphasizes the major drawback of SSF, this being its vulnerability to high turbidity, which causes rapid clogging of the filters. Good progress has been made in finding suitable, simple pre-treatment systems such as riverbed filtration

Newsletter no. 166-179
-1987-1988



and horizontal roughing filters (HRF). Furthermore the research has shown people from developing countries the relevance of SSF for surface water treatment in their own countries, and allowed them to gain experience with the new technology.

Some developing countries have already taken advantage of the technology in their water supply programmes, but many others are still not aware of the benefits to be gained from the application of SSF. The objectives of the SSF booklet is to draw attention to facts concerning this appropriate technology and encourage more countries to take advantage of its simplicity and low cost.

Further information on the application of SSF may be requested from the IRC. The booklet can be obtained free of charge from IRC or WRC at Henley Road, Medmenham, PO Box 16, Marlow, Bucks, SL7 2HD, UK.

DECADE MEETING GUATAMALA

Identification of the main constraints for Decade development and initiation of possible action were the main topics at the Subregional External Support Consultation for Middle America which took place in Guatemala City, 28-31 October 1986. The meeting was organized by the General Secretariat of the National Council of Economic Planification (SEGAPLAN) of Guatemala and supported by PAHO and the Ministry of Economic Co-operation of the Federal Republic Germany. The reunion permitted an active and useful interchange between the representatives of the six regional countries and delegates of the major External Support Agencies (ESA's).

The main restrictions identified were: insufficient mobilization of internal financial and human resources; insufficient operation and investment capacity; lack of uniformity in project and loan appraisals by the ESA's; insufficient co-ordination between ESA's, and recipient countries and between diverse sectors within a country; and the absence of an institutional structure for financing projects. These conclusions were similar to those of the Regional External Support Consultations which took place in Washington, 21-24 April 1986. The ESA's were again urged to co-ordinate their actions, which should be supported by the local UNDP representatives acting as a mediator between the ESA's supplying them with the necessary information. ESA's should also develop more uniform policies for appraising project proposals and guidelines for the development of appropriate proposals. Furthermore, recipient countries and agencies should analyse the conditions more carefully before expenditure is begun so that the agreed conditions are realistic and practicable.

In general the Meeting tried to develop action guidelines for improved financing of regional Decade activities. ESA's and recipient countries were not only urged to adopt the guidelines developed in this meeting, but also those presented in "Restrictions in the financing and execution of drinking water and sanitation projects during the first half of the decade". In addition to this yearly project evaluations were recommended. The proposed actions will be promoted by PAHA/WHO who will also co-ordinate activities that need unified action between the countries concerned and the External Support Agencies.

COMPUTERS FOR PLANNING WATER SUPPLY

Microcomputers were used in a study on piped water supply for two small urban centres in the Philippines. The microcomputers were used to optimize system design and to save time in preparing the range of alternative designs. The programs for computers used in the study were, developed under the UNDP/World Bank Technical Assistance Project PHI/80/015 and INT/81/047. They are part of the package "Microcomputer Programs for Improved Planning and Design of Water Supply and Waste Disposal Systems".

This package of ten microcomputer programs, with supporting material in English, is available from the UNDP/World Bank Interregional Project INT/81/047. It can be obtained by qualified planning and design agencies and educational institutions working in developing countries. The programs are designed to perform a variety of tasks including: the design of piped water distribution networks, the design of sewage collection systems, statistical analysis, mathematical optimization, and financial screening. They are suitable for use by engineers or by engineering instructors and their students.

The programs are available as complete packages including discs, users instructions, program listings, sample problems and references to textbooks. With one exception the programs are written in the BASIC language for the IBM personal computer and compatible microcomputers, utilizing MS-DOS operating systems.

Subject to available funding, the Interregional Project can provide initial assistance upon request to agencies in developing countries, for training in the use of the design tools, the application of these tools, assessment of the hardware needs and developing courses of instruction for advanced degree students.

The programs, developed by the University of North Carolina, USA have been extensively used in the field during the past few years. They have proved to be practical and powerful tools in achieving more efficient hydraulic designs and in computing comparative costs for various standards of service. The programs will continue to be updated and improved as more experience is gained in their use.

People interested in the possibilities of the programs can study the results of the Philippine study published in: "Sensitivity of water distribution costs to design service standards: a Philippine case study" (Technical note no.16) by P.V. Hebert and C. Yniguez of the World Bank Technology Advisory Group (TAG).

The programs are being distributed, free of charge, on a limited basis to government ministries, planning agencies, and other public sector institutions working in developing countries, as well as multilateral and bilateral donor agencies, universities and training institutions involved in this sector. In due course the programs will also be available for purchase from the World Bank. For additional information, please send your inquiries to: The Interregional Project INT/81/047, Water Supply and Urban Development Department, The World Bank, 1818 H Street N.W., Washington DC 20433 USA.

LOW EFFICIENCY LATIN-AMERICAN LABORATORIES

For some years CEPIS, organized the quality control programme PRELAB aimed at improving collaboration and information exchange among laboratories. About 49 laboratories participated in this programme. In 1983 a new programme was started, Global Environmental Monitoring System/Water (GEMS/Water). As part of this UN assisted programme, 44 laboratories in Latin America were assessed on their analytical capabilities. The laboratories were sent synthetic samples of water (EPA G01) in which they had to measure a wide spectrum of parameters. (physical, chemical, nutrients, minerals, metals). Some results published in the CEPIS periodical HOJAS (no.31, 1986) indicate poor correlation between different laboratories, poor acceptability of the test results and point out that the laboratories are not capable of measuring metal traces and toxic elements.

To evaluate the performance quality of the laboratories, standard samples (Certified reference materials) were used from the Environmental Protection Agency USA (EPA), and the National Institute for Environmental Studies (NIES) in Japan.

The poor test results were probably due to contamination of laboratories by dust or polluted clothes and shoes; poorly cleaned equipment; contamination of instruments which were cleaned using water that was distributed through old metal pipes. In general the study showed that laboratories in Latin America suffer from: a lack of current information about water analysis with respect to metal traces, a lack of communication among the laboratories, a lack of funds for equipment and a lack of skilled personnel.

PLANNING COURSE AT BRADFORD

For the 15th consecutive year the Project Planning Centre for Developing Countries of the University of Bradford is organizing a 12 week post-experience course for those involved in planning, appraisal, implementation and operation of projects and programmes in the International Water and Sanitation Decade. The course is intended to assist participants in inquiring a sound and practical knowledge of the approaches, techniques and issues involved in water, sanitation and primary health care sectors. The course is aimed at staff from national ministries, departments of public works and public health working at the national, state or municipal level. Also consultants in public health engineering, economics and planning and those working for international agencies, aid agencies and non-governmental organizations can take part.

The background of the participants may be that of a civil/municipal engineer, public health administrator, primary health care specialist, or municipal manager involved in water supply, sanitation and primary health care. Though several years' job experience is necessary, those recently assuming responsibilities in the sector will be considered.

All applicants should have a sufficient knowledge of written and spoken English. A test may be required for applicants from countries where English is not in use as a first or second language.

The course runs from 27 April to 17 July 1987. There will be approx. 25 places so it is important that application be made as soon as possible. Request for information and application forms can be sent to: Course Director, Water Supply and Sanitation Project Course, Project Planning Centre for Developing Countries, University of Bradford, Bradford, West Yorkshire BD7 1DP, UK

NEW PUBLICATIONS

Horizontal-flow roughing filtration (HRF): a design, construction and operational manual, by Martin Wegelin.

Horizontal-flow roughing filtration (HRF) is a unconventional but valuable and reliable pre-treatment technology for slow sand filtration (SSF) to reduce raw water turbidity. It ranks high among simple pre-treatment systems such as riverbed filtration, up-flow and down-flow roughing filtration. HRF acts mainly as a physical filter which retains the solid matter. The treatment is based on natural purification processes and does not require chemicals. The necessary installation is simple and can be constructed with local resources. HRF is very appropriate for use in rural and small urban communities in developing countries. In combination with SSF as the main treatment process, HRF helps to produce water equivalent to a good quality groundwater which is safe for consumption.

Supported by the Eidgenossischen Anstalt für Wasserversorgung, Abwasserreinigung und Gewässerschutz (EAWAG) - the Swiss Federal Institute for Water Resources and Water Pollution Control, the International Reference Centre for Waste Disposal (IRCWD) in Dubendorf, Switzerland, started a laboratory and field testing programme at the University of Dar es Salaam to test the suitability of HRF and full scale plants are under construction in several countries. The ultimate objective of this programme is to promote wider use of HRF technology in different developing countries and to gain more practical experience with this process.

The manual recently published by IRCWD provides tentative guidelines on design, construction and operation and maintenance aspects of HRF. For further improvement of the manual and to develop the technology the authors are hoping for feedback from the field. The manual is primarily written for design engineers, construction foreman and people who train treatment plant caretakers. Requests for copies or for further information can be sent directly to: IRCWD/EAWAG, The Editor, CH-8600 Dubendorf, Switzerland. The price per copy is approx. US\$ 10 excl. mailing costs. Institutions in developing countries and non-profit organizations can obtain one free copy.

Training of sanitary engineers in Europe by, B. Dean (ed) (1985)

The lack of trained staff for planning and maintenance of facilities is a major obstacle in the fulfillment of Drinking Water and Sanitation Decade goals. This situation is most serious in developing countries. Sanitary engineering, or public health engineering (in the USA) covers all those fields where engineering activities are more efficient than medical actions dealing with public health problems. It has developed very differently in different countries causing confusion about the discipline.

This publication tries to eliminate some of the misunderstandings and to stimulate training of sanitary engineers. The book highlights the engineering courses available in the European Region that are directly related to human health. It contains lists of national and international agencies responsible for such training together with a commentary on the system pertaining in each country. Included are detailed descriptions of the curricula in eighteen representative training institutions in a cross-section of countries in Europe, also including three courses in the USA. It specifies those that cater particularly for developing countries and the languages in which the tuition is given. All aspects are adequately registered, with addresses of universities, government departments, research and other institutions in each country. All this makes it an invaluable work of reference to present and future students of sanitary engineering, as well as to those responsible for the content of sanitary engineering curricula.

This directory is published by WHO's Regional Office for Europe in Copenhagen, and can be obtained from: WHO Distribution and Sales, 1211 Geneva 27, Switzerland. The price is Swiss Fr. 16.=

New numbers in IWSA/COCODEV series

Recently COCODEV, the Committee on Co-operation in Development published two booklets on financial aspects of water supply. COCODEV is a working group of the International Water Supply Association (IWSA) and was established in 1978 to promote water supply in developing countries.

The booklets, "Budgeting and control" (No.5.1) and "Billing and collection" (No.5.3) are published in the series "How to work in water supply". Like all other booklets in this series the publishing costs of both booklets were met by an individual sponsor. The booklets are illustrated and include a comprehensive text. They are targeted at and made available for medium-level technicians and administrative personnel in water supply undertakings in developing countries. It is the intention that all publications will be made available in English, French, Spanish and Arabic, but for the time being each booklet is published in the language chosen by the sponsor.

The series is divided in eight main categories:
1. Water resources; 2. Treatment and production;
3. Water distribution; 4. Water quality control;
5. Finance; 6. Management and organization;
7. Personnel, and 8. Legal aspects.

Up to 20 copies can be ordered free of charge (exclusive transport costs). For more information on COCODEV and titles, contact: Committee on Co-operation in Development, Ir. P. Haverkamp Begeman, Condensatorweg 54, 1014 AX Amsterdam, The Netherlands.

Directory of development education periodicals by United Nations Non-Governmental Liaison service (NGLS)

An intensive inquiry by NGLS/Geneva amongst several hundred Non-Government Organizations in Western Europe, Australia and New Zealand, produced about 550 periodicals with references to development education. NGLS/Geneva is a United Nations Organization whose main task is co-operating with Non-Governmental Organizations (NGOs) in Western Europe, Australia and New Zealand in promoting greater public understanding of development issues.

The periodicals are classified according to the type of origin of the publishing organization rather than by subject. They are classified in four types: periodicals of national and international operating NGOs, of NGOs within the UN system and periodicals of governmental and intergovernmental organizations. An index of organizations is included together with an alphabetical list of periodicals. The directory gives an outline of the main areas of interest of each periodical, the issues it raises and its intended audience, as well as giving information on its availability. It could be useful to people interested in development education or who want to contact NGOs in these parts of the world. A French version is now being produced including NGOs from francophone Canada and will be available later this year.

For orders: United Nations Non-Governmental Liaison Service (NGLS/Geneva), Palais des Nations, CH-1211 Geneva 10, Switzerland. Development education NGOs and NGOs in developing countries can get one copy free on request. The charge to other NGOs is US \$ 10 and to individuals and other organizations US \$15.

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 93190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

	P
* TECHNICAL PAPER ON RENEWABLE ENERGY SOURCES	1
* IRC PAPER ON MAINTENANCE SYSTEMS DEVELOPMENT	1
* TEACHING AIDS AT LOW COST	2
* IHE POST-GRADUATE COURSES	2
* IRC PREPARATION PROGRAMME	2
* COMMUNICATION FOR HEALTH	3
* WASTE WATER STABILIZATION PONDS	3
* NEW PUBLICATIONS	4

TECHNICAL PAPER ON RENEWABLE ENERGY SOURCES

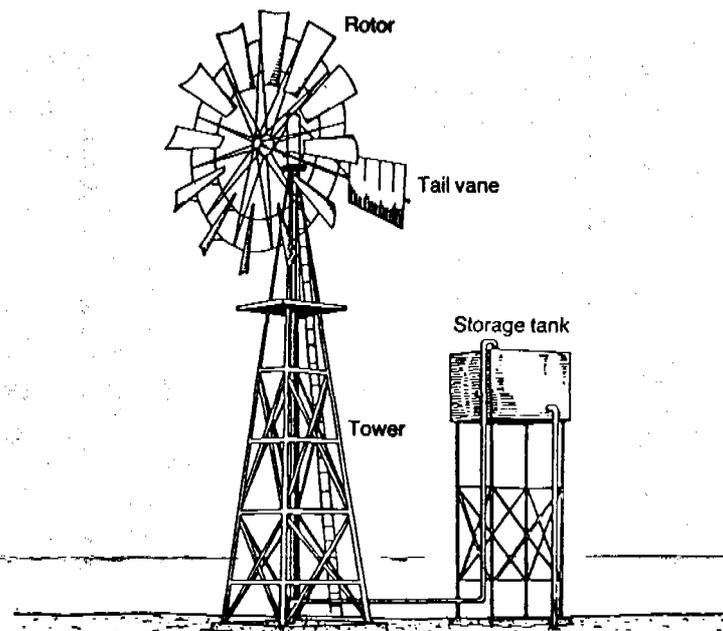
IRC has published a manual which reviews renewable energy sources for water pumping titled: "Renewable energy sources for rural water supply". It is number 23 in the Technical Paper (TP) series.

Over the years, interest in renewable sources of energy such as solar energy, wind energy, hydropower and biomass fuel has increased. Pumping systems based on these energy sources have become technically reliable and economically attractive, particularly for small water supply systems with a capacity of up to about 250 m³/d. A larger pumping system based on renewable energy sources may be especially attractive for the water supply systems of larger communities where water requirements are usually far beyond the capacity of a single hand pump.

Diesel and electric pumps have, so far, generally been used for the water supply systems of larger communities. However, the use of these pumps has met with considerable difficulties, including: high costs in securing regular supplies of fuel or power, inadequate infrastructure and skills for operation and maintenance, and organizational limitations. As a result, attention has been focused on the potential of using alternative power for sources for medium-size rural water supplies. Research and development, supported by field trials, have advanced pumping systems using these energy sources to a stage where they are competitive with the conventional diesel and electric devices.

However, lack of practical information is a serious limitation for decision makers, planners and engineers when assessing pumping systems using renewable energy sources for large-scale application in national water supply programmes.

This new Technical Paper can now supply the necessary information for assessing options for using pumping devices powered by renewable energy sources.



Wind pump with multi-blade rotor

The manual is divided in two parts. The first part deals with the systematic pre-selection of the most appropriate pumping system for a particular country or region. Environmental, technical, social and economic considerations are taken into account. Comparative cost analysis is presented as a useful tool in the pre-selection process. The second part provides detailed information to support further consideration of the selected pumping systems. The price of this publication is US\$ 25,= and can be ordered from IRC.

IRC PAPER ON MAINTENANCE SYSTEMS DEVELOPMENT

IRC recently published a new Occasional Paper (OP) which reviews existing knowledge and available literature on maintenance of water supply systems. The preparation of the OP was financially supported by the Department of Research and Technology of the Dutch Ministry of Foreign Affairs.

The OP is based on available literature and interviews with project staff members and it reviews current thinking on maintenance of rural water supply systems. It is clear from the review that maintenance is often not satisfactorily organized in projects because of poor project formulation, lack of resources, a lack of systematic involvement of users and authorities, as well as poor initial quality of the constructed systems. Nowadays, maintenance is seen as a major bottleneck for long-term success and there is growing recognition of the need for satisfactory maintenance. With this OP, IRC believes that the main factors and constraints affecting maintenance of rural water supplies have been identified. The information and references may prove valuable for project staff and planners, as well as for officials at government department levels and policy makers involved in water supply and sanitation in developing countries. The OP makes a comparison of existing approaches with the development of a sound maintenance system. It shows that in the past few years, emphasis has shifted from developing suitable hardware to recognizing the importance of good organization. Recently, various projects have tried to develop a systematic approach to maintenance.

The review shows the viability of such an approach and how it has emerged from field experiences. Furthermore, it includes some 60 literature references and a checklist for maintenance-oriented project preparation assessment to be used as a guideline for interviews and discussions with professional staff involved in rural water supply in developing countries. The title is: "Maintenance systems for rural water supplies", written by Mr. T. Bastemeijer and Mr. J.T. Visscher. The price is US\$ 7.50 and can be ordered from IRC.

TEACHING AIDS AT LOW COST

Several sets of slides giving relevant information on water-borne diseases are available from Teaching Aid at Low Cost (TALC), an English non-profit charity organization. Colour slide sets, accompanied by a written text or cassettes are available about diarrhoea management, guinea worm, schistosomiasis, helminths (worms), protozoa (parasites) and onchocerciasis (river blindness).

These slides which are used for training nurses and health workers in health centres or within primary health programmes, can also be used for instructing sanitarians and extension workers who are concerned with water supplies. The scripts are simply written so that students and workers with little previous knowledge can understand them. The slide sets are available as a film strip, for self-mounting, or can be obtained mounted. The developing country prices are: for self-mounting sets approximately £2.00 and for mounted sets £2.90. As well as slides, TALC provides low-cost teaching aids and books to organizations working in developing countries with the aim of raising the standard of health care in these countries. Some of the material is supplied free when accompanying an order for books.

For further information, full lists and prices, contact TALC Publicity Officer, P.O. Box 49, St. Albans, AL1 4AX, Hertfordshire, UK.

IHE POST-GRADUATE COURSES

Water quality management is a new course organized by the International Institute for Hydraulic and Environmental Engineering (IHE) in Delft, The Netherlands, to be started in October 1987.

This year, the Environmental Engineering Department will organize the following 11-month international courses in the post-graduate training programme.

- **Sanitary engineering:**
This course deals with water supply, waste treatment and rural water supply and sanitation. As in previous years, IRC will contribute to this course through a series of lectures on community participation, community-based financial management and a number of technical issues.
- **Environmental science and technology:**
This course deals with environmental problems in industrialized, as well as in developing countries.
- **Water quality management:**
This new course provides interdisciplinary training to professionals engaged in monitoring, maintaining and modifying the quality of surface- and groundwaters within a river basin, in relation to the different purposes for which the water is used.

For all courses there is a minimum requirement of a Bachelor of Science degree (B.Sc.) followed by at least three years of relevant practical experience. The course in sanitary engineering and in water quality management requires a degree in civil, sanitary or chemical engineering, or a related branch of science. For the course in environmental science and technology, a B.Sc. in chemistry, biology, chemical or agricultural engineering, or a related branch of science are required. Applicants should have a good command of English. All courses lead to a certificate of attendance or a diploma.

For more information and applicant forms, please contact: IHE Registrar, P.O. Box 3015, 2601 DA Delft, The Netherlands.

IRC PREPARATION PROGRAMME

During 1986, IRC was approached several times by organizations to provide specific information support to development assistants who were going to work in the field. An initial request for support came from SNV (Dutch Volunteer Agency), but requests for an information support programme also came from the Dutch government, development organizations and from consultant agencies working in the field of water supply.

The first contract was signed with SNV in 1986, after which several groups of volunteers from SNV received a pilot introduction programme at IRC, in preparation for their work in developing countries. At the end of 1986, IRC was also contacted to provide information and professional back-up to members of review and evaluation missions and consultants. Based on these experiences and the growing interest of specialized organizations for information services, IRC has decided to conduct, on request, similar tailor made introductory programmes in 1987.

During the programme, emphasis is placed on the importance of proper information and its use for people working in developing countries. In this way, development assistance staff can update their information on technical and non-technical aspects of community water supply and sanitation.

The programme concentrates on broadening the perspective of participants concerning their role in the field, increasing their readiness for specific responsibilities and updating their knowledge. Each programme is designed for the specific needs of the participants based on job descriptions, project documents and information on local conditions. Emphasis is placed on small group seminars, and individual research with support from IRC's professional staff and information specialists.

Participants have access to the latest information on developments in water supply and sanitation and will be helped to identify their information needs. They will learn about resources available and how to use them. The programme enables all participants to put together a practical package of material for use in the field. The programmes are normally conducted in English, but French, Spanish and Dutch programmes can be arranged on request. For more information, contact IRC.

COMMUNICATION FOR HEALTH

The PRASAR Project in Honduras (Proyecto de Agua y Saneamiento Rural) has demonstrated how careful planning and co-ordinated communications can change people's understanding of the importance of water and sanitation, and so change their daily practices.

The health communication model which was carefully tested, involved the combined use of printed matter, radio and TV broadcasts and face-to-face contact. Drawing upon successful social marketing and health education techniques, PRASAR, with support from USAID and the Academy for Educational Development in Washington, designed a programme to benefit 200,000 families. An important feature of this effort was the careful advanced analysis of recipients possible themes, and channels of communication, followed by pre-testing and revisions.

The project was aimed at developing wells, small aqueducts, sewer disposal systems and latrines, which could be supported by programmes to encourage the proper use and care of these systems and prevent water-borne diseases through health education, and a change in the disposal of water and excreta. Training at all levels was carried out, training evaluation, production and planning training and also training for the management of the new method of public health communication. At the end of the project the people taking part should be aware of these basic measures: covering drinking water vessels at home; covering the latrine and keep its surroundings clean; the use of a ladle to pour water out of the storage container, and should be willing to contribute money to maintain the rural aqueducts.

A survey in 1983 showed that 75% of the population were sensitive to at least parts of the messages and performed two or more of the four recommended practices. There was strong evidence that most latrines were properly used and maintained. Health activities are being expanded and new personnel has been hired to

strengthen the office. All field promoters were trained in the procedures for health communication, and the radio programmes reached an estimated 300,000 people in the project area.

However, only 2% of the participants used the ladle for water transfer and difficulties were encountered in collecting money for maintenance. Although people were aware of the financial needs of the project and knew how the money was administered, the collection itself was still troublesome. This could be due to the lack of a clear, uniform policy on the amount to be donated and the method of collection.

The approach of the project has been used by other programmes and agencies who have sent their promoters to be trained in the techniques used. The Water and Sanitation Project of the Ministry of Health/AID in the Dominican Republic has adapted the flip chart and the educational approach is being used by the project's promoters at health communication meetings. More information can be found in: "Communication Community and Health: final report of the Honduras Water and Sanitation Communication Programme 1981-1985" by Oscar Viganò (Field Project Director), (1985), and Tegucigalpa, Honduras, published by the Academy for Educational Development Inc. Address: 1255 Twenty-third street N.W. Washington, DC 20037 USA.

WASTE WATER STABILIZATION PONDS

A consultation meeting on the WHO/EURO design of waste stabilization ponds was held from 20 to 23 October in Lyon, France. The meeting in which IRC participated, was organized by the WHO European Regional Office in collaboration with the French government, and was hosted by CEMAGREF (the National Centre for Agriculture, Mechanization, Rural Engineering, Water and Forestry Management). It was attended by representatives of several European countries, Burkina Faso, Morocco and Turkey.

The aim of the meeting was to review the latest experiences in design, construction and operation of waste stabilization ponds, and to review and adjust a draft manual to be published at the end of 1987, on waste stabilization ponds prepared for the WHO by Mr. D. Mara and Mr. H. Pearson, respectively from the Universities of Leeds and Liverpool. It also formulated conclusions and recommendations for future applications of this method of waste water treatment.

Particular attention was paid to the application possibilities in developing countries. This biological treatment technique has become increasingly popular for waste water treatment in developing countries and in small rural communities in Europe, because of its efficiency in destroying pathogens, simple operation, and appropriateness for the rural environment.

From the country reports, it became clear that for Western and Mediterranean Europe no general trend exists in application and design of stabilization pond systems. France, for example, has small facultative ponds (2-3 ha.) serving rural communities (100-300 inhabitants), whereas in Turkey they are designing a large pond system (2000 ha.) to serve Izmir. In other European countries such as Belgium, Denmark, The Netherlands and the UK, the use of stabilization ponds is limited.

During the discussion on the manual, several physical and process design guidelines of ponds were reviewed. It was proposed that two different manuals would be developed: a simplified manual for ponds serving small communities (less than 300 inhabitants), and a more sophisticated one for larger communities. The simplified manual would also be a valuable contribution in making ponds more accessible to communities in developing countries with temperatures comparable to those in the European Mediterranean Region.

Other topics discussed were hygiene and hygiene education, mosquito control in and around the ponds, and operation and maintenance of the ponds. Mr. Espinoza from the WHO said that although ponds needed relatively little maintenance compared to other treatment systems, many ponds do not function properly because maintenance is underestimated, and no personnel is assigned to carry it out.

One of the conclusions of the meeting in Lyon was that although ponds have been in use for many years, quantitative data is still lacking. Therefore, monitoring and evaluation should be encouraged in Europe as well as in other parts of the world. For Europe, WHO will be collaborating with CEMAGREF to collect and process data for the European ponds.

For more information on the Lyon Meeting and the WHO Manual, contact Prof. Duncan Mara, at the University of Leeds, UK. People interested in data on the European Region are asked to contact Mr. Espinoza at the WHO Regional Office for the International Water Decade, 8 Scherfigsvej, DK 2100 Copenhagen O, Denmark.

CONFERENCE ANNOUNCEMENTS

- The American Society of Civil Engineers organizes the International Conference on Resource Mobilization for Drinking Water Supply and Sanitation in Developing Nations. The conference will take place from 26-29 May, 1987, in San Juan, Puerto Rico. All major international organizations involved in the Decade will contribute to the sessions.

- The International Association on Water Pollution Research and Control (IAWPRC) is holding a specialized conference on waste stabilization ponds from 29 June to 2 July 1987 in Lisbon, Portugal. For more information contact: Mrs. M.H. Marecos de Monte, IAG-Lisboa 1987, LNEC/NHS, Av. Brasil 101, 1709 Lisboa Codex, Portugal.

NEW PUBLICATIONS

The Environmental Sanitation Information Center (ENSIC) in Bangkok, Thailand, has recently published a further addition of their Environmental Sanitation Reviews (no. 19/20). It is entitled: "Anaerobic waste water treatment: attached growth and sludge blanket process", written by S. Vigneswaran, B.L.N. Balusuriya, and T. Viraraghavan.

This review provides a state-of-the-art of the experiences with anaerobic waste water treatment processes. Next to a general introductory chapter, it discusses several anaerobic treatment techniques in a concise manner. Discussed are: anaerobic filter treatment (upflow/filters), anaerobic downflow stationary fixed-film treatment, anaerobic expanded/fluidized bed treatment, and upflow anaerobic sludge blanket treatment (USAB).

Information on the different technologies is structured along clear lines with each chapter, treating one technique. The principle technical characteristics and design criteria of each technique is described, followed by information and application possibilities for municipal, industrial and septic tank effluent for each technology. The advantages and disadvantages of each treatment are explained. Furthermore, the booklet contains an extensive reference list of 100 references. The information provided by this booklet can be of value to researchers, people working in sanitation projects and especially, higher level personnel and managers of waste water treatment plants in developing countries.

Other titles on related subjects in the same series are: Management of Ethanol Production Wastes (no. 16), and Septic Tank and Septic Systems (no. 7/8). For more information on ENSIC and orders contact: ENSIC, Asian Institute of Technology, P.O. Box 2754, Bangkok 10501, Thailand.

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 98190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

	P
* WATER SUPPLY HELPS PRIMARY HEALTH CARE	1
* WATER NETWORK NETHERLANDS	2
* INFORMATION WORKSHOP AT IRC	2
* STAFF NEWS	3
* IRC SWITCHES TO MINISIS	3
* UNDP DIVISION FOR NGO'S	3
* INTERWATER THESAURUS	3
* MODULES FOR PARTICIPATION IN URBAN SANITATION	4

WATER SUPPLY HELPS PRIMARY HEALTH CARE

In previous newsletters, short case studies of water supply projects have been published, describing specific approaches towards community water supply projects in Asia (NL 162 and 164) and Africa (NL 163 and 164), areas traditionally well covered by IRC. In this newsletter attention is focussed on a water supply project in Latin America, a region with a good reputation for community participation in water supply projects. An article published in Grassroots Development vol.2, no.2 (1986), the Journal of the Inter-American Foundation, gives an example of the importance of the development of a water supply for overall community development.

In the Mid-Amazon Region of Brasil, near the city Santarém, the introduction of wells proved to be of great importance for effective primary health care activities. The Non-government organization (NGO) Fundação Esperança has been working in this area for 15 years to provide the widely scattered rural population with effective health care. Activities centred around a hospital boat traveling up and down the river. Personnel on the boat carried out vaccination, supplied general medical care and provided surgical services to a large number of people. The boat was seen as a symbol of modern medicine. However, staff members of Esperança, began to doubt the long term effectiveness of this approach since there seemed to be no significant improvement in the overall health of the people. The same diseases and problems kept reappearing: malnutrition, malaria, diphtheria, high infant mortality. Hygiene was inadequate and there was no safe water available. The State had no money to improve these conditions and the organized health facilities were inaccessible.

To create a longer-lasting impact on the level of health Esperança decided to organize rural communities in improving family diets and sanitary practices and in carrying out

vaccination campaigns. Supported by a grant from Private Agencies Collaborating Together (PACT), it launched its own primary health care programme. For this programme health workers from Esperança's offices in Santarém were selected to organize local health committees, which were backed up by the trained personnel from the original medical boat. Communal gardens were also started to provide more nutritious food.

Problems immediately arose. Due to the bad logistics and communication facilities the health workers had difficulty in reaching the dispersed communities. Health care workers were discouraged, as it was difficult to organize community health committees which, when formed often lacked direction and resources. The committees did not function well and the planned community gardens remained unplanted or quickly deteriorated. The programme lacked a central focus and energy was wasted trying to simultaneously organize different schemes such as the group gardens, vaccination schemes and general public health education.

An attempt was made to improve this situation by establishing closer contacts with the community. For example local people were selected for training as paramedics. However, the major breakthrough in broadening community participation was the introduction of wells. Esperança staff had observed that village women and children often spent hours every day carrying water from the river bank to the settlements. This water, drawn from stagnant marshlands, was a rich breeding ground for parasites. Searching for a low-cost solution, Esperança requested assistance from Partners of the Americas, who sent an experienced hydraulic engineer to study the situation. Since the water table was only six to eight meters underground wells could quickly be dug by groups organized by the local health committees. A pumping device was designed made of simple, readily available material: cement, plastic pipe, wood and a leather joint. The wells were built locally.

The construction of wells equipped with hand pumps was approved by the communities. Women especially saw the advantages of a water supply which would significantly reduce their daily work. Parasitic diseases declined dramatically after introduction of the wells and the correlation was soon obvious. Health committees asked Esperança to expand the well-digging, and paramedics are now working with residents from each community to open new wells, each serving several families. The pumps are put together in Santarém and sent upriver by boat, their assembly and installation being supervised by local health workers. Members of the community are then



trained to maintain the wells. Construction materials are financed through Esperança and the community repays the loans through the health worker.

Appreciation of the importance of clean water has also proved beneficial to local potters. Several of them have been contracted by Esperança to construct large, inexpensive ceramic jars with small carbon filters and faucets at the bases. These jars, which are common in other parts of Brasil, limit tactile contact and provide a final filtering before the water is consumed at home. They are purchased directly from the potters.

A supply of clean water has (direct and indirect) spinoff benefits for the Esperança programme: Women and children have more free time and more energy which can be used e.g. for gardening. The wells have now replaced the hospital boat as a symbol of power of modern medicine, mirroring the shift to low-cost, more appropriate technologies that reinforce the relevance of the paramedics and bind them more strongly to local health committees.

WATERNETWORK NETHERLANDS

IRC has taken on an observer role in the initial phase of the Dutch Waternetnetwork initiative which started in January 1987 with support from the Dutch Directorate of Development Co-operation (DGIS) and the Netherlands Ministry of Housing, Physical Planning and Environment (VROM).

The Waternetnetwork forms the Dutch answer to the initiative of the Commission of the European Communities, to participate on a national level in a new form of development cooperation. This initiative was launched earlier (in 1985) in France under the name of "Solidarité Eau". It encourages contacts between communities in developing countries with needs for water and sanitation development, and municipalities, communities and non-governmental organizations in Europe interested in sponsoring such schemes. The contacts in some cases can lead to actual "twinning" arrangements and activities. The theme "Water" includes water projects for agriculture, community water supply, sanitation and hygiene and other environmental programmes.

The initiative is a response to an increasing interest at local levels for development support. An increasing number of European cities are directly involved in development co-operation, or have shown keen interest in active participation. In the Netherlands alone, one-third (250 out of 750) of the municipalities are concerned with development aid in some form. Among these local initiatives are several supporting small-scale water projects. However, initial, adequate information concerning water projects is needed for effective support. Currently access to up-to-date, factual project information is limited. The Waternetnetwork wants to make this information available to interested municipalities, public agencies and other local organizations to facilitate constructive negotiations between interested parties and organizations involved in particular waterprojects.

The significance of the involvement of local authorities and private organizations in small-scale development projects is generally acknowledged. In 1984 the Council of Ministers for Environment of the European Community (EC) adopted a resolution in which the European

Commission was asked to sort out options for lower-level support for small-scale water supply in developing countries. This resulted in a request to IRC from the Netherlands Ministry of Housing, Physical Planning and Environment (VROM), to co-ordinate a study on the possibilities for a Dutch Waternetnetwork. This study was carried out by IRC in co-operation with a number of Dutch NGOs and other relevant organizations, representing the water industry (Dutch VEWIN) and the local authorities and municipalities, and was specifically directed at the situation in the Netherlands. Experiences gained from other European countries, such as WaterAid in the UK and the French Project Information Unit (Bourse des Projects) were also incorporated.

The Waternetnetwork enables participating municipalities to receive regular information on the projects available for active participation or support. Furthermore it aims to stimulate an awareness of practical options for development co-operation on a local level. The emphasis will be on long-term support of projects or parts of projects with a strong awareness component which do not qualify for traditional donor financing.

For general information on the Waternetnetwork initiative, contact the Secretary, Mr. H. Jeurissen, Council of the European Municipalities and Regions (REGR), Brusselsestraat 51, 6211 PB Maastricht, The Netherlands. For project information contact the Water Network Coordination Point temporarily housed at the Dutch NGO NOVIB. The address: Mr. R. Grotenhuis, NOVIB, Amaliastraat 5-7, 2514 JC Den Haag, The Netherlands.

INFORMATION WORKSHOP AT IRC

Continuing its efforts to improve exchange of information on community water supply, IRC is organizing and will be hosting a three day Technical Workshop of information specialists in water supply and sanitation from 1-5 June 1987 at the IRC office in The Hague.

This meeting is a follow-up of the 14th meeting of the Inter-Agency Steering Committee for Co-operation Action for the International Drinking Water and Sanitation Decade in Geneva, 4-5 September 1986. At this meeting the Steering Committee acknowledged the valuable contribution made by IRC to information exchange for the Decade and endorsed its members continued co-operation with and support of IRC's activities. IRC's chairman Mr. H. Scheltema announced IRC's readiness to take the initiative in developing a new action plan dealing with information requirements. This proposal was endorsed by the Committee and IRC was asked to organize a meeting.

The June workshop will bring together selected information specialists who will review various technical and operational information issues and give recommendations for an information plan. During the June workshop meeting, discussions will take place in group sessions emphasizing the following key issues: (1) Market analysis; (2) Product development and delivery and transfer of information; (3) Awareness and promotion (user oriented); (4) Compatibility and tool development; (5) Automation aspects and opportunities and; (6) Training of information staff and use of facilities.

The outcome and recommendations of the June workshop will be integrated in a Working Group Meeting in The Hague scheduled for September 1987, which will discuss the plan of action for information in the rest of the Decade and beyond. It is intended that this plan of action will launch a two-pronged approach to-ards: (a) global needs; and (b) action at local level in a few selected countries.

The September meeting will be attended by individuals and representatives of agencies which support Decade information exchange activities in developing countries, including nationals from four or five selected countries.

STAFF NEWS

In March 1987, Dr. Deepa Narayan-Parker started working for IRC on a short-term assignment. In addition to other duties she will be working on a guidance document on baseline studies for low-cost water supply and sanitation projects in rural, urban and peri-urban areas in developing countries.

Dr. Narayan-Parker is a development psychologist, with seven years field experience in water supply and sanitation projects. Her special interest is the inclusion of women and children in participatory planning and development. Dr. Narayan-Parker previously worked for UNDP, USAID, NORAD, WHO, and various non-government organizations in Indonesia, Botswana and the Maldives.

IRC SWITCHES TO MINISIS

In February IRC acquired the new HP 3000-37 XE hardware together with the MINISIS software package. MINISIS was primarily designed for computerizing libraries and information centres in developing countries. With the introduction of MINISIS, IRC's documentation capabilities have been improved, and faster and more accurate retrieval of information is possible, improving its external information services. MINISIS is particularly valuable in compiling and using the Interwater Thesaurus to be published by IRC in May. Furthermore, through the use of MINISIS IRC is able to improve its exchange of information with important institutions such as CEPIS (Centro Panamericano de Ingenieria Sanitaria y Ciencias del Ambiente) in Peru, ENSIC (The Environmental Sanitation Information Center) at the Regional Library and Documentation Centre of AIT in Bangkok (the Asian Institute of Technology) and IDRC (The International Development and Research Centre) in Canada.

The first version of the MINISIS bibliographic information system was developed by IDRC in 1976. The software package is based on the International Labour Office's ISIS software. One of the greatest advantages of MINISIS is that it is able to serve its users in their own language. It is a highly flexible package which can easily be adapted to a wide range of characters. The software initially was designed to operate in English, French and Spanish, but interest from the Arabic world led to the development of an Arabic package. All the modifications made for Arabic were easily adapted to other languages having fewer than 256 characters, including Thai, Korean, Russian and Greek and allowed the system to be adapted to Chinese. Eleven scientific institutions in China are already using MINISIS.

MINISIS became operational in January 1978. Since then, the number of users has increased sharply, and at this moment more than 170 systems have been installed in 44 countries, mostly in the developing world. Among the users are libraries, documentation units, commercial, governmental and non-governmental organizations and scientific institutions in developing countries. For example: Arab League's Documentation Centre in Tunis; CEPIS in Peru, Institut du Sahel in Mali, The United Economic Commission for Africa (UN/ECA) in Ethiopia.

To keep the users of MINISIS up-to-date on new developments, IDRC publishes a newsletter "MINISIS Bulletin". A yearly MINISIS Users Group conference facilitates the exchange of experiences. More information about the possibilities, current users and how to obtain MINISIS can be obtained from IDRC, PO Box 8500, Ottawa, Canada K1G, 3H9.

UNDP-DIVISION FOR NGO'S

A division for Non-Governmental Organizations (NGOs) was established in December 1986 within the UNDP Bureau for Programme Policy and Evaluation (BPPE). This new division plans to expand UNDP's existing co-operation with national and international NGOs. It concentrates on supporting programmes and projects with an approach based on community participation. It aims to advise operational units within UNDP and the Administrator on policies to be followed with regard to NGOs in both recipient and donor countries, and will advise on the correct procedures for implementation of UNDP programmes and projects by NGOs. Furthermore it promotes co-operation between UNDP and NGOs, and serves as the main focal point within UNDP for the development of policies, procedures, and of pilot projects and programmes which are directed towards supporting community based activities. It is hoped that this will facilitate UNDP access to, and use of, the human and financial resources of NGOs in both recipient and donor countries.

Ms. Sarah Timpson, former UNDP Project Manager for Promotion and Support for Women's Participation in the Water Decade (1983-1986), has been appointed as Programme Director of the Division.

For more information contact UNDP, Division of Information, 1 UN Plaza, New York NY 10017, USA, or: UNDP Information Unit, Palais des Nations, CH-1211 Geneva 10, Switzerland.

INTERWATER THESAURUS

In May 1987, IRC will publish the trilingual Interwater Thesaurus for Community Water Supply and Sanitation. It is a complete revision of the earlier Intermediate Thesaurus on Community Water Supply and Sanitation for Developing Countries.

The Interwater Thesaurus has been prepared by Mr. D. Leatherdale in cooperation with a working group which includes representatives from Association Française pour l'Etude des Eau (AFEE) in France, the Asian Institute for Technology/Regional Library and Documentation Centre (AIT/RLDC) in Thailand, el Centro Panamericano de Ingenieria Sanitaria y Ciencias del Ambiente (CEPIS) in Peru, le Centre Interfricain d'Etudes Hydrauliques (CIEH) in Burkina Faso, the Water Research Centre (WRC) in the UK, and IRC.

The English, French and Spanish versions provide a controlled, identically structured multilingual vocabulary of terms used in water supply and sanitation for use in indexing, storage and retrieval of information. It will help librarians and documentation staff active in the water supply and sanitation area to more effectively transfer information on water supply and sanitation from one part of the world to another, as well as streamlining documentation. It is also useful to translators and professionals in water supply and sanitation working in research and publication of their experiences.

The Interwater Thesaurus consists of two volumes. Volume one, the main body, is available in English, French or Spanish. Volume two is an alphabetical structured trilingual index of used terms.

Volume one contains: an introduction and instructions for users, a schematic presentation of usage, a list of top terms, and the main list of descriptor terms and non-descriptor terms.

One set of the Interwater Thesaurus (one copy of each volume) will cost US \$ 30,=.

Separate copies of the index (volume two) cost US \$ 10,=.

A complete set (consisting of volume one in English, French and Spanish plus one copy of volume two) will cost US \$ 50,=.

Those who want to order a specific set are requested to clearly state their preferences. For more information contact IRC Information Section.

MODULES FOR PARTICIPATION IN URBAN SANITATION

The United Nations Centre for Human Settlements (UNCHS) carries out a number of activities concerned with the development and use of water resources and sanitation facilities in relation to human settlements. These activities fall into three categories: a programme of research and development, technical cooperation projects, and information and training.

In cooperation with DANIDA (the Danish International Development Agency), UNCHS has developed a series of training modules: "Training Programme for Community Participation in Improving Human Settlements". In this series a recent training module has been produced titled: "Community participation in low-cost sanitation (1986).

The module takes into account different aspects of sanitation in low-income communities. It reviews viable sanitation systems and their implications for cooperation by the residents, and emphasizes the importance of adequate sanitary facilities for health and environment. Participation is examined in the areas of planning, construction, use and maintenance. The module concludes with six case studies from countries such as Botswana, India and Thailand. It is a general module providing a framework for the instructor to structure additional and detailed information on local conditions. The set is written in English but a Spanish version is in preparation and a French translation is planned.

Next to the training module on sanitation, the training programme series contains different modules on community participation in slum upgrading in developing countries. There are for example modules on cost recovery and the role of women in the execution of low-income housing projects. For the training programme, DANIDA/UNCHS have also produced a video film on water supply and sanitation which gives information on the preparation and use of video for training in water supply and sanitation projects.

Most of the material has been tested in the field during 1986 and will be available on a wider scale during 1987. The course material is aimed at project managers, midlevel professionals and community workers in developing countries.

For more information contact: The United Nations Centre for Human Settlements (HABITAT): P.O. Box 30030, Nairobi, Kenya.

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 93190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

	P
* SET-BACK IN LATIN AMERICAN DECADE PROGRESS	1
* SCHOOL HYGIENE EDUCATION IN LESOTHO	2
* IRC OCCASIONAL PAPER ON COST RECOVERY	2
* RISE IN US EXPORT OF LOW-COST WATER SYSTEMS	3
* HEALTH EDUCATION COURSE IN LEEDS	3
* CONFERENCE ANNOUNCEMENT	3
* NEW PUBLICATIONS	4

SET-BACK IN LATIN AMERICAN DECADE PROGRESS

In a recent issue of World Bank News (March 12, 1987), Mr. Robert Picciotto, Director of Projects in the World Bank's Latin American and Caribbean Region states that "This is the seventh year of the International Water Decade. But for most countries in Latin America the UN Decade never even started". In the article he expresses his serious concern about the low rate of progress in the development of the 'urban water supply and sanitation sector' in this region.

He proposes "... that if present trends continue, the gap between needs and achievements will continue to grow, and some of the countries in the region may see lower service levels by 1990". About 144 million people, or 38% of Latin America's population, have no access to a clean water system and this figure is expected to increase between now and the year 2000 as the urban population grows.

In order to provide 90% of the urban population with house connections by the year 2000, about 180 million more people will need access to piped water. This equals the number connected in 1984. For only 70% of the urban population to have access to sanitary waste disposal by the year 2000, another 160 million people would have to be served. This is more than the 120 million already connected to sewers.

Mr. Picciotto roughly estimates that the costs involved in reaching these objectives and treating the waste water is about US\$ 54 billion over the next 15 years. This figure is in addition to about US\$ 12 billion needed for rehabilitation, improved maintenance, training and institutional development. He proposes that to meet these challenges, "... old solutions and traditional approaches will not do. A new start

is needed, removing the misconceptions which animated too many water programmes in the region."

Mr. Picciotto lists a number of issues important for better functioning of the urban water supply sector. He emphasizes the need for water companies to finance their operation internally through the creation of operational surpluses and loan funds, rather than relying on government subsidies, and stresses the need for greater financial contributions from the consumers. He points out that in many countries the poor, dependent on unsafe water from water vendors, still spend a higher percentage of their income on water than those served by metered connections.



A water vendor: still a common sight in Latin America (Mexico, Photo IRC)

Mr. Picciotto also discusses the idea that because water supply is a social service it cannot be run cost effectively. He believes that a more efficient operation of the water sector is possible, for example limiting water unaccounted for which in Latin America reaches a level of 50%. He also points out the fact that political interference hampers proper operation and maintenance and that institutional reforms, without accompanying policy changes, are useless. He ends by emphasizing the importance of effective training.

A new strategy for effective management, according to Mr. Picciotto, requires sound policies bringing together (1) money, i.e. adequate and fair financial policies; (2) management, i.e. an appropriate institutional

environment emphasizing professionalism and results; and (3) manpower, i.e. suitable provision for investment in people.

SCHOOL HYGIENE EDUCATION IN LESOTHO

IRC is currently involved in a comprehensive study on school hygiene education. This study is complementary to IRC's research on hygiene education in water supply and sanitation projects in general.

The importance of school hygiene education was expressed by UNICEF and WHO during the WHO/UNICEF International Consultation on Health Education for School-Aged Children, Geneva, 30 September to 4 October 1985. It was felt that more attention should be focussed on the school's potential role in spreading hygiene education.

Hygiene education messages can be transferred through schools to all sections of a community. Schools are respected both by pupils and their parents, and they offer an institution for teaching a change in attitudes and behaviour to the future generation. Furthermore, school pupils play a role in community participation and environmental sanitation, and they can influence both parents and siblings.

Information about school hygiene education is limited and no state-of-the-art exists. The IRC research initially aims at making an inventory of material on this subject. Through a selective mailing, IRC obtained relevant material and experiences reported provide good examples of the usefulness of school hygiene education.

An interesting experience has been reported in Lesotho, by the Urban Sanitation Improvement Team (USIT). USIT is a multi-disciplinary body within the Lesotho Ministry of Interior, responsible for developing urban sanitation, during the International Drinking Water Supply and Sanitation Decade (IDWSSD). USIT is especially involved in building ventilated improved double pit latrines (VIDP) at community schools to stimulate the urban communities' awareness of the importance of sanitation.

Insufficient and improper use of sanitary facilities has created unhealthy living conditions in urban Lesotho. Earlier attempts by USIT to improve sanitary behaviour through the installation of latrines at schools failed partly because proper information about their importance and use was limited. The latrines were not maintained or cleaned by the local communities and schools, and were targets for vandalism.

The main reasons for the failure to improve sanitation seemed to be not only the lack of interest shown by the management and staff of the schools and the lack of awareness within the communities, but also the installation policies of USIT. Until 1982, latrines were installed at schools together with the building of the classes. No commitment was necessary from the schools for latrine maintenance before installation took place.

Since then, USIT's policy has changed. Latrines are no longer installed without a clear indication of co-operation from the schools and communities involved. Schools must specifically request assistance, thus proving a real interest in better sanitary facilities.

USIT then visits the school, explains the recommended sanitation technology, and explains to the management that USIT only helps with the planning and construction of the latrines. The school and local community must ensure proper use and maintenance after completion. The decision must be made by the school management before construction starts. USIT then shows a tape-slide programme entitled: "Sanitation, Hygiene and Health in Our Schools". It explains the main reasons for improving sanitation, and draws attention to the need for proper maintenance. Much attention is paid to the role of the teachers and how they can integrate health and hygiene education in the day-to-day subjects. Teachers are also stimulated to make their own teaching aids.

As far as possible, schools should make arrangements for the financing of construction and maintenance of the facilities. Funding can come from an NGO, an embassy, a church or from government budgets. Fund-raising activities and arrangements for contributions in-kind or in skilled and unskilled labour from students, their families and other members of the community are stimulated and organized through parent-teacher associations, local chiefs and counsellors.

Before the latrines are used, all the students and teachers are educated in proper latrine use. A second tape-slide programme has been prepared for this purpose called: "New Start for Health". The importance of proper latrine use is further explained through posters, poems, songs, and on a larger scale through radio messages and other mass media channels.

Teaching hygiene practices to students and teachers from schools provided with VIDP latrines, is a major responsibility of USIT. This involves education not only in sanitation but also in aspects of water-related diseases and personal hygiene. USIT concentrates on school sanitation because it is believed to have a good demonstration value. The pupils come to understand the benefits of sanitation and health and it is hoped that they then have a positive influence on older relatives. To safeguard proper use of the facilities, members of USIT visit the sites twice a year to help solve any problems and to remedy mistakes.

IRC OCCASIONAL PAPER ON COST RECOVERY

In June, IRC is publishing a new number in its Occasional Paper Series. The subject of this Occasional Paper (OP) is cost-recovery for small community drinking water supplies. The title is: "What Price Water?: User Participation in Paying for Community-Based Water Supply". The OP is prepared by Ms. Christine van Wijk-Sijbesma.

Initially the paper was prepared for use in the IRC-supported Public Standpost Water Supplies (PSWS) demonstration project implemented in Indonesia, Malawi, Sri Lanka and Zambia. The emphasis in this OP therefore is on options for revenue collection for piped water supply schemes in rural and peri-urban communities. However, it is anticipated that its contents will be found useful on a wider scale and hence it has been published in the IRC Occasional Paper Series.

The main purpose of the paper is to provide a set of practical guidelines for project staff with a technical or social background, who are involved in the planning, implementation and operational

arrangements for piped community water supplies. It can also provide a relevant background for those policy-advisers who want to consider the pros and cons of charging for rural water, although it does not aim at giving guidance on overall policy. An extensive subject index and selected reading have been added to facilitate its use as a practical reference document.

It is also hoped that the publication will remove some of the mysticism and specialists jargon surrounding financial issues while discussing them in a practical, useful way.

The publication has the character of an expanded catalogue of community financing systems. It not only pays attention to well-known and frequently used cost-recovery mechanisms such as metering, flat rate and water vending, but also tries to point out alternative and less-known cost-recovery mechanisms and ways to raise funds for financing a community water supply, such as voluntary funds, general community revenue, or community based retailing.

Options are not only described from a financial point of view. For every cost-recovery mechanism that can be distinguished, organizational and administrative aspects of its implementation at the local level are taken into consideration. In discussing the options, much emphasis is placed on the potential of each option for use and administration by the communities themselves. Criteria are given for each option as to under what circumstances they can be applied and their advantages and disadvantages when used in a local setting.

Where possible the text is highlighted by illustrative cases and examples of cost-recovery mechanisms taken either from the literature or from personal experiences. Most of the cases refer to small-scale pilot studies or projects.

More concrete data is now needed to make more general decisions on the kind of financing system most suitable under specific circumstances. With more information available, it should be possible to give future guidance on the formulation of more general policies on community based financing, not only for piped water supplies but also for sanitation improvements.

IRC feels that this Occasional Paper should be a useful contribution to the ongoing discussion, and plans to continue its work on this important subject. Again, within the PSWS demonstration project, IRC is currently preparing a literature review and selected bibliography on revenue collection for piped water supplies, which should function as a helpful companion work to this new Occasional Paper.

"What price water?" can be obtained through IRC and will cost US \$ 7.50.

RISE IN US EXPORT OF LOW-COST WATER SYSTEMS

The National Water Well Association in the United States reports that the exports of self-contained household water systems, hand pumps and windmill pumps from the United States in 1986 were up 19 percent in units, but down 18 percent in combined value. This indicates that the price of manufacture and distribution of low-cost water supply facilities is dropping, which is a profitable trend for developing countries, and that the demand for low-cost options for water supply is still rising.

An illustration of this trend could be the fact that among the top ten "water-well product markets" for US producers during 1986 there are four developing countries (People's Republic of China, Saudi Arabia, Algeria and Taiwan). The People's Republic of China is the overall number one on the list with an export value of US \$ 24,607,000 which is 13% of the total export value (US \$ 189,965,000). The other countries together represent another 20%.

The rise in export of low-cost units is more significant if one considers the fact that the total export of US produced water-well drilling machines, household water systems and water conditioning devices was down a combined 12% from the 1985 total. The biggest blow was dealt to rotary water-well drilling machine manufacturers, who suffered a 78% decline in units exported which corresponds to a 65% decline in value.

Other types of well drilling machines were down 15% in units although the value was up 8%. Other drilling equipment also had to face declining export rates both in value and in units sold. Exports of water-purifying, water-softening and filtering machines more or less stabilized.

For more information contact Kevin McCray, National Water Well Association, 6375 Riverside Dr., Dublin, OHIO 43017, USA.

HEALTH EDUCATION COURSE IN LEEDS

Leeds Polytechnic provides a nine month diploma-level training for experienced field personnel in both theoretical and practical aspects of education and communication methods applied to water, sanitation and health programmes in developing countries. Participants in the course are encouraged to specialize in water, sanitation and health, within an overall context of health education and primary health care. Completion of this course to a good standard provides a suitable qualification for further studies at a masters level.

The next course date is 5 October 1987 - 1 July 1988. For enquiries and application forms contact: Dr. John Hubley, Health Education Unit/Leeds Polytechnic, Calverly Street, Leeds LS1 3HE, UK.

CONFERENCE ANNOUNCEMENT

Aquarius 87, the International Exhibition and Technical Programme on the use, management and technology of Indonesia's water resources will be held 21-24 September 1987 in Jakarta.

Aquarius 87 is Indonesia's first international event dealing comprehensively with the water sector. The object is to stimulate the practical transfer of technology. The exhibition will be supported by a technical programme, a workshop and four seminars.

For more information contact Aquarius Conference Committee, PT Konferesks Indo Prima, Kartika Chandra Building F, Jalan Gatot Subroto, Jakarta, Indonesia.

NEW PUBLICATIONS

Evaluating health impact: water supply, sanitation, and hygiene education by John Bricoe, Richard Feachem and Mujibur Rahman.

This monograph was published in 1986 by IDRC (The International Development Research Centre) Canada, in cooperation with UNICEF and the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B).

It is the second of two publications coming from the workshop "Measuring the health impact of water supply and sanitation programmes", organized by ICDDR,B and the London School of Hygiene and Tropical Medicine with support from UNICEF, IDRC and WHO, held in November 1983 in Cox's Bazaar, Bangladesh. (The first is a technical paper, published by WHO/Geneva in 1985 entitled: "Measuring the impact of water supply and sanitation facilities on diarrhoea morbidity: prospects for case-control methods"). Back in 1984 and 1985 a number of reports on the workshop were published in Glimpse, the ICDDR,B Newsletter in 1984 (vol.6, no.1, and 2) and IRC's Newsletter No.157 (1985).

Four key issues were identified and discussed at the workshop: the conditions under which health impact evaluations (HIE) should be undertaken; indicators for measuring health impact; useful study design; and interpretation of results.

The workshop participants were expected to synthesize the discussions and explore any preliminary ideas. Over the past two years, these methodological explorations have been carried out to the point where specific recommendations on study design can be made.

This latest report is intended for two more general audiences. Firstly, it aims to provide planners in international, national and local agencies with guidelines on how and when HIE of water supply and sanitation projects should be undertaken. Secondly, it provides suggestions on the choice of outcome measures and study designs for researchers who are responsible for the implementation of HIE in this and related sectors.

The document is a first step in the accumulation and development of a valid coherent and comprehensive body of information on the health impact of water supply, sanitation and hygiene education programmes.

For more information and orders contact IDRC, P.O. Box 8500, Ottawa, Canada K1G 3H9. A microfiche edition is available.

Proceedings of the Third International Conference on Rain Water Cistern Systems, edited by Chayait Vadhanavikit.

The proceedings of the Third International Conference on Rain Water Cistern Systems, organized by the Faculty of Engineering of the Khon Kaen University, Thailand from 14-16 January 1987, have now been published.

The Khon Kaen conference, sponsored by the International Development Research Centre (IDRC) is the third in a series of meetings on rainwater cisterns which started in 1982 in Honolulu, Hawaii and was continued in 1984 on the Virgin Islands.

Among the 40 proceedings are contributions from independent consultant agencies, universities and government and non-government institutions from both industrialized and developing countries. The proceedings discuss several facets of rainwater harvesting such as design, technology, policy and planning. The publication also contains an extensive literature review on rainwater collection systems.

For more information contact the Faculty of Engineering of the Khon Kaen University, P.O. Box 100, Khon Kaen 40002, Thailand.

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 93190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

	P
* TECHNICAL PAPER ON SLOW SAND FILTRATION	1
* INFORMATION WORKSHOP	1
* IRC APPROACH IN SUDANESE DEMONSTRATION PROJECT	2
* SURVEY ON WATER NEEDS IN AFRICA	3
* SECOND DECADE SUGGESTED	3
* STUDY ON WATER VENDING	3
* WEDC CONFERENCE NEWS	4
* STAFF NEWS	4

TECHNICAL PAPER ON SLOW SAND FILTRATION

IRC has published a new Technical Paper (TP) on slow sand filtration (SSF). The paper, written by Mr. J.T. Visscher; R. Paramasivam; A. Raman and H.A. Heijnen is number 24 in the TP-series and is titled: "Slow sand filtration for community water supply: planning, design, construction, operation and maintenance". This TP is an updated and completely revised edition of the earlier Technical Paper on SSF published by IRC in 1978 (TP 11: "Slow sand filtration for community water supply in developing countries, a design and construction manual").

The new publication presents established information on SSF, as well as guidelines resulting from the International Research and Demonstration Project on Slow Sand Filtration (SSF demonstration project). This project is sponsored by the Department of Research and Development of the Netherlands Ministry of Foreign Affairs, and was initiated (in collaboration with IRC) by institutions in a number of developing countries (i.e. Colombia, India, Jamaica, Kenya, Sudan and Thailand). The publication is based on ten years of practical field-work experience within the SSF demonstration project and recent publications on this subject. It has resulted in new and more complete guidelines for SSF plants in developing countries. These new guidelines cover all relevant technical issues of SSF, integrating all new available knowledge. Particular attention has been paid to the filter process, the effect of sand diameter and to inlet controlled filters. Furthermore, attention has been given to costing of slow sand filters. The experience with SSF in the field proved the importance of non-technical issues and proper arrangements for the operation and maintenance on a local level.

In the new SSF-publication, more emphasis is placed on the involvement of communities in planning, implementation and operation and maintenance procedures for SSF plants.



Inlet structure for slow sand filter (Sudan, Photo IRC)

The publication has many tables and graphs eliminating the need for complicated calculations. Related information can be found in the appendices on relevant issues such as drinking-water quality, simple pre-treatment systems, chlorination, flow-measurements and soil investigation. A list of SSF collaborating institutions and documentation centres, and a glossary of terms are also included.

The new IRC Technical Paper focuses particularly on slow sand filtration plants for community water supply in small and medium sized communities, and provides a useful source of information for project planners, professional engineers and non-technical personnel working with slow sand filtration in developing countries.

Technical Paper 24 can be ordered from IRC and costs US\$ 27. Nationals from developing countries can obtain a copy at a reduced price.

INFORMATION WORKSHOP

A range of co-operative efforts to improve information exchange during and beyond the remainder of the International Drinking Water and Sanitation Decade (IDWSSD) were identified at a technical meeting in The Hague, The Netherlands, 2-4 June 1987. The meeting was organized and hosted by IRC in close consultation with the Interagency Steering Committee for Co-operative action in the IDWSSD. Twenty-five information specialists from 16 global, regional and national

information organizations, five of whom were from developing countries, attended the meeting. During the workshop discussions, the participants covered and recommended actions on such issues as: market analysis; information product development and effective distribution; awareness and promotion of information; compatibility and development of information tools; automation; use of facilities, and finally, training of information staff. The specialists concluded that users at the grass-root levels are the ones most poorly served with appropriate information, while officials at the national and international level often receive more information products and services than they can use. Costs and the lack of value attached to information was identified as another universal obstacle.

Highlights of the recommended actions include:

- more effective use of market analysis. Efforts should be stepped up to identify user needs at various levels and fill gaps in current information supply;
- users should be made aware of the value of up-to-date information and should make every attempt to raise funds for its acquisition;
- **Basic reading lists in several languages should be available to organizations and individuals, as a convenient way of identifying key documents in their fields. After field testing of relevant packages, various donor agencies should be asked to fund the acquisition and distribution of sets of basic documents;**
- co-operative ventures between agencies should be encouraged for the translation of relevant information products into the local languages. These ventures could also include joint publishing at local and international level, for cost-sharing and distribution purposes;
- **compatibility in water supply and sanitation information services should be encouraged and mechanisms for bilateral exchange of existing databases for mutual benefit should be explored;**
- existing information tools such as the Interwater Directory of Sources on Information, Directory of Sources on Information in Community Water Supply and Sanitation, the Interwater Thesaurus and Glossary of Terms, should be maintained and improved. New ones, such as a user's manual for the thesaurus should be created;
- project plans and budgets should include provisions for the collection, preparation, publication and distribution of information materials and for training of information staff;
- existing resources at national level should be considered and be used wherever possible for improving information systems.

The recommended actions will result in an information action plan which is scheduled to be presented for adoption in the working group meeting to be held in September 1987 in The Hague. In the September meeting, representatives of national institutions from developing countries, will be invited to give presentations on options for improved information exchange in their countries. Along with representatives of donor agencies, UN agencies and information institutions will be invited to jointly lay the

groundwork for the plan of action for the remainder of the Decade.

In the following newsletters we will give more information about the results of the workshop and keep our readers informed about developments in the field of information for the Decade.

IRC APPROACH IN SUDANESE DEMONSTRATION PROJECT

A system approach for village water supply and maintenance as outlined by IRC in the Occasional Paper: "Maintenance systems for rural water supplies" (IRC 1987), is being used in a demonstration project in Sudan.

The project aims at developing and promoting a systematic community-based approach to village water supply with emphasis on a viable maintenance concept. The underlying idea of the concept is that villagers must be involved in choosing an appropriate technical solution corresponding to their needs and resources. This approach is in line with the advice of the World Bank/UNDP Handpumps Project to gain experience in systematic community based approaches.

The activities take place in the framework of the Water Resource Assessment and Development Project in the Sudan (WADS) started in 1986 and executed by the Sudanese National Corporation for Rural Water Development (NCRWD) with assistance from the Netherlands Institute of Applied Geoscience (TNO). IRC has assisted in the formulation of the project and will give the necessary backup.

The Project aims in co-operation with the villages, to construct water supply systems for which the villages will carry complete responsibility with respect to operation, maintenance and financing. Technology options include wells dug with locally manufactured windlasses, improvement of traditional water supplies and monitoring of a number of existing boreholes equipped with hand pumps.

The demonstration project is currently in its pilot phase which includes around 20 selected villages. Selection of the first villages to be included in the project was based on existing information on local needs obtained through local councils. Village requests were discussed with local authorities.

Villages were asked for a down payment of £S 250 (approx. US\$ 100) before a preliminary contract was signed. This first contract concerns studies on the feasibility and long term prospects of the development of a water supply. During the pilot phase the number of villages will be limited, but in the coming years the demonstration project is expected to cover about 150 villages.

Response to the project has been good. Villages appear to be willing to contribute in kind, and labour and also to pay up to £S 1000 (approx. US\$ 400.) in cash.

For further development of the approach, similar pilot projects should be initiated, IRC is hoping to collaborate with national organizations in other developing countries, thus supporting efforts to achieve successful maintenance at a national level.

SURVEY REPORT ON WATER NEEDS IN AFRICA

The Environment Liaison Centre (ELC) in Nairobi, Kenya, has just published a report on the identification of water needs in five African countries. These countries are: Cameroon, Kenya, Niger, Rwanda and Zimbabwe. The report is published in French and is titled: "Rapport de synthese: campagne d'identification des besoins en eau en Afrique. (Summary report: identification campaign of water needs in Africa).

The study focuses on the situation and needs of groups with low access to water and was financed by the French Government (Ministry of Environment). Where possible help was obtained from local Non-governmental organizations.

The five countries are all separately discussed. Each country-report gives information on hydraulics and provides data of the techniques used to solve the drinking water supply problems.

The main purpose of the study was to identify the extent of problems in these countries. The researchers specifically focused on the number of drinking water points available and distances involved, but also on water availability for livestock and irrigation.

Furthermore they paid special attention to community participation in the water supply programmes, and stressed the importance of community involvement in finding appropriate solutions for local water problems. The extent to which local water management skills are available, what the training needs are and the degree of self-reliance achieved in those areas served by an improved water supply were also investigated. Other points of interest to the researchers were rain water harvesting techniques and the actions of NGO's in the field of water supply and their level of efficiency in the respective countries.

The survey report can be obtained from the Water Resource Management Co-ordinator at ELC, P.O. Box 72461 Nairobi, Kenya.

SECOND DECADE SUGGESTED

The suggestion that a second Water Decade should be proclaimed after 1990 was one of the most interesting aspects of the International Conference on Resource Mobilization for Drinking Water Supply and Sanitation in Developing Nations, held in San Juan, Puerto Rico, from 26-29 May.

The suggestion came from Mr. Luis Jauregui, Chairman of the Mar del Plata Conference, which in 1977 helped to shape the International Drinking Water and Sanitation Decade 1980-1990. Mr. Jauregui formulated his idea at the summary session of the meeting leaving the participants with something to ponder over.

The conference was organized by the American Society of Civil Engineers (ASCE) and was attended by a large number of highly qualified workers in the Decade. In a number of separate sessions they discussed various aspects of Human Resource Development, Finance and Economics, Operation and Maintenance, Technology and Engineering.

The meeting was opened by Dr. A. Rotival UNDP/WHO Co-ordinator for the Decade. He emphasized that, although the goals for 1990 will not be met, significant progress has taken place in rural and urban areas. There is still much to be done, as was illustrated by the October 1986 figures.

At that time 77% of the urban dwellers worldwide had access to safe water, compared to 72% in 1980. Only 60% had appropriate sanitation compared to 54% five years ago. In the rural areas 36% have safe water compared to 31% in 1980. Appropriate sanitation however reached only 16% with no increase since the beginning of the Decade. In terms of people this means that 270 million have been served with water within the last five years and 180 million were provided with sanitation. This present rate approximately 542 million more would be supplied by 1990 and 357 million more would have sanitation. This would leave 1,236 billion still unserved with water and 1,809 billion without sanitation. "A most sobering message", according to Dr. Rotival.

The key note speech was held by the honorary chairman, Dr. Abel Wolman, one of the great advocates of the Decade. He emphasized the importance of safe water and sanitation, not only because it effects human health, but because...." they are essential for the development of most resources which create socio-economic progress."

Dr. Wolman advocated more attention to alternative approaches and ideas. Among the points he considered were more and better information dissemination towards those who need it. He emphasized the importance of community participation from the planning stage onward and the development of small scale initiatives by non-government organizations in the developing countries themselves. Other aspects to be considered carefully are the health implications, training and development of training material, and funding. More money should be made available, and payment for water by the users should be promoted.

In his speech for the closing plenary on prospects for the Decade, Frank Hartveld of UNDP urged the industrialized countries and the United Nations to take responsibility for areas such as human resource development, community participation, health and hygiene education, institutional development, and documentation of information. Mr. Hartveld also asked for donations which resulted in US\$ 600 for pumps to be installed by UNICEF.

ASCE will publish the proceedings and offer copies for sale later this year.

STUDY ON WATER VENDING

Millions of people in developing countries depend on water vendors for their daily water supply. Usually they pay much higher prices than people with access to a piped water supply. Vendors also often misuse their access to water and sell, or resell water at large profits. These characteristics make water vending as such a less appropriate means of solving water supply problems in developing countries. However, little study has been carried out on the economic aspects of water vending in developing countries.

Two independent studies that might shed some light on the operation of vending systems were carried out in June/July 1986 by Don Lauria, Dan Okun and Dale Whittington, professors at the Department of Environmental Sciences and Engineering of the University of North Carolina (ESE).

The researchers have tried to demonstrate that through the study of water vending practices in two communities, one in Kenya and one in Honduras, evidence can be provided that households in developing countries are able and willing to pay substantial amounts of money for water, much more than would be necessary to sustain a piped distribution system with yard taps.

The study was conducted with support of the World Bank, the African Medical and Research Foundation (AMREF) for Kenya with assistance of SANAA (The National Water Agency) in Honduras.

The results of both studies are shown in an article in "ESE Notes", (vol. 23, no. 2, 1987), the newsletter of the Department of Environmental Sciences and Engineering of the University of North Carolina. According to this article the results indicate that a large economic potential is available and that people in developing countries can and should bear a larger share of the costs of an improved water supply system.

For more information on the results of the studies, contact the Department of Environmental Sciences and Engineering, University of North Carolina, School of Public Health, 201 H, Chapel Hill, N.C. 27514, USA.

WEDC CONFERENCE NEWS

Rural Water and Engineering Development in Africa, the 13th WEDC Conference

How to stimulate the involvement of rural people in Africa in their own development became the central theme of the 13th WEDC Conference, held from 6-10 April, in Lilongwe, Malawi. The Conference on Rural Water and Engineering Development in Africa was organized by the Water, Engineering and Development Centre (WEDC) and the Ministry of Works and Supplies of the Government of Malawi.

In his key note Mr. L.A.H. Msukwa, Director of the Centre for Social Studies at the University of Malawi, emphasized the importance of community involvement in implementation of programmes. He also stressed the importance of paying more attention to adequate operation and maintenance of even the most simple systems.

It became clear from discussions and work groups that for most participants the greatest difficulties in providing water, sanitation, roads and houses lie less in technology than in the social, organizational and managerial aspects of construction and maintenance.

The proceedings of the conference will be published later this year. WEDC have already set the dates and theme for the conference next year:

The 14th WEDC Conference will be held at the Universiti Teknologi Malaysia, in Kuala Lumpur, 11-15 April 1988 and the theme will be: "Water and Urban Services in Asia and the Pacific".

For further information about both the 13th and 14th WEDC Conference contact: Professor John Pickford; Water, Engineering and Development Centre (WEDC): Loughborough University of Technology, Leicestershire LE11 3TU, UK.

STAFF NEWS

Over the last few months IRC have had the pleasure to expand its professional staff with two new staff members.

In March 1987, Mr. Jo Smet joined IRC. Mr. Smet is a professional civil engineer with long experience in developing countries.

For UNESCO he worked several years on training and curriculum development for water and water quality technology at the Water Resources Institute in Dar es Salaam, Tanzania. Before joining IRC, Mr. Smet worked as a lecturer of environmental sanitation and environmental health at the Department of Community Health Faculty of Medicine also in Dar es Salaam.

For IRC Mr. Smet will concentrate on environmental sanitation, environmental health, community water supply and water quality.

In August Mr. James Gilmour Wilson has joined IRC. Mr. Wilson is a professional civil engineer with a post graduate degree in public health engineering. He has a large experience in planning, design and implementation of water supply, sewerage and sanitation projects in developing countries.

For the past seven years he has worked for the World Bank/UNDP in Botswana and Kenya. In these countries he worked respectively as an officer and adviser to the national governments. He also has been very much involved in assisting the governments of Uganda and Ethiopia in the development of viable sector plans for water supply and sanitation in both rural and urban areas.

Before joining the World Bank/UNDP Mr. Wilson worked for a firm of international consulting engineers as a Public Health Engineer on a number of sewerage and water supply projects in Libya, Syria, Tanzania and Trinidad.

For IRC Mr. Wilson will work on the development of appropriate sanitation projects, peri urban sanitation as well as community water supply.

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 98190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

* Special Issue on Handpumps	P
* Pump Ratings	1
* Guidelines for VLOM Design	3
	4

A SPECIAL ISSUE ON HANDPUMPS

In the vast majority of developing countries, it is now possible to design a handpump-based water supply system which can be sustained in reliable operation without dependence on continual intervention by a central authority. This is among the findings of the UNDP/World Bank Handpumps Project, published in "Community Water Supply: The Handpump Option". Five years of laboratory testing and field trials has produced a wealth of evidence on the performance of handpumps. The US\$ 10 million project has tested 70 different types of handpumps in 20 developing countries.

This IRC newsletter will highlight a few salient findings, as this report will serve as a guide for decisionmakers, planners, manufacturers and development practitioners, who are involved in selecting the best management options for water supply projects. A prime conclusion of this massive project is that few handpump failures can be blamed solely on the pump itself. The predominant cause of breakdown and poor functioning has been inadequate provision for maintenance of handpumps once they have been installed. Other major causes are: poor well design or construction, allowing sand to enter and damage pumping elements, choice of inappropriate pump technology; designing for the wrong service level; siting pumps in the wrong place or at the wrong depth; and, more fundamentally, lack of community involvement in project selection and implementation. The report provides essential guidelines on planning and implementation of handpump programmes.

Together with technology related guidelines they form a package which it is believed can make a dramatic impact on the reliability of future community water supplies. Manufacturers, researchers, government agencies, consultants and contractors are urged to adopt these guidelines for their design and planning activities to the end of the century.

Let us first look at the planning and implementation guidelines, which deals with six critical elements:

Community Involvement - The highest potential for sustainability is achieved when the community is involved in all phases of the project, starting from the planning stage. If the scheme is to continue to operate satisfactorily, people have to recognize the need for the improved service, be able and willing to pay for the maintenance cost (and eventually the construction cost), and be willing to manage its maintenance.

Aquifer Analysis - Competing demands for other water uses, such as irrigation pumping, have to be taken into account when evaluating aquifer potential for handpump projects. To avoid unnecessarily high costs, the well needs to be deep enough to allow for seasonal and long-term lowering of the water table, but no deeper. Legislation and administrative enforcement are needed in some areas to prevent overpumping for irrigation leading to drawdown of the water table and putting existing handpumps out of service.

Well Design and Construction - Wherever the rock is not fully consolidated, screens and filter packs are essential to prevent sand and silt intrusion. Otherwise rapid damage will occur to commonly-used types of seals and valves. The right choice of drilling equipment, backed by appropriate organization of drilling, can significantly reduce drilling costs and result in more dependable wells.

Handpump Selection - A number of factors influence handpump selection, in addition to the cost of the pump itself. Among the most important are suitability for the intended maintenance system (e.g. can it be repaired by a trained pump caretaker?), durability, and discharge rate. Pump choice will depend on the required lift and the planned number of users per pump. Standardization on one or a few pump types for any one country can have a significant impact on maintenance and is an important selection criterion; and corrosion resistance has to be taken into account when groundwater is aggressive.

The Project has prepared Draft Sample Bidding Documents for handpump procurement, to assist governments and support agencies to take account of important pump characteristics when purchasing pumps through international competitive bidding.

Community Management of Maintenance -

Under the system recommended by the Project, the community organizes and finances all repairs and routine maintenance of the handpump. Work is carried out either by a designated community member with minimal training and basic tools, or by an area mechanic (usually with a bicycle or moped) covering a number of pumps. The public authority has an important role to play in the training of caretakers and mechanics, and the organization of an adequate spare parts distribution system, but should then hand over maintenance of the scheme to the beneficiaries.

Financial Management - Even when the community is willing to pay for and manage the upkeep of its water supply system, the scheme may founder unless a suitable mechanism is found for collecting money, arranging repairs and paying caretakers or mechanics. Initial training of selected water committee members in simple accounting and financial management has been effective in a number of countries. The Project is seeking evidence of practical community-level cost recovery and management mechanisms.

Today's Handpumps

The standard test procedures used in the laboratory and field trials revealed many shortcomings in existing handpump designs the report concludes. Manufacturers responded well, it adds, by modifying their products and introducing new models, and there are now many more pumps on the market which are durable and which allow for substantial involvement of villagers in pump maintenance.

As a result, in the vast majority of developing countries, it is now possible to design a handpump-based water supply system which can be sustained in reliable operation without dependence on continual intervention by a central authority.

The Project has assisted a number of firms in developing countries to begin handpump manufacture. Manufacturers from industrialized countries are also being encouraged to combine with enterprises in developing countries to make pumps under licensing or joint-venture agreements. In-country manufacture, backed by public or private sector distribution facilities and retail outlets, strongly improves the likelihood that spare parts will be available when needed, and facilitates standardization of pump types in a country to simplify caretaker training and stocking of spare parts.

Encouraging as these developments are, there remains a scarcity of handpump models which can be described as VLOM (village level operation and maintenance) and are suitable for lifting from depths of more than about 25 meters (through the majority of the population in need lives in regions where the water table is not so deep). The heavy weight of downhole components makes extraction of the complete assembly from deep wells difficult. An added problem is that handpumps deliver less water when pumping from greater depths. The pumps are therefore heavily used and so suffer rapid wear - a problem which is aggravated by the tendency for deep wells to serve more people per well, in order to spread the higher costs of the well and pump over a larger number of users.

For low lifts (up to about 12 meters), direct action pumps, like the Tara prototype developed in Bangladesh, in which the operator lifts and lowers a

T-bar handle directly attached to the pumprods, have a number of advantages. Elimination of the bearings that are part of lever or flywheel-operated pumps reduces maintenance needs, and the pumps can be manufactured in developing countries at a relatively low cost. They make extensive use of plastic materials, which make the pumps light in weight and corrosion resistance. Direct action pumps have the great advantages over suction pumps that they can lift from more than the 7-meter limit for suction (important since groundwater levels are falling in many parts of the world) and that they do not need priming and therefore avoid the risk of contaminating the well by pouring in polluted water.

For high lifts (down to about 45 meters), a below-ground design which allows extraction of the piston (and footvalve if desired) without removal of the cylinder and rising main appears to be the most promising VLOM design. However, only a very few low-cost, durable and corrosion-resistant VLOM designs for below-ground components have been used successfully in preliminary tests for lifts between 25 and 45 meters.

Development of more VLOM pumps for use beyond 25 meters remains an important task for the next phase of the Project and for manufacturers and implementing agencies.

To take standardization further, attempts are now being made to develop designs in which some of the same components can be used for pumps designed for different depth ranges. In East African development work, for example, a standard 50 mm-diameter cylinder with the same plunger, footvalve and pumprod is being tested with different pumphead configurations for the whole range of lifts from 0 to 45 meters. For low lifts, the below-ground components are connected to a T-bar handle to be operated as a direct action pump; at higher lifts, a lever handle is used, with the handle length varying (two options) depending on the lift.

PUMP RATINGS

The monitoring results and experiences of Project staff and others have been used to "rate" each of the 42 handpumps tested by

the Project which are still on the market, under a series of design criteria which may influence pump selection. The criteria will not always match precisely conditions under which particular pumps have been tested in the field, and in assessing pump performance over a range of conditions. Project staff have frequently had to make "best-judgement" decisions on the basis of their own experience and the available field and laboratory evidence. A methodology is suggested for using the ratings to compile a short list of acceptable pumps for a project or program, and some worked examples illustrate application of the selection procedures in specific cases. It is clear from the worked examples that some pumps are much more suited than others to conditions in developing countries, and that as pumping lift increases, the number of pumps suitable for village-level maintenance declines rapidly.

Future tasks

Implementation will be the central emphasis of the Project's second phase (1987-91). In their collaboration with governments and donors, Project staff will urge inclusion of the "systems approach" in CWS programs.

Every opportunity will be taken to collect data, demonstrate successful approaches, and develop detailed implementation guidelines on the critical elements identified in the first phase: drilling technology and well design; community participation; training at all levels; in-country manufacture, standardization and spare parts distribution; corrosion and water quality; complementary of water supply, sanitation and health education; evaluation of benefits and selection of service levels; and non-domestic uses of groundwater,

Governments and donors have an important part to play, by committing resources to the implementation of low-cost CWS programs and by sharing experiences, so that lessons can be learned and model strategies developed for each element of the CWS package. Technical assistance will be made available wherever possible, to support activities aimed at furthering community management of low-cost water supply and sanitation systems.

GUIDELINES FOR VLOM DESIGN

The project urges manufacturers, researchers, government agencies, consultants and contractors to adopt the following guidelines for VLOM design for their design and planning activities to the end of the century.

1. Ease of Maintenance

Handpumps should be designed in such a way that scheduled replacement of all wearing parts can be carried, out by a village caretaker after a minimum of training and with only a few basic tools.

2. Robustness

Non-wearing parts should be robust and durable. Within reason, they should be able to resist abuse, vandalism, the attentions of animals, climatic conditions, in developing countries, and corrosive or sand-laden water.

3. Local Manufacture

Availability of spare parts, and hence handpump reliability, is substantially improved if pump components can be manufactured in the country of use. It is therefore desirable that pump components should be designed to be simple to manufacture from widely available materials.

4. Standardization

Training of caretakers and pump mechanics is complicated by the wide variety of pump types that are often used in rural water supply programs. Establishment of local manufacturing, enforcement of quality control, and effective distribution of spare parts to retail outlets are all also hampered. There are clear benefits to be gained by standardization on one or a few pumps.

The Project recommends that governments settle on a limited number of pumps for their water programs, and that, when different pumps are in use, efforts should be made to standardize dimensions, and even spare parts.

5. Costs

VLOM pumps should be low in capital and recurrent costs. Target costs are US\$ 300-400 for a pump, complete with rods and rising main, to lift from 25 meters, and operation and maintenance costs should be kept below US\$ 0.25 per capita per year. Low-lift pumps should cost appreciably less, so that, for the same per capita cost, more frequent wells with handpumps can bring safe water nearer to people's houses, and discourage the use of alternative, polluted sources.

6. Discharge Rates

Pump models should be designed for specific ranges of pumping lift, with discharge rates selected accordingly. For low-lift applications, a high discharge must be achieved, or the pump will not be accepted by users. For high lifts discharge will necessarily be lower, to ensure that the pump can be operated without excessive effort. Two-person operation is increasingly advantageous as pumping lift increases.

Supplementing the information in the World Bank report, IRC together with IDRC, the International Development Research Centre (Canada) are currently finalizing a joint publication on Handpumps. In consultation with the World Bank project staff it has been decided that the IRC book (to be published early 1988 in the Technical Paper Series) will concentrate on community involvement, maintenance, and local production.

Copies of "Community Water Supply: The Handpump Option" are available in English at US\$ 9.95 (plus postage and handling) from the Publication Department, World Bank, 1818H street, N.W., Washington, D.C. 20433, U.S.A.

Further details on project activities are available from Saul Arlosoroff, Chief, Water and Urban Technologies and Assessment Unit, Infrastructure Department, World Bank.

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 93190, 2509 AD The Hague, The Netherlands.

Newsletter No. 172 January/February 1988

TABLE OF CONTENTS

	P
• Newsletter Supplement	1
• Framework for information exchange approved	1
• Co-operation beyond Decade	2
• Water Resources Congress	4

NEWSLETTER SUPPLEMENTS

This IRC newsletter is being increasingly used as a vehicle to publish latest developments within a number of important subject areas. This is not only achieved with our regular columns, but also through supplements. The UNDP/World Bank's International Training Network for Water and Waste Management (ITN) has published news about the network in three supplements in the IRC Newsletter in 1987. ITN will continue to publish its news in four supplements in 1988.

This issue of the newsletter contains a new supplement: the first of a series to follow during 1988. It concerns recent developments on renewable energy sources from water pumping. Following up the IRC publication on this subject in 1987 the Netherlands Ministry of Housing, Physical Planning and Environment is financing three supplements in order to make latest developments in this field available to a wider audience. Two specialized agencies have agreed to make contributions to this supplement. IT Power Ltd from the UK will provide relevant news on solar energy. Consultancy Services Wind Energy in Developing Countries (CWD) covers wind energy developments.

FRAMEWORK FOR INFORMATION EXCHANGE APPROVED

Chances of obtaining funding for information exchange components as part of water supply and sanitation projects have considerably increased. This became clear at an international working meeting on information exchange in the remainder of the International Drinking Water Supply and Sanitation Decade and beyond. This meeting took place from 22-24 September 1987 at the Ministry of Foreign Affairs, The Hague, The Netherlands.

The meeting endorsed a Framework for information exchange activities and prepared seven sketches of national plans involving Kenya, Tanzania, Zimbabwe, Niger, Sudan, Indonesia and Thailand. Two principal approaches are reviewed in the Framework: information exchange components in ongoing water and sanitation projects in developing countries, and development of the capacity to serve wider needs at sub-national and national levels. The meeting also discussed regional and global support actions for these national efforts. It was recognized that an information exchange programme facilitates and enhances the effectiveness and efficiency of water supply and sanitation projects at all levels. This can quickly repay any investment in the information exchange component.

For governments and external support agencies, water and sanitation programmes can be accomplished more rapidly and more economically. They also have a greater chance of being sustained and thus confer health and socio-economic benefits. For field workers, improved knowledge brings confidence, job satisfaction and commitment, and communities benefit from reliable services. Participants stressed that information exchange is a two-way process. Users of data must also be providers, and ways are needed to encourage feedback.

The 35 participants comprised representatives from seven developing countries, three UN agencies, six bilateral donor agencies, as well as four regional and five international information, research and training centres.

The three day workshop was chaired by Mr. Frank Hartvelt, Senior Programme Officer of the Division for Global and Interregional Projects of the United Nations Development Programme.

As suggested by the Steering Committee for Co-operative Action for the International Drinking Water Supply and Sanitation Decade, the meeting was organized by IRC, the International Reference Centre for Community Water Supply and Sanitation.

There was a general concensus that the type of information needed and the mechanisms for information exchange will vary from country to country, and from programme to programme. It was felt important that information should be collected for a recognized purpose. When there is a clear need, the information will be valued for the perceived benefit and the costs of collecting and disseminating it will be justified.

The Framework as developed at this meeting involves four essential elements, which are interactive. They are:

- needs assessment of target users, including available sources of information;
- product development and delivery;
- capacity building, including staff training, and automation, where needed;
- promotion of the value of information in general and of available products specifically.

This Framework provides an opportunity for countries to tackle the constraints and to demonstrate to donors a commitment to exchange of information, with all the benefits of improved performance and capacity building that successful implementation can bring. Apart from the donors' views that this meeting would enable countries to formulate proposals which would encourage their favorable consideration, some specific support was offered.

The UNDP representative reported that the coordinating agency for the UN in the Water Decade is ready to work together with other donors to support the preparation of information exchange components in 10 to 15 countries. Among these might be The Netherlands, as the Dutch Government representative indicated that multi-bilateral financing may be an appropriate avenue for Dutch support for information activities.

WHO and UNICEF representatives also agreed to give consideration to supporting information exchange activities in a number of developing countries. Representatives of the Norwegian, British and German donor agencies agreed that the meeting provided convincing evidence that information exchange is important and beneficial. Linked with existing or new water supply and sanitation projects, the information exchange component could receive favourable consideration. The 15th Steering Committee for Co-operative Action for the IDWSSD in the Dominican Republic in November endorsed this fundamentally new approach (see below).

In summary, the meeting made clear that information exchange can play a vital role in the ultimate success of water supply and sanitation programmes. Developing countries submitting proposals containing an information exchange component are now more likely to be considered for funding by donor organizations.

CO-OPERATION BEYOND THE DECADE

The Interlaken Drinking Water Supply and Sanitation Consultation in October 1987 between 30 external support agencies working in the IDWSSD was a remarkable success. The outcome was a complete concensus:

- a framework for global co-operation beyond the Decade;
- an action agenda for participating agencies;
- amplification of global sector concepts.

Co-sponsored by the Swiss Development Cooperation (SDC) and the World Health Organization the consultation carried forward coordinated strategies and resource mobilization activities for the rest of the Decade and beyond. "It was almost a miracle that a consensus was reached on these three areas and that the donor representatives around the table promised to sell this package at home" was Decade co-ordinator Sandy Rotival's comment on the result.

The Council would include representatives from UN Agencies, multilateral and bilateral funding agencies and NGOs involved in International Drinking Water Supply and Sanitation Decade (IDWSSD) activities. Measures would be sought to involve developing countries representatives in the Council's activities. WHO's role as Secretariat for the IDWSSD Steering Committee would be extended to fit the needs of the Council.

Using the existing UNDP/World Bank programme as a focus, the Council's activities would expand beyond water supply, sanitation and hygiene education, to encompass other environmental issues such as wastewater reuse, solid wastes management, drainage, and hazardous wastes management. The aim would be to help developing countries to formulate sector strategies which capitalize on past experience and the results of research and development work, by incorporating them into full-scale projects.

UNDP and other external support agencies are urged to provide core funding for the Council's programme.

Definition of the proposed Collaborative Council's objectives, work plan, organizational framework, and funding requirements will be prepared by the UNDP/World Bank programme in consultation with WHO, and presented to all ESAs active in the sector for discussion by March 1988.

The meeting outlined a series of specific actions which could be taken by external support agencies to ensure that concepts and strategies agreed as essential to success are implemented in developing country programmes for the IDWSSD and beyond. The actions are divided into those which can be taken immediately and those which require further study or demonstration. Within each category is a further subdivision into

actions needed at the policy level, to adjust strategies or improve implementation, and actions to be taken at a national level, to ensure better follow up of agreed strategies.

Participating agencies were urged to begin implementation of the proposed Action Agenda immediately, and to report steps taken and progress achieved to a high level meeting of the OECD Development Assistance Committee meeting, which it is hoped will be arranged for the end of 1988.

Discussions in plenary sessions and working groups led to a review of the constraints and recommended actions listed in the WHO/GTZ publication "Global Sector Concept for Water Supply and Sanitation". Amplifications of the Global Sector Concepts were formulated under six headings.

- Institutional and Human Resources Development
- Cost Recovery
- Balanced Development
- Operation, Maintenance and Rehabilitation
- Community Participation and Hygiene Education
- Coordination and Cooperation

The Consultation urged ESAs in their internal policies and in their discussions with partners in developing countries, to adopt the Global Sector Concepts, as amplified by the Interlaken conclusions, as a basis for sector plans and programmes.

Decade achievement - The Consultation emphasized that, though the IDWSSD has not reached its coverage targets it has made remarkable achievements. Collaboration among external support agencies (ESAs) and with partners in developing countries has greatly raised the level of priority of the water supply and sanitation sector in countries and the ESA strategies to serve the needs of low income communities. It has gained world-wide acceptance of low-cost technologies and established the importance of community involvement in project development and implementation. It has also catalyzed the establishment of substantial sector resources such as the UNDP/World Bank Programme and WHO programme support in line with Decade goals.

Towards the end of the Decade, it is clear that much remains to be done; that lessons learned during the Decade must now be applied on a much wider scale; and that the scope of activities which have already been expanded to include community participation and hygiene education should be further broadened to include such concerns as environmental protection. There was broad realization that collaboration among ESAs involved in this sector is essential if the remaining unserved populations are to be reached and if the Health for All goals are to be achieved by the end of this century.

Steering Committee -IRC participants report that the atmosphere of cooperation and co-ordination more than ever before influenced the meeting in Santo Domingo the 15th Steering Committee for Co-operative Action for the IDWSSD. Partly in relation to the Interlaken consultation, this meeting of UN agencies agreed that the work of the Decade should be continued until the end of the century in line with the "Health for All by the year 2000" campaign. Enhancement of the role of women, information exchange, Decade assessment, Guinea worm disease, appropriate technology in handpumps, public information in support of the Decade were the main topics for discussion. Considering information exchange, UNDP proposed that agencies incorporate technical information exchange components in their programmes and projects, and that they also arrange the required funding.

This suggestion was endorsed by WHO's Mike Acheson and Saul Arlosoroff of the World Bank, followed by the chairman of the meeting Mr. G. Arthur Brown, Associate Administrator of UNDP.

The Steering Committee also received with approval the list of Basic Publications on Community Water Supply and Sanitation. This selected bibliography and Glossary of expressions was prepared for WHO and UNDP by IRC. It contains approximately 90 documents designed to assist professional staff to retrieve technical information relevant to their needs.

Documents have been selected on seven subjects for non-specialists such as policy decision makers, administrators and for specialist engineers, technicians and health specialists. UNDP plans a wide distribution of this list through UNDP Resident Representatives, with the possibility of ordering selected documents from the list. The meeting also endorsed a proposal to update the list.

WATER RESOURCES CONGRESS

The sixth World Congress on Water Resources of the International Water Resources Association (IWRA) is taking place in Ottawa, Canada from May 29 to June 3, 1988. The Congress theme is water for World Development, which will be treated under three themes, policy, planning and operations. There will also be a summary of achievements so far of the International Drinking Water Supply and Sanitation Decade, and special technical sessions. During the week following the Congress and exhibition the University of Ottawa offers technical courses of three to five days, on:

- Water supply and sanitation in developing countries,
- Flood Frequency Analysis and Applications,
- International Experience with Storm Water Management for Pollution and Flood Control in Urban Areas.

For information and registration contact:

The Secretariat
Sixth IWRA World Water Congress
University of Ottawa
631 King Edward Avenue
Ottawa, Ontario
K1N 6N6 Canada

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 98190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

	Page
* New UNDP funding for Decade projects	1
* The IRC PSWS project	1
* CEHANET	3
* Support for Guinea Worm Eradication	4

NEW UNDP FUNDING FOR DECADE PROJECTS

At the end of 1987 the United Nations Development Programme (UNDP) approved US \$10.8 million funding for five new regional and interregional water and sanitation projects. This brings UNDP's current investment in the drinking water and sanitation sector to US \$171.8 million. Funding for two additional projects worth US \$5.3 million will shortly be approved to provide assistance in the design of water and sanitation investment programmes in 14 Asian countries and expand water services to low-income communities in Africa. The projects will be executed by the World Bank as part of the UNDP/World Bank International Drinking Water Supply and Sanitation Decade Programme.

G. Arthur Brown, UNDP Associate Administrator who signed the project documents in New York together with G. David Hopper, World Bank Senior Vice President, stated that "Water is a vital component of life." Both see the programme as an important manifestation of the UNDP's and the World Bank's commitment to expand water and sanitation services through the remainder of the Decade and beyond.

The Decade Programme was launched in 1978 as a small project devoted almost entirely to testing low-cost water and sanitation technologies. It has since evolved into a global effort co-financed by ten leading bilateral donors. As a result: hand pumps have become a viable option for small water supply; on-site sanitation, - i.e. ventilated improved pit latrines and pour-flush toilets, has been popularized; there is a greater understanding of the role of recycling municipal waste. The Programme has also helped create awareness regarding the contribution, role and potential of local communities, especially women, in the management and financing of water and sanitation systems.

Of the new funding, US \$3.0 million is being provided

for African countries to support design, implementation and evaluation of at least six demonstration projects. These will benefit an estimated 200,000 people and provide reproducible pilot studies for millions more in 15 countries.

Some US \$2.0 million will go towards the design, implementation and evaluation of ten one-site sanitation demonstration projects benefitting about 300,000 people in the peri-urban and small towns in Africa, Asia and Latin America. The project is also expected to have spin-off effects in some 25 countries.

Approximately US \$1.8 million has been ear-marked for integrated resource recovery (water management and recycling). Four to six waste management demonstration projects will be designed, implemented and evaluated. These projects will serve as models for and lead into wide-scale implementation of similar systems by other governments.

The International Training Network for Water and Waste Management (ITN) will receive US \$1.2 million to strengthen educational institutions within developing countries to carry out training programmes and other human resources development activities on low-cost water and waste management. ITN will establish or consolidate 15 Network Centres to train engineers and technicians in low-cost technologies; strengthen links with field projects to maximize impact of practical training, develop a global dissemination programme of the Centres and initiate a system at the local level for monitoring of performance.

The remaining US \$2.8 million will support the water supply for the low-income communities programme. At least 12 demonstration projects (including six in Africa) will be developed, benefitting an estimated 400,000 people and providing reproducible pilot models for millions of others in 24 countries. The programme will also support training of national project personnel, operational research and local manufacture of hand pumps.

EXPERIENCES OF THE IRC PSWS PROJECT

In recent years national governments as well as donor agencies have put increasing emphasis on community participation in water supply and sanitation. One pragmatic reason for this may be the necessity to supplement limited government and international resources by direct contributions from communities towards construction and maintenance.



However probably more important is the insight that whatever efforts are to be made towards improving people's living conditions, the people themselves have to be actively involved, to ensure a lasting success.

The multi-national Public Standpost Water Supply (PSWS) project, funded by (the Netherlands Directorate General for International Co-operation) DGIS through IRC over the period 1983-1986, aimed at promoting the development of an approach that involved communities in planning, implementation, day-to-day management and maintenance of their own water supply. As well as the construction of public standposts, health and hygiene education and appropriate sanitation were introduced in the community for maximum health impact. A most important aspect of the project was the appreciation and promotion of the newly gained experience and knowledge both within the countries and internationally. This was achieved through the organization of seminars workshops and training courses, publications in local languages and English, and the production of video-films and slide-shows.

Four countries

The project started in 1983, first in Indonesia and Sri Lanka, then in Zambia and Malawi. Prime responsibility for the project rested with the national governments, with IRC support. In all four countries the organization of the project followed similar lines: several different government agencies concerned with water supply, health and community development jointly formed a Project Management Committee. The committee choose project staff members, from the same agencies, to work as a team and implement the project. In this way a unique co-operation was established among institutions at a management and practical level.

Four villages or urban fringe areas were selected in each country as demonstration sites. The most important criteria for selection were an obvious lack of sufficient water of good quality, in the communities, suitability for piped supplies and a potential for community participation. This potential was often expressed by the existence of traditional voluntary community work systems (e.g. shramadana in Sri Lanka; gotong rayong in Indonesia) or previous community self-help activities, as in Zambia where communities may help in building a village school or a local health centre. In Malawi, project activities for the further promotion of community participation were integrated with the existing Urban Communal Water Point (UCWP) project, for the construction of water points in low-income urban fringe areas, where communities had already indicated their willingness to share the costs of supplying water.

Project teams started their work by informing local (district) government staff to familiarize them with project aims and to ensure their support. The villages selected as potential demonstration sites were then visited to explain the project to the local leaders and to

make an assessment of technical options for the construction of water schemes. At the same time methods for improved community participation were developed, for testing and further improvement in the villages.

The methodology for community participation has been worked out differently for each country depending on local acquirements. In Malawi and Sri Lanka preliminary research within the communities was considered necessary as a basis for planning for community participation. In Malawi a study was conducted focusing on problems which had arisen concerning operation, maintenance and financial management of the communal taps, constructed by the UCWP project. On the basis of the results of the study the decision was taken to engage and train four monitoring assistants, one for each demonstration site. These assistants monitor the organization of village tap committees and help them in managing tap operation and collecting monthly payments from the users. Guided by the Malawian project manager, the assistants can also facilitate communication between village committees and government agencies on problems concerning payment and maintenance.

Sri Lanka

In Sri Lanka extensive data were collected on the socio-economic background, health knowledge and sanitary habits of some of the communities concerned. This research also served as an informal means of introducing the project in the communities. Further planning of water schemes, health education and introduction of sanitation took place mostly through formal meetings of project staff with prominent community members. Similar meetings were also held in Zambia, but here special efforts were made to directly involve the whole community, particularly the women, in planning. Members of the project staff not only set the participation process in motion, but also motivated all activities, discussing each step with the communities.

This direct approach by staff is not so appropriate in countries with a strong tradition of local government, such as Indonesia. Members of the Indonesian project team did not work directly with the communities, but through local district government officials and village heads. A method was developed with training courses for the instruction of officials at different levels to act as motivators and facilitators for community participation. To get to know the ideas and wishes of the communities individuals were selected from each village to conduct a community self-survey on issues connected with water supply and health. Discussion of the self-survey questions in the communities also served to make the people aware of the health issues connected with water use.

In Sri Lanka a different means of informing the communities on health and hygiene was followed. Here the decision was taken to involve the village schools, and teachers were supplied with training material to

use in classes. In each village a group of older schoolchildren was encouraged to act as volunteers for giving hygiene information in the communities. They were given a short course on health and hygiene issues and on simple techniques for spreading information.

In Malawi and Zambia, project team members personally discussed health and hygiene matters with the villagers, assisted by district health workers. In Zambia, as well as in Sri Lanka, health and hygiene information through the project was connected with the introduction of appropriate sanitation. Low-cost models of a water sealed flush toilet (in Sri Lanka) and vent-pipe pit latrines (in Zambia) were demonstrated and guidance given to villagers on how to construct them. This has been a success in Sri Lanka, (where the villagers found that they could reduce the cost of a toilet to an affordable level by taking over a large part of the construction) and in Zambia where the costs of the latrines themselves were reduced through use of local materials.

Construction costs of the water schemes were also considerably reduced through provision of local labour and materials. For each demonstration area technical solutions were chosen in consultation with the villagers and adapted to the local situation. In Sri Lanka and Indonesia it was possible to use mountain springs as sources, and distribute the water by gravity. In Zambia and Malawi sources for the project schemes are mostly boreholes from which the water is pumped using diesel engines or electricity. Where necessary the water is treated before it is distributed. Obviously these latter schemes are more expensive to operate and maintain; repairs require skills that the villagers usually do not have. A balance has to be struck between inputs from the community and outside and revenue systems designed to cover the costs involved.

To organize operation and maintenance, tap- or water committees were established in each village. The committees were chosen by the communities, as in Zambia and Malawi, or proposed by the authorities concerned with the payment of water rates, where required, and execution of larger repairs. In Zambia and Indonesia the committees have set-up co-operative funds for covering maintenance costs. Funds are collected and kept by a member of the water committee who acts as a treasurer. The water committees also nominate caretakers who are responsible for operation and small repairs of the schemes and the taps. The caretakers and the treasurers all receive some practical training through the project, in simple maintenance techniques and book keeping.

Successful community participation

In all four countries the introduction of an improved approach to community participation in water supply has generally been quite successful. Communities have become aware of their own capabilities to take on responsibility and to help enhance health and well being in their villages. In some cases the new water

supply has increased the earning potential of the villagers, for example by using the water for fruit and vegetable gardens, or as in Indonesia, by building fish ponds.

However, there is a price to pay all for these benefits. Involving a whole community in decision making may take a lot of time, dedication and patience from the community and also from the authorities concerned. Another important requirement is flexibility in the approach: as the PSWS project shows, different solutions will be necessary in different countries, in different areas, and for different communities. This flexibility is particularly necessary in setting up revenue and maintenance systems. To ensure a long lasting commitment from the community, a careful balance has to be reached between their financial capacity, willingness and ability to participate, and the reliability of government agencies in supporting and helping to remove difficulties.

As these self-help methods are applied on a larger scale, it will be necessary to train government employees who will have to monitor and sustain the participation of the communities. Follow-up activities have indeed been planned in Indonesia, where the methodology of the PSWS project will be further tested in new, larger-scale projects in various regions of the country. Sri Lanka also plans to apply the PSWS project approach in a larger project, to up-date older supplies. In Zambia and Malawi projects will be developed which include other types of piped water supply for small communities, as well as public taps.

All these plans are based on the growing awareness that development of adequate water supply requires joint efforts of government and communities. The PSWS demonstration project may prove to be a significant step in learning how to structure this cooperation.

CEHANET WATER AND SANITATION INFORMATION NETWORK APPROVED

The International Development Research Centre (IDRC) of Canada has recently agreed to fund a two-year project in the Eastern Mediterranean region, to establish a water and sanitation information network to be called CEHANET. The network will be covered by the World Health Organization (WHO), and coordinated by the Center for Environmental Health Activities (CEHA).

This project will lay the groundwork for a larger CEHANET network that will also deal with the exchange of technical information in the field of environmental health. During the first two years of the CEHANET project, activities will concentrate on information relevant to the International Drinking Water Supply and Sanitation decade IDWSSD. Subsequently, the network's scope will be expanded to cover the goals of "Health for All by the Year 2000".

The specific activities to be undertaken in the IDRC-financed phase of this project are: establishment of a CEHANET Consultative Group and convening of two consultation meetings; strengthening of documentation staff in modern information handling procedures; production of an arabic version of the "Interwater Thesaurus"; adaptation of existing information processing tools and manuals for CEHANET use; compilation of a directory of institutions and individuals working in water supply and sanitation in the region; publication of three issues of a regional environmental health bibliography and provision of a document delivery service; and finally, convening of two regional workshops on CEHANET procedures.

Among the long term aims of CEHANET are: promotion of regional cooperation in information exchange through standardization of acquisition, maintenance and dissemination procedures; holding training seminars and short courses to help participating centres and institutions build their information infrastructure; and securing governmental commitment regarding participation of national agencies in managing and operating CEHANET.

SUPPORT GUINEA WORM ERADICATION

Increased efforts are needed to eradicate dracunculiasis, or guinea worm disease, during the remainder of the Decade. This message was stressed by Mr. G. Arthur Brown, Associated Administrator of UNDP and Chairman of the UN Interagency Steering Committee of the IDWSSD, in a press statement during the November meeting of the Steering Committee in the Dominican Republic. At this meeting a dramatic film on the disease by the Carter Presidential Center created a deep impression.

The Steering Committee established the eradication of guinea worm disease as an official subgoal of the Water and Sanitation Decade in 1981. In 1986, the World Health Assembly adopted a resolution calling for elimination of the disease, country by country. Guinea worm is the first disease to be targeted for global eradication since the successful Smallpox Eradication Program.

India, which began its national Guinea Worm Eradication Program in 1980, reduced the number of cases of dracunculiasis from over 44,000 in 1983 to 22,610 cases in 1986.

Several other countries have begun or plan national programmes. Over 100 million people live in areas threatened by the disease in India, Pakistan and 19

African countries. At least 10 million individuals suffer from the infection each year.

Since guinea worm is only contracted by drinking contaminated water from ponds or step wells containing microscopic larval forms of the parasite, the disease is an excellent indicator of the success of efforts to provide safe drinking water to people in endemic areas. A year after contaminated water has been drunk, the mature worms, which measure up to 1 meter (3 feet) long, begin slowly emerging through ulcers they produce in the skin, usually of the lower leg, in a painful passage which may cripple the victim for several weeks.

The Steering Committee noted Mr. Brown's observation that while much had been accomplished to date, much more emphasis, and resources, needed to be given to attacking this disease in the remainder of the Decade. Each endemic country needs to plan, set objectives, and implement action to prevent the infection. The Steering Committee especially urged internal support agencies supporting the Decade and the affected countries to give priority to villages where guinea worm occurs for providing safe drinking water. The reason is that villages with guinea worm are only a small fraction of all unserved villages but they suffer all the other usual problems associated with inadequate clean drinking water, in addition to the special problems resulting from guinea worm infestation. The disease is especially linked to further development because of its serious adverse effects on agriculture and school attendance, as well as health.

"No one country or agency acting alone can conquer this terrible disease, but together we can prevail", Mr. Brown observed. "This is one of the most easily preventable diseases.

By eventually eradicating guinea worm, this historic struggle will be one of the most enduring and important legacies of the Water and Sanitation Decade".

For more information on guinea worm two sources can be contacted:

-WHO Collaborating Center for Research Training and Control of Dracunculiasis, at the Department of Health and Human Services in the USA, which regularly publishes "Guinea worm wrap-up"
-Guinea Worm Information Center WASH project
1611 North Kent Street, Suite 1002 Arlington, VA 22209-USA.

WASH is also translating and distributing French versions of the "Guinea worm wrap-up."

THIS NEWSLETTER IS ISSUED BY IRC, AND DOES NOT NECESSARILY REFLECT THE VIEWS AND POLICIES OF WHO, OR ANY OTHER ORGANIZATION CITED.

With its partners in developing countries and with United Nations agencies and donor organizations, IRC assists in the generation, transfer, and application of relevant knowledge through programmes for water and sanitation improvement.

These information-oriented programmes include: 1. Information Support and Services; 2. Technology Development and Transfer; 3. Manpower Development and Training; 4. Community Education and Participation; and 5. Programme Evaluation and Planning.

Support is provided by means of publications and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national capacities.

Requests for information on IRC should be addressed to IRC, P.O. Box 93190, 2509 AD The Hague, The Netherlands.

TABLE OF CONTENTS

	Page
* Be cautious with bonuses	1
* Pump parts standardization premature	2
* Evaluation course material	2
* India mounts technology mission	3
* Dutch fight chemical pollution	3
* New information expert at IRC	4

BE CAUTIOUS WITH BONUSES

Do production bonuses make a difference in water supply and sanitation? This question has triggered off an interesting discussion within UNICEF. In the final 1987 issue of UNICEF's house journal *Intercom*, Cole P. Dodge, the UNICEF representative in Sudan, reported successes where production bonuses have proved their worth. He described water and sanitation projects in Sudan where workers were changed to a system that compensated them according to their performance. However, in the January issue of UNICEF *Intercom* the reaction from the Programme Division at the New York headquarters was loud and clear: be cautious with production bonuses. Malcom Kennedy of the Programme Division commented that the question has been raised whether such payments are appropriate when viewed with a long term perspective.

Since it is of such interest the highlights of the discussion are presented here. In the small provincial town of Kadugli, in the Kordofan region of Sudan, it was found that the borehole project which was supported by UNICEF was lagging far behind target, due to a lack of motivation and accountability of the workers. UNICEF Sudan decided to introduce a production bonus system to improve the situation. Mr. Dodge reported that resistance from the (all government) staff diminished after UNICEF made it clear that it was not prepared to finance an inefficient drilling operation. The project is now showing remarkable results. More boreholes are being drilled than targeted, and more water is available at less cost per borehole.

In 1984 a change in the previously unsuccessful pit-latrines project combining effective community participation with a bonus to government extension staff, of 4.5% of the total cost, resulted in the

successful completion of 1000 pit-latrines. Prior to the bonus incentive, construction and demonstration units and thousands of hours of extension efforts had shown little progress.

Mr Dodge also quotes success from Uganda, where outdated handpumps placed in the 1950's and 1960's were being replaced with the more reliable India Mark II pump. In 1983, only 135 pumps were replaced, compared to 1065 in 1984, when a production bonus of US\$ 47 was paid for each handpump replaced. Furthermore, the average cost per pump replaced in 1983 of US\$ 3422 was reduced by 61% to US\$ 1351 in 1984/5.

Production bonuses were directly incorporated into the down-the-hole hammer drilling technology introduced by UNICEF in 1984 showing good results. A doubling of bonuses in 1985 increased output and decreased the cost per borehole by 41%.

Mr. Dodge maintains that production bonuses definitely make a difference. However, Mr Kennedy replied that, although, this may be so in emergency situations, where virtually anything is considered acceptable to save lives, development assistance is aimed at long term results, with sustainability being one of the most important criteria for success. The goals of development aid donors is to achieve a catalytic effect by assisting a project until it becomes sustainable with national resources; donors are usually incapable of supporting nation-wide activities indefinitely. Mr Kennedy argued that, taking this into consideration, it appears unwise to pay incentives in order to achieve results, if the government is not prepared to continue the practice.

Moreover, experience shows that community involvement at all stages of water supply and sanitation projects is essential for long term success. The development of governmental technical and implementation skills, as well as managerial and administrative capacities also play a key role in building a workable, self-supporting, and sustainable system.

Although cash incentives may be acceptable as emergency, short term solutions, and low government salaries coupled with a lack of financial acknowledgement may be an argument for such incentives, alternatives should be sought which have more long lasting effects on the government



organizations concerned. Mr. Kennedy gave some examples which have had positive results in the past: study tours for outstanding staff, project staff appointments, and support for small applied research projects. Such incentives could in turn have a positive influence on the water supply and sanitation projects themselves.

Those tempted to follow the example of the UNICEF office in Sudan in order to meet project targets are recommended by Mr. Kennedy to look into the sustainability of those projects as well as possible alternative incentives, before embarking on a production bonus system.

PUMP PARTS STANDARDIZATION PREMATURE

That the standardization of most of handpump components would be premature, was one of the conclusions of the participants of the workshop on handpump standardization and maintenance, which took place in early February in Ouagadougou, Burkina Faso. The workshop was organized by the Comité Inter-africain d'Etudes Hydrauliques (CIEH) in collaboration with the Economic Commission for West Africa (CEAO) on the occasion of the 14th ministers' meeting of CIEH.

Participants in the workshop included representatives from Benin, Burkina Faso, Gabon, Guinee Bissau, Ivory Coast, Mali, Mauritania, Niger, Senegal, Tchad and Togo. Many international support agencies and donors were also represented. Handpump manufacturers actively participated in the discussions, which included productive use of handpumps with sufficient output, local handpump manufacturing, and maintenance organization.

The workshop noted that 40 to 50% of the approximately 30 000 pumps installed in the sub-region do not function adequately. Reasons for this include unreliable or unsuitable technology, lack of standardization of both handpumps and maintenance concepts, lack of awareness of maintenance responsibilities among the users, inadequate involvement of communities, and lack of follow-up monitoring and training support by the administration.

The workshop felt that more attention should be given to the selection of handpumps on the basis of governmental criteria. The results of the UNDP/World Bank Rural Water Supply Handpumps Project were discussed, and the principle of village

level operation and maintenance was largely supported by the participants.

The World Bank representative highlighted the importance of ground water quality. Corrosion was found to be a major cause of handpump failure in areas with acid groundwater. For example in the south and centre of Ghana two-thirds of the breakdowns were directly or indirectly related to corrosion. Corrosion was also found to cause high levels of nitrate in water from handpump wells.

The participants concluded that more attention should be given to developing suitable methodologies for community involvement and to the integration of maintenance components in donor supported rural water supply programmes. National governments were recommended to exempt handpumps and spare parts from all taxes. Further research on improved handpump systems and on corrosion resistant and light weight materials such as PVC and glass-fibre reinforced components was encouraged.

The participants acknowledged the overall lack of data monitoring and they recommended that this should be improved, with the inclusion of statistics on breakdowns.

Papers and workshop proceedings are available from CIEH, P.O. box 369. Ouagadougou, Burkina Faso.

EVALUATION COURSE MATERIAL

Recently more emphasis is being placed on evaluation of water supply and sanitation activities as a tool for project management and improvement. This type of evaluation relates to learning from experience gained with water supply and sanitation projects, identifying constraints and options for improvement. Experience shows that people involved in the evaluation process are more inclined to use evaluation results and recommendations.

In support of this and in collaboration with UNICEF IRC has recently developed training course modules and a guide for course moderators which together comprise a training course. The course and the modules are primarily intended for government officials and staff responsible for the management and evaluation of water and sanitation projects. It was published under the title "Evaluating Water Supply and Sanitation Projects" in two volumes in the newly established Training Series.

These modules haven been prepared to serve as a basis and guide for one week course programmes in



ITN NEWS

The International Training Network for Water and Waste Management (ITN) was initiated to improve the effectiveness of investments in the water supply and sanitation sector through the promotion of training, information and research activities on low cost technologies and innovative multi-disciplinary approaches in project planning, implementation and evaluation. ITN is supported by the UNDP, the World Bank and other multilateral and bilateral development agencies.

The ITN has produced a comprehensive collection of training and information materials on low cost technologies and approaches based on studies of the World Bank and other development agencies. Forty-five (45) slide sound shows, three (3) films and selected training and information materials have been developed thus far.

Now on its Second Phase, the ITN primarily intends to promote the use of these materials through selected institutions who are capable of training, research and information activities and who are willing to host a Network Center.

This ITN News supplement to the IRC Newsletter is a communication tool to inform and update policy-makers, practitioners and students about its activities. Feedback and comments may be addressed to: Mr. Michael Potashnik, Office of the Training Coordinator, Water Supply and Urban Development Department, World Bank, 1818 H Street, N.W., Washington, D.C. 20433 (Telex 440098).

Regional Workshop in Bandung for East Asia

A Regional Workshop on Low Cost Water Supply and Sanitation for Trainers and Instructors was conducted last October 14-24, 1986 at the Institute of Technology in Bandung (ITB), Indonesia. The Workshop was organized to acquaint participants with the ITN training and information materials and explore future activities in the Region.

The Workshop was attended by twenty-one (21) participants from 13 institutions from East Asia. The Indonesian participants were from Cipta Karya, the Ministry of Health, University of Pajajaran (Bandung), University of Udayana (Bali), Sepuluh Nopember Institute of Technology (Surabaya), University of Indonesia (Jakarta) and ITB. Regional participation came from Provincial Waterworks Authority and Khon Kaen University of Thailand; the Public Works Department and the University of Malaya from Malaysia; and the University of the Philippines and the Local Water Utilities Administration from the Philippines. The class consisted of eight (8) faculty members from educational institutions, seven (7) trainers and six (6) project staff from sector agencies.

Participants discussed Alternative Technologies, Health and Hygiene Education, Project Planning and Implementation, Rural Water Supply and Sanitation Technologies and Training Methods. The ITN modules were used to stimulate the discussions. They also observed the technical and social innovations in the planning and management of Desa Salawu (Kabupaten Tasikmalaya) water system which featured a service level mix of public taps and house connections with constrictors. They noted the high level of community cooperation which contributed to the success of the system. The field trip was organized by IWACO Consultants. In the second week, the participants were assigned to plan and facilitate discussion sessions using the Case Study modules. Each group was allocated one hour and twenty minutes to conduct their session followed by a critique. Finally, participants drafted Action Plans which they will pursue upon their return to their offices. The Plans were within their current areas of responsibility and directed

towards influencing their institutions in looking at alternative technologies and approaches and integrating such concepts into existing training programs and educational curriculum.

Techniques for use of the modules among participants who are unaccustomed to the discussion method were demonstrated. Discussion leaders initially tended to lecture but they soon recognized that better learning is achieved if they stopped giving the "expert" answers to the issues and directed the questions back to the group with clarifications. This situation was pointed out by the participants and appropriate adjustments were made by later groups as discussions progressively improved with succeeding presentations.

The participants agree that the low cost concepts are fairly simple to understand and recognize that the first step towards gaining acceptance is the development of a positive attitude toward their use. The Workshop successfully developed an enthusiastic corps of trainers and instructors who are aware of and understand the concepts and the methodologies for using the ITN materials.

The sessions were conducted by Dr. Benny Chatib and Dr. Someirat Slamet of ITB. Mr. Maarten Blokland of IHE, Mr. John Kalbermatten, Mr. Gerd Jan de Kruijff, Mr. John Courtney, Mr. Michael Potashnik and Mr. Wilfrido Barreiro of the World Bank.

The Workshop was sponsored by the governments of the Netherlands and the Federal Republic of Germany and conducted with the assistance of ITB and the International Institute for Hydraulic and Environmental Engineering (Delft). Administrative arrangements were handled by the International Reference Center.

NEWS BRIEFS

Two Centers in Indonesia

Plans have been prepared for the establishment of Network Centers at the Environmental Engineering Department of the Institute of Technology in Bandung (ITB) and at the Directorate of Water Supply in Cipta Karya.

The ITB Network Center will be operational by June 1987. The Center will work with ten major state universities and twenty private universities which have sanitary engineering courses in their Civil Engineering program and in two polytechnics for advanced sanitary technicians.

The Cipta Karya Network Center is scheduled to begin early 1987. Its primary audiences are policy-makers and planners from its staff and those of local consultants. Linkages with the on-going Human Resources Development Program and the Integrated Urban Infrastructure Development Program are being established.

The ITN materials are being reviewed by the World Health Organization office in Jakarta for use in the training activities of the National Health Plan of the Ministry of Health.

Network Center Activities in East Africa

The Regional Network Center for Water and Waste Management in East Africa commenced operations in January 1986. Thus far, it has concentrated on developing contacts with training institutions in Kenya, Tanzania and Uganda building up its internal staff and holding select workshops. It is deep in preparations for more workshops and seminars which are scheduled next year. The Center is supported by the Swiss Development Cooperation Agency and Deutsche Gesellschaft für Technische Zusammenarbeit, GmbH.

ITN Activities in India

The Ministry of Urban Development is following up the final review of the proposal to initiate ITN activities in India. The Housing and Urban Development Corporation (HUDCO) has been designated to coordinate the activities of the network centers in India in behalf of the government. The All-India Institute of Public Health and Hygiene (AIIPHH) in Calcutta and the Center for Environmental Studies (CES) of the College of Engineering, Guindy, of Anna University in Madras are being considered as potential Network Centers. AIIPHH is expected to be active in Assam, Bihar, Gujarat, Himachal Pradesh, Rajasthan, Uttar Pradesh, and West Bengal. CES will be active in Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Key institutions who will work with the centers in the states will be identified and trained next year. The Ministry of Rural Development will also participate in Network Center activities.

Planning for an Instructors Workshop in February to be coordinated by the Human Settlements Management Institute (HMSI) of HUDCO has begun.

ITN Activities in China

Translation of selected ITN materials was started this year by the Central Patriotic Health Campaign Committee with funding from GTZ. Formal nomination of appropriate institutions to host Network Centers are expected soon from the Ministry of Foreign Economic Relations and Trade.

Symposium and Workshop for UK Consultants

More than 30 senior partners of consulting firms in the U.K. attended a Public Health Engineering Seminar last July 22 at the British Consultants Bureau in London. The seminar was conducted to stimulate the interest of senior consulting engineers in low cost water supply and sanitation systems and to discuss their experiences in the design of these kinds of projects. The seminar was sponsored by the Overseas Development Administration and the World Bank. It was marked with lively discussions among the participants who expressed their interest by requesting that that follow-up technical workshop be conducted for their staff.

One such technical workshop was organized from September 29 through October 1 this year with the British Consultants Bureau by the Water and Engineering for Developing Countries (WEDC) of the University of Technology in Loughborough. The Workshop was well attended by 14 consulting firms from the U.K. undertaking overseas assignments.

PROFILE

The Institute of Technology Bandung, ITB, conducts the only comprehensive environmental (sanitary) engineering program in Indonesia. A Network Center will be located at the Environmental Engineering Department of the Faculty of Civil Engineering and Planning of ITB. The Department consists of 29 staff members, 12 of whom are Sr. Lecturers. It is responsible for the conduct of a 4½-year program of studies leading to a diploma in Sanitary Engineering. Aside from the water supply subjects, students select their major field of study from among four options: Environmental Health, Air Pollution, Environmental Management or Solid Waste Management. About 50 students finish this program annually. It currently has 296 students. In 1983, they launched a two-year Masters program with major options in Water/Wastewater Treatment and Advanced Environmental Management Technology. They have three students in this program.

The Network Center at ITB will play a pivotal role in strengthening the orientation of the faculty and students towards low cost technologies and approaches in Indonesia. One of its intermediate objectives is to increase attention given to low cost technologies and approaches in terms of quality of instruction and available teaching resources.

RESOURCE FILE: Three Films on Low Cost Technologies and Approaches

Part of the ITN collection of training and information materials consists of three films which provide the bases for low cost technologies and approaches and describe practical examples. These films were prepared with the National Film Board of Canada.

Other than conventional water supply and sewerage systems, there are alternative technologies available to provide water supply and sanitation facilities which planners and managers may wish to consider. Each alternative has its own level of service, costs and benefits. Policy-makers and planners should consider these technologies and incorporate only those that are suitable and affordable. Film 1 ("People and Problems"; 28 minutes, 41 seconds) identifies the differences in water and sanitation demands in various settings and invites the viewers to consider low cost technologies which can be far more appropriate, reach a much larger population at less cost and meet the community's expectation for adequacy. Film 1 is also available in Spanish.

Low cost technologies are relevant, practical and have been successfully implemented in several developing countries. Film 2 ("Problems and Solutions"; 41 minutes, 48 seconds) documents existing examples of successful appropriate technologies, their construction and major features. It discusses some of the health aspects of water supply and sanitation.

Aside from technical aspects, various sociocultural factors need to be addressed. One of the major objectives of an improved sanitation system is better hygiene. To meet this goal, effective liaison with health and education authorities and community leaders must be established. Visual examples of recommended practices are used to support the narration. Film 3 ("Solutions and People"; 27 minutes) describes various ways of communicating with, and involving the users in aspects of health care and presents a case study of delivery strategies.

Instructors Guides to accompany these films are being developed to aid users in highlighting its key messages. The Guides will contain useful suggestions for post-film discussions and other learning activities to achieve optimal impact.

TRAINING TIP: Working with Small Discussion Groups

There are five elements which must be present in facilitating successful small group discussions which is the main technique in using the ITN training and information materials. In designing small group workshops:

- (a) Specify the size of the group. Use smaller groups to achieve in-depth discussion; larger groups to demonstrate dynamics.
- (b) Control the composition of the group depending on the learning objectives. Groupings may be done by age, job, region, etc.
- (c) Tell them how much time they have. You may extend it when that time comes, but have a deadline.
- (d) Specify an output requirement which the group should show at the end of the period, e.g., a listing or written answers to questions, etc.
- (e) Tell them what they will share during the discussion.

developing countries to train UNICEF project staff and their governmental counterparts. The modules and course moderators guide were tested in a national workshop in Nigeria. Adjustments were made on the basis of the workshop's recommendations.

The 15 modules take the users step by step through the evaluation process from initiation to implementation of projects. The guide for course moderators provides information and suggestions on how to organize and run an evaluation course. It offers an outline of a course structure and content with specific suggestions for each training session. It also includes checklists and examples.

The modules contain 110 pages and the guide for course moderators has 94 pages. They are available from IRC at US\$ 15 per set. Should you wish to organize an evaluation course you are welcome to contact IRC.

INDIA MOUNTS TECHNOLOGY MISSION

By the time this newsletter appears India will have completed 55 missions to pilot projects which involve new cost effective science and technology techniques in problem villages. The Government of India has mounted a massive campaign to tackle the drinking-water problems in 227 000 problem villages by 1990, or nearly 40% of all Indian villages. Early in 1987 the central government set up the Technology Mission on Drinking Water in Villages and Related Water Management, under the direction of the Department of Rural Development.

In a meeting in February last year State ministers, secretaries and chief engineers reached a consensus on the plan. Drinking water supply in rural areas should be kept in the core sector of India's Development Plan. Allocation of further financial resources was considered essential to achieve the mission objective of supplying 40% of India's problem villages with adequate drinking water within the next three years.

The programme aims to supply 40 liters potable water per capita per day in these villages, to develop a cost effective technology mix, and to take conservation measures for a sustained supply of water. The experiences in the 55 pilot villages where mini missions have taken place are to be copied and applied simultaneously to the rest of the problem villages.

The methodology used includes: scientific source finding, improvement of traditional methods,

purification of water, improvement of materials and designs, improvement of maintenance methods, a computerized management information system, continuous monitoring and evaluation, community involvement through village Panchayat and voluntary agencies, and awareness campaigns.

The Council of Scientific and Industrial Research (CSIR) provides the necessary technological input and co-ordinates the water assessment activities of all research agencies involved. One of these is the National Environmental Engineering Research Institute (NEERI), the agency which has also been actively involved in the IRC supported Slow Sand Filtration demonstration project. NEERI has been involved in five of these mini missions.

In the first newsletter of the Technology Mission the role of voluntary agencies in achieving the objectives is highlighted. The Council for Advancement of People's Action and Rural Technology (CAPART) is the co-ordinating agency for the Mission, and identifies capable, competent, professional and grass root voluntary organizations. With their experience and professional expertise in identifying sources and in creating new sources of water supply, voluntary organizations can contribute a cost-effective and socially acceptable approach to the Mission. To accomplish this, one voluntary organization has been selected for each of the first 23 Mini-Mission Districts.

Voluntary organizations are also to play a significant role in generating awareness among rural people of the need for safe drinking water and in organizing work to achieve this and maintain the systems. The awareness campaign will extensively use the media, news letters, village camps, posters and other means to communicate with the villagers on the goals of the Mission. People's participation will be crucial to the success of the Mission, particularly the involvement of women in identifying sources of potable water. The awareness campaign will also integrate other

DUTCH FIGHT CHEMICAL POLLUTION AT SOURCE

Consumers of water in the Netherlands are increasingly alarmed by news concerning pollution of their natural water supply, which makes water treatment more complicated and expensive. Too high concentrations of nitrate have been found in groundwater in southern and eastern parts of the country. Early in April the Dutch water industry raised the alarm about a high concentration of the chemical bentazon (a pesticide) in the drinking water of approximately four million of the 14 million

inhabitants, who rely on surface water. The water companies in the Netherlands have demanded a ban on the production and distribution of this chemical.

Situated downstream of the river Rhine (often called Europe's largest sewer) the Dutch are affected by any pollution further upstream. The European standard for bentazon allows 0.1 microgram per liter. However, in four places in the Netherlands water analysis has shown a concentration of 1.6 microgram bentazon per liter. A large chemical company in Germany which produces this pesticide is largely responsible for this and has agreed to reduce its waste-water discharge in two years to 0.1 % of the current discharge. The Dutch water industry has taken legal action demanding that the company stop the discharge of bentazon as soon as possible.

If the chemical company does not respond to this demand the Dutch water industries have announced that they will sue for damages as the matter is of such a serious nature. A spokesman for the water companies stated at a joint press conference with the Netherlands Ministry of Housing, Physical Planning and Environment that the purification techniques currently installed cannot remove chemicals such as bentazon. The water companies concerned announced that unless bentazon discharge is stopped they will have to construct new carbon filters to remove the chemical. This will cost the consumers about US\$ 0.1 per cubic meter extra, or between US\$ 14 and 20 per year for an average family.

Under Dutch law the water companies are obliged to supply good quality drinking water, so until a ban on distribution of bentazon has been achieved they are forced to take these extra purification measures. The ministry and water industry agree, that prevention of pollution at the source is the most effective measure, purification measures being second best. Monitoring of pollution levels is the least that can be done to help remove high concentrations of chemicals such as bentazon.

The Dutch water companies are also urging the chemical industry to make public which chemicals are used in production and which are contained in the waste discharge of the industry. Only when this information is available will they know which tests should be carried out. A spokesman for the companies commented: "Now we are looking for a needle in the haystack".

This European experience is of great importance for developing countries. Source protection should be the

top priority in the fight against water pollution. This is cheaper and more effective than purification measures by the water distributing agency.

NEW INFORMATION EXPERT AT IRC

Ms. Eirah Gorre-Dale, Information Officer for the Division of Information and Public Affairs of UNICEF, will be loaned to IRC for the period of one year beginning in May, to work in the area of technical information exchange in developing countries. She fills a vacancy left by Mr. Toon van Dam, who, in his five years at IRC, was responsible for the Programme on Exchange and Transfer of Information (POETRI), in which context three country programmes were started and various documents including the Interwater Thesaurus and the Directory of Information Sources were compiled. Further, he contributed significantly to the compilation of the List of Basic Publications on Water Supply and Sanitation, and most recently, helped launch the INFO-IMPACT project to improve technical information exchange in developing countries.

Ms. Gorre-Dale has been with the United Nations since 1968. She has extensive experience in the area of information management, storage and retrieval, and dissemination of information, having been employed by UNICEF in the Programme Development and Planning Division, and most recently in the Division of Information and Public Affairs (DIPA). For DIPA, she was responsible for a bi-weekly electronic information service, wrote for the UNICEF 'Newswire' service, supervised research and referral functions, and assisted in the preparation of major UNICEF publications. During her year at IRC, Ms. Gorre-Dale will primarily assist in the formulation and implementation of practical information exchange activities for the Decade and beyond, in 5-10 developing countries. This will be achieved through co-operation with national, regional and international research and training institutions, in collaboration with UN agencies, bilateral donors, and ESA's. The focus will be on information activities as components of water and sanitation projects.

IRC wishes Mr. van Dam success in his new job, and looks forward to having Ms. Gorre-Dale join its staff

TABLE OF CONTENTS

	Page
* Community-managed water treatment spreads in Colombia	1
* Better co-ordination for the remainder of the Decade and Beyond	2
* New International Water Engineering Centre: Canada	3
* Guidelist Aqua Plus: New tool for ordering equipment	3
* Short course by IHE, Delft	4
* New IRC publication	4

COMMUNITY-MANAGED WATER TREATMENT SPREADS IN COLOMBIA

Mountain streams and rivers form major sources for the supply of drinking water in Colombia. Increased deforestation, recreational and economic activities in the intake area, such as processing of coffee are leading to serious pollution of these sources. In 1983, the University of Valle in Cali, Colombia, therefore established a working group for research and technology transfer in low-cost water treatment systems. These systems, which include both slow sand filtration (SSF) and various forms of pre-treatment, have to be manageable by the community water committees, or 'juntas administrators' who traditionally manage small piped water schemes in the villages and urban fringe communities.

The Working Group totals about 30 people including 14 engineers and can in addition call on other professionals at the University, such as microbiologists and communication specialists. IRC has collaborated with Colombian organizations in the development of low-cost water treatment since 1979, when a demonstration project on SSF was carried out in two communities with the national rural water supply programme of the Instituto Nacional de Salud (INS). Since then, research on improved slow sand filter design has been continued by the working group at UNIVALLE, with technical backup from IRC.

The group has helped to build and monitor demonstration plants on SSF. Applied research on low-cost pre-treatment systems to cope with high turbidity levels started in 1987, with financial support from the Dutch government. These investigations are

carried out in co-operation with IRC and other organizations such as the International Reference Centre on Waste Disposal in Dübendorf, Switzerland. The project can draw on the support of an extensive advisory group of Colombian and international experts. Experiences and results have been made available to other countries in particularly in the Latin American region through several regional workshops on SSF, held in Neiva and Cali. Workshop activities included the review of a design for an SSF plant and field visits to plants in operation. Plans exist to form similar working groups in other parts of Colombia, and train them at a 6-week seminar at UNIVALLE.

Implementation of the SSF projects is through existing Colombian water programmes, including those from the Ministry of Health, the Comite Cafeteros, a large federation of co-operatives of coffee farmers. In this way the group not only carries out an important research function, but also provides knowledge transfer and training in low cost water technology for Colombia and other Latin American countries.

Besides having technical problems, the group found that for a successful SSF project considerable socio-organizational input was needed particularly in rural areas. In these areas community-based management is often the only way to ensure proper functioning of the plant and system. This is more easily attained if the users themselves want a treatment system and understand its importance for family health. They must also know the costs involved and be able to afford them. Keeping user families well informed and having discussions with them are therefore important activities in the local planning. The project has resulted in the collection of important information. For example it has been shown in a plant in El Retiro that SSF treatment was considerably cheaper than conventional treatment and chlorination costs were 4 times lower than before.

A problem commonly met in the SSF projects in Colombia is the very high water use sometimes as high as 400 l/c/d. Common reasons are leakage or even the complete lack of taps, especially in the case of yard connections, and the use of treated water for economic purposes, such as irrigation and flushing of pigsties. Since the connections are not metered and people usually pay a flat rate, there is no economic motivation for limiting water wastage.

The excessive water use is an important problem since it considerably increases the cost of treatment and distribution. Efforts are now underway to try to come



come to grips with this problem and in one case the mere introduction of water meters has resulted in a 50% reduction in the consumption. However, metering is not always the best solution. Meters raise the investment costs, need maintenance and repair and make the administration more complex and costly. Moreover, they are also a financial burden on poor families who use little water, yet have to pay for meter installation because of the high water use of the rich. Therefore other options have to be explored to reduce wastage and achieve more proportional payment. These include: public education in plant capacity and water use, introduction of graded water rates, metering per neighbourhood combined with a voluntary agreement with each neighbourhood to reduce water loss, installation of diaphragms or flow restrictors in the pipelines with the consent of the users to give a sufficient quantity of water to cover basic water needs (drinking, washing, bathing and where necessary basic food production). In cases where large use of water for economic purposes exists, introduction of meters is usually needed to match water use to water payments.

Other problems in rural water supply in Colombia are: low coverage, poor quality of older distribution networks and the continued existence of other risks to environmental health. In La Sirena, for example, less than 40% of the households currently have a connection to the treated water supply. The others still use untreated river water. This means that the water supply will not have an optimal impact on public health and that the water tariff is higher than if all households had joined the scheme. Potential health impacts are further limited by the fact that other transmission routes of water-related diseases, such as insanitary excreta and waste disposal continue to exist. The working group in collaboration with IRC is therefore experimenting with a community self-survey, whereby the 'junta administradora' and other community members are helped to assess these conditions and plan and carry out a community action plan on water use and hygiene.

The organization and co-ordination of all sociological activities is following the same strategy as the proven approach of the SSF technology working group. Planning and implementation, will be carried out with close co-operation of the promoters of the Ministry of Health, and SENCOA the social service of the Coffee federation. IRC assisted with drawing up the workplan for the sociological activities of the group. A full time sociologist recently joined the group.

BETTER CO-ORDINATION FOR THE REMAINDER OF THE DECADE AND BEYOND

Managers from United Nation Development Programme (UNDP), UNICEF, the World Health Organization (WHO) and the World Bank (WB) met at the WHO Regional Offices for Africa in Brazzaville, Congo from 15-18 December 1987, to discuss better co-ordination and a clearer strategy during the remainder of the international Water Supply and Sanitation Decade (1981-1990), and beyond. The meeting was a first important step towards a commitment made at the Interlaken Consultation of External Support Agencies held in October 1987. At that consultation, the 23 agencies represented discussed co-operation in water supply and sanitation and made a commitment to strengthen collaboration via elaboration of a framework agreement. The recently issued report of the Brazzaville meeting conveyed that with the Decade as a central concern of UNDP, UNICEF, WHO and the WB, an essential foundation for the new framework must be a continuing close collaboration between these four agencies.

Bearing in mind the priority assigned to Africa at Interlaken, the focus of the Brazzaville meeting was on this region. Specifically, the meeting sought to identify means to improve co-ordination and joint actions at the international level and also in specific countries. Policies, ongoing and prospective activities, resources and constraints were presented by the senior officials of the 4 agencies. Their special concerns and intended approaches to Africa's water supply and sanitation problems were also discussed.

All 4 agencies gave priority to inadequacies in the areas of national planning structures, co-ordination of external support agencies, community participation, practical training, integration with health programmes, attention to urban slums, and the role of women. UNICEF and WHO also stressed shortcomings in the areas of monitoring and evaluation, decentralization and attention to rural sanitation.

The agencies agreed on joint action in a number of specific cases in several countries, and worked out procedures for regular consultations and continuing collaboration at the sub-regional and national level. As well as improved co-operation and collaboration, resulting from the meeting, it is expected that the link between water supply and sanitation programmes and other health components of primary health care will be strengthened. It is also expected that plans will be developed to reduce the morbidity of

communicable diseases including that caused by guinea worm.

It was agreed at the meeting that there should be a series of follow up meetings in Africa. The first of these is tentatively scheduled to be held this year in Harare, Zimbabwe, for East and Southern African countries. Meetings in other regions will also be organized this year.

NEW INTERNATIONAL WATER ENGINEERING CENTRE IN CANADA

The International Water Engineering Centre (IWEC) has recently been inaugurated at the University of Ottawa. The centre is located at the Civil Engineering Department of the University which has had an active involvement in international water resources over the past Decade. Activities have included research into appropriate technological solutions to overseas water problems and training personnel both overseas and in Canada.

The international development organizations have given new emphasis to human resources development. This contributed to the decision to focus the efforts of the centre in a new way to provide more effective research and educational services. The new centre has 10 professionals and will be involved in the sixth World Water Congress, on the theme Water for World Development, of the International Water Resources Association. This will be held in Ottawa from May 29-June 3. Special sessions are planned at this congress on various subjects including: international aquifers, environmentally sound water management, non-governmental organizations (NGO's) and water resources development and the UN Water Decade panel.

Starting in 1988 a special set of courses oriented towards international water resources engineering will be incorporated into a masters programme. A new International Water Engineering Library has been established as an independent unit within the Vanier Library of the University of Ottawa. The Centre will also increase its co-operation with the Institute for International Co-operation and Development at the university.

For further information about IWEC contact:
The Director; International Water Engineering Centre; Civil Engineering Department University of Ottawa; Ottawa, Ontario Canada K1N 6N5

GUIDELIST AQUA PLUS: NEW TOOL FOR ORDERING EQUIPMENT

The United Nations Children's Fund announces the publication of the new UNICEF Guidelist "AQUA PLUS: appropriate technology for water supply and sanitation in developing countries." This tool for ordering equipment comprises annotated lists of materials supplied by UNICEF to government programmes or purchased for other organizations through the UNICEF Supply Division.

The guidelist was prepared in consultation with WHO, WB and IRC. The author is Paul Bayer who is chief of the Engineering Section of the UNICEF Supply Centre in Copenhagen, Denmark.

The previous guidelist on water supply and sanitation "OLGA" published in 1975 was a bestseller with some 5000 copies distributed. UNICEF also anticipates a large number of requests from outside the UN system for AQUA PLUS and has asked IRC to organize this wider distribution.

The AQUA PLUS guidelist presents neutral specifications and equipment information selected from over 500 product catalogues, manuals and other documentation. Comprising more than 1000 pages, it is split into 14 chapters, dealing in sequential and logical order with equipment required for implementation of water supply and sanitation projects: surveying, drafting, drilling, development, digging, pumping, storing, distributing, segregating, and environmental sanitation. They are supplemented with chapters on transport, camping, tools (in particular for maintenance), and training and teaching aids.

The chapters which are laid out to assist in project formulation and selection of equipment contain specifications, illustrations, unit measures, budget prices and where applicable selection and job guides. Items are alphabetically indexed and are easy to find.

AQUA PLUS, presented in a four-ringbinder, can be ordered for UN staff from: UNICEF Supply Division, Unicef Plads, Freeport, DK 2100 Copenhagen, Denmark.

For people other than UN staff the guidelist can be obtained at the cost of US\$ 110 from: IRC, P.O.Box 93190, 2509 AD The Hague, The Netherlands. This price includes surface mailing.

SHORT COURSE BY IHE, DELFT

Low-cost water supply and sanitation is the subject of the short course which the International Institute for Hydraulic and Environmental Engineering (IHE), Delft is organizing from June 27 to August 24. The course programme for practising professionals with a university degree has been designed in close consultation with various organizations active in the field.

The purpose of the course is to present the state of the art about the various technologies and approaches in the field of low-cost water supply and sanitation and to provide training in how to apply this knowledge in practical situations. The main part of the course is a group project in which course participants draw up a detailed master plan for either a water supply and sanitation programme or a water supply and distribution programme in a rural area.

Aspects dealt with in the course and in the resulting group report include: the choice of technology, community participation, health education, organization and management, cost recovery and a plan of operations. The group project is supported by lectures on relevant topics and by a number of exercises.

IRC and IHE have good working relations in connection with the international 11-month diploma courses which are held in Delft. IRC is pleased to co-operate on this short course which is so close to our heart. IRC staff will give lectures and also guide group exercises on community participation, hygiene education, SSF and pre-treatment of raw water.

IHE has been conducting courses in sanitary engineering since 1960. To date some 1300 people, mostly from developing countries, have completed post graduate courses in this field.

NEW IRC PUBLICATION

IRC has recently published "Training Community Motivators in Water Supply and Sanitation, a reference document" in the Occasional Paper Series. The document was prepared by Alastair White and Gill Gordon with a financial contribution by WHO. The reference document is intended to cover the questions involved in training community motivators in water supply and sanitation. Its contents aim to assist various categories of staff, programme

administrators and leaders, course planners and trainers.

As far as possible these groups should not be dealt with as separate categories. Those who are formulating training programmes should also be involved in implementing them; trainers should participate in planning the training and should also be the supervisors of the motivators. The authors argue that the problem with separate training units whose staff do not take part in the work itself is that they tend to become removed from the realities of the job.

In this context the document does not address itself partly to programme leaders and partly to trainers. In general the early chapters (I to V) of the document are concerned with policy issues in mobilization aspects of the programme and in training; these should be planned together. Chapter VI is the central chapter and is concerned with what to teach, but even this cannot be separated from many of the policy issues concerning the mobilization aspects of the programme such as the way in which the community is to participate in decision-making, financing, constructing, maintaining, and managing its water or sanitation project.

Chapter VII is specifically intended for trainers. It covers training methods, primarily for use in courses. The authors emphasize that course-work is only one part of training. Perhaps two thirds or more of the time spent in training community motivators should be spent in teaching and practising skills. This includes manual and technical skills and the practice of sociological and communication skills.

Chapter VIII concludes the document with a description of the attitudes required among senior programme staff, politicians and the public if participatory approaches are to be successfully adopted. This chapter is directed primarily at programme leaders.

The document can also assist in the preparation of country-specific training manuals and planning documents for the training of mobilizers. It is not intended for the training of village volunteers. The document has 238 pages, costs US\$ 17 and can be ordered under ordercode OP11 from:

IRC
P.O.Box 93190
2509 AD The Hague
The Netherlands

TABLE OF CONTENTS

	Page
* Unicef Policy review: Extend Decade Efforts	1
* Wassdoc in Sri Lanka	2
* Oral rehydration versus water supply	2
* Swim and run for water	3
* Users' Guide for prescription for health	3
* Third edition decade directory	3
* Njuzu News - Zimbabwe	4
* Knowledge transfer in India	4

UNICEF POLICY REVIEW: EXTEND DECADE EFFORTS

Efforts towards the International Drinking Water Supply and Sanitation Decade goals should be extended beyond 1990 to the year 2000, consistent with the target of "Health for all" by that date. This was the central recommendation adopted in April by the Executive Board of the United Nations Children's Fund. The Board adopted the document "Water, Health and Sanitation for all by the year 2000: UNICEF actions for the years to come".

The new targets, set against the background of Decade experience and cast within a realistic timespan, can only be reached contingent upon a concerted co-ordination of efforts by Governments, United Nations agencies, non-governmental and other organizations.

Guidelines for future UNICEF policies and programmes include:

- Water supply, sanitation and hygiene education to be linked with other social and health interventions of UNICEF's child survival and development strategy
- UNICEF inputs for water supply should be planned and programmed without the corresponding components for environmental sanitation and hygiene education.
- Water supply and sanitation projects are planned to enable a gradual widening of scope and orientation,

aimed at evaluation from pilot or demonstration activities to nation-wide coverage.

- Human resources development is a key prerequisite for achieving national coverage. More Government provided counter training should be secured, especially for project management.
- Given the significant problems regarding financial arrangements for defraying or partially covering the costs of maintenance, priority must be given to additional local funds.
- UNICEF global programme giving co-operative support to water supply and sanitation activities is expected to remain at least at the current level of annual programme expenditure. In absolute terms, this could amount to a minimum of approximately US\$ 60 million per year.

In the general debate on the policy review paper, various delegates praised the valuable work of UNICEF. The joint efforts of the five UN agencies co-operating in the field also received praise. Some delegations voiced concern about the observed steady percentage decline of total UNICEF expenditure for this crucial area : from 28 % in 1984 to 17 % in 1988, the head of the Netherlands delegation said.

Mr. L.J. Hanrath concluded: "My delegation regrets UNICEF's intention of just maintaining the level of general resources in a growing budget (approximately US\$ 60 million per year) allocated to this important sector. This would leave the strengthening and expansion of water supply and sanitation programmes to the generosity of donors through supplementary funding, with the risk of an increasingly unbalanced distribution of resources over different countries. We therefore feel that UNICEF should increase its own efforts in this area; especially since a substantial increase in financing by local authorities or by the community itself, as suggested in the document, may not be forthcoming in many developing countries".

The amendment to the recommendation that the level of UNICEF assistance be maintained at a minimum level of US\$ 60 million annually, while promoting fund-raising to attract further supplementary assistance, proposed by the United Kingdom delegate, was accepted. Total annual investment needs for low cost water supply and sanitation 1990-2000 are estimated to be US\$ 3080 million for water and US\$ 4120 million US\$ for sanitation.



WASSDOC IN SRI LANKA

There has been no dramatic improvement in supplying information to water supply and sanitation sector staff in developing countries. This is confirmed by recent developments in Sri Lanka where last year the Water Supply and Sanitation Documentation Centre (WASSDOC) started functioning with funding from the International Development Research Centre of Canada (IDRC).

The idea of setting up a central unit to collect, exchange, transfer and disseminate information to enhance effectiveness and efficiency of water supply and sanitation projects in Sri Lanka was developed at an IRC supported national workshop in 1983. The proposal was approved by the Ministry of Local Government, Housing and Construction. International funding was supplied for three years, the National Water Supply and Drainage Board providing local counterpart funds.

One of the first activities of WASSDOC was to build up a national depository of reports produced in Sri Lanka on water supply and sanitation, and related fields. This was more difficult than expected, as was noted in "Links", the combined Newsletter of the NGO Water Supply and Sanitation Decade Service and WASSDOC. Editor Vijita Fernando wrote that at a meeting at the end of December, of the information centres and the librarians of participating agencies it was found that they were not able to send publications of interest prepared by their own institutions "as they were not receiving these in their libraries".

The participants explained that there was no standard procedure for obtaining and storing these documents for their libraries. After some discussion it was agreed that interesting reports and documents should be stored centrally in each of the participating organizations. The chairman of the National Water Supply and Drainage Board pointed out the importance of this to enable WASSDOC to build up a comprehensive collection of relevant documents. Only with such a collection can current awareness services and other information services be made to meet information requirements of various groups working in the sector.

WASSDOC will co-ordinate government departments, ngo's and information centres active in water supply and sanitation. The network consists of the National Institute of Health Science Library, Medical Faculty Library, Medical Research Institute Library, Water Resources Board Library, Library of the Division of Occupational Hygiene, Department of Labour, Central Environment Authority library, Marga Institute, Sri Lanka Scientific

and Technical Information Centre, and the NGO Water Supply/Sanitation Decade Service.

Specially recruited staff will be trained in documentation and library automation, probably with assistance from the Environmental Sanitation Information Centre in Bangkok. The setting up of a computerized database on water and sanitation has already begun, which will provide quarterly bibliographies, retrospective searches and selective dissemination of information to staff of the agencies concerned. WASSDOC also plans to develop a directory of water and sanitation personnel in Sri Lanka.

As part of the WASSDOC funding IDRC is also sponsoring the enlarged Links newsletter and the production of the Sinhala and Tamil versions.

ORAL REHYDRATION VERSUS WATER SUPPLY

The world supply of oral rehydration salts has increased rapidly in the last few years. The World Health Organization Programme for Control of Diarrhoeal Diseases reports ORS production reaching a total of around 270 million litre equivalents annually in 1985 and 1986 compared to 50 million litre equivalents in 1981. A little more than half of this quantity is now produced locally in 47 developing countries.

Not everybody is happy with the fact that this new and simple oral rehydration therapy (ORT) that averts many deaths from diarrhoea among children is diverting attention from the importance of water supply and sanitation in developing countries. The distinguished emeritus professor Dr. Daniel A. Okun, commented on the comparison between the two approaches in a paper presented last year at the 115th annual meeting of the American Public Health Association. His remarks were also quoted in the March 1988 ESE notes, Vol.24, no 1, published by the Department of Environmental Sciences and Engineering, University of North Carolina.

We find Dr. Okun's commentary very interesting, and the following are some salient quotations. "The strong attraction of ORT is its apparent low cost per diarrhoeal death, averted in children when compared to water supply and sanitation. However, water supply and sanitation provides many more benefits, which are essential to sustaining the lives saved by ORT and vital to maintaining and enhancing the lives of adults and children. Water supply and sanitation prevents the causes of diarrhoea and, in addition, controls many other water- and sanitation related diseases, releases women from the heavy and time- consuming burden of carrying

water from distant sources, improves the quality of life in the community, and confers many other benefits."

"Cost comparisons between water supply and sanitation and ORT are misleading because they provide different benefits. Water supply and sanitation is a long term investment in preventive health while ORT is a response to an immediate life-threatening situation. Water supply and sanitation interventions eliminate unsanitary conditions leading to illness and death while ORT has no effect on the causes of diarrhoeal morbidity. ORT programmes are important, but should not replace water supply and sanitation. The costs of water supply and sanitation are not high; US\$ 5.00 to 10 per caput annually. A wide range of interventions for improving child health can be justified, but without water supply and sanitation and hygiene education they are not likely to be successful."

Dr. Okun's views will almost certainly trigger off a discussion. We offer this newsletter as a platform for other views on this subject.

SWIM AND RUN FOR WATER

The Netherlands committee for UNICEF has mounted its massive summer campaign 1988 on the theme "Water... we are swimming in it!" In the Dutch language "swimming in something" is figuratively used to mean that there is a surplus. Sponsored swims per lane and sponsored runs per kilometer contribute to pumps and pipes in Burundi, Zaire and Burma. More than 400 primary schools have participated and the Royal Netherlands Swimming Association is also joining in with a four day swimming event for UNICEF.

Last year this swimming marathon was held for the first time: in more than 200 swimming pools nearly US\$ 200 000 was realized. For the 1988 action the Netherlands committee expects to raise between US\$ 2 and 2.5 million for UNICEF assisted projects in the three countries.

USERS' GUIDE FOR PRESCRIPTION FOR HEALTH

The International Development Research Centre Canada (IDRC) has recently published the Users' Guide for the Prescription for Health film and video. This film is concerned with preventing disease by providing clean water and latrines and by raising the awareness of people to what actions are needed to create a healthy environment. So far 20 local language versions are being

used mainly in Asia, as well as the English, French and Spanish versions.

Three years ago IDRC asked for comments on a draft of a users' guide for using the film/video in education and motivation campaigns. The newly produced guide contains 13 one page modules, each dealing with one of the major topics covered in the film, with a general introduction about the guide. Each module reviews an important message, such as "Why diarrhoea is dangerous." The modules can be copied and used as posters, or handed out to the audience. Each module also includes a series of questions that can be used before and after showing the film to help people understand the issue involved, and a list of discussion points.

The guide is intended to help people, who show the film to general audiences, such as community groups or schools to use it as a motivating tool. It is hoped to make people aware of the issues, prompt discussion and initiate appropriate action. IDRC invites users to freely reproduce the guide and individual modules, or adapt the guide to meet particular local needs.

We at IRC have been using the film extensively in our briefing and training programmes for project staff and we feel that the users' guide will be a great help in getting the key messages across more effectively.

For information on the loan of film and video contact regional offices of IDRC, or Canadian Embassies and High Commissions. The local language versions are usually available through UNICEF field offices. For general information write to:

IDRC
Communications Division
P.O.Box 8500
Ottawa, Canada.K1G 3H9

THIRD EDITION DECADE DIRECTORY

Thomas Telford Publications have recently published the third Edition of the International Drinking Water Supply and Sanitation Decade Directory. This directory is compiled by the World Water magazine in collaboration with the World Health Organization (WHO).

For the first time this edition of the directory has been split into two volumes: 1. Country Guide and 2. Catalogue of External Support and Consultants Directory. The number of countries covered has risen to 156 compared to the 136 in the last edition, primarily due to the inclusion for the first time of some developed

countries from which the WHO has been gathering statistics.

The 97 entries in the *Catalogue of External Support* have been compressed into a more easily digestible form. This second volume also includes a listing of the names, addresses and contact numbers of 242 international consultant engineering firms active in the water sector. The two volumes are available for US\$ 45 by air from Thomas Telford Limited
Thomas Telford House
1 Heron Quay
London E14 9XF
United Kingdom

NJUZU NEWS - ZIMBABWE

"Welcome to the newsletter for water workers in Zimbabwe!" We echo this message from the first issue of Njuzu News, the newsletter for water and sanitation workers in Zimbabwe. The publishing of the newsletter marks another milestone in the development of water supply and sanitation in Zimbabwe.

The editor points out that in recent years, through the work of the active National Action Committee and its subcommittees, the basis has been laid for the planning and implementation of truly integrated projects. At a time of increasing activity in the sector it is vital that those involved are well-informed about current developments in programmes, policies and technologicis.

The main purpose of the newsletter is to assist in promoting closer collaboration between agencies working with water and sanitation, and to act as a forum for the free flow of information among workers in the sector. The Ministry of Health edits the newsletter, for which UNICEF, NORAD and the UNDP/World Bank provide support. Njuzu News introduces the strip figure Bongozozo, who in his first appearance decides to build a Blair Toilet, because with all the trees gone the bush is no longer private enough for defecation. It also carries an interesting report of a study tour (to Kenya late last year) by the National Decade Officer Naison Mtwaka, and four colleagues from the Ministry of Health.

This shows how active Zimbabwe is on information exchange in the sector. Another example of this is that the National Action Committee for the Decade has

formed a sub-committee on information. This sub-committee will use the Framework for Technical Information Exchange, which was endorsed in 1987 by representatives of donor agencies and developing countries in two INFO-IMPACT meetings at IRC. Due credit must go to Ms. E. Khaka, Public Health Engineer at the Ministry of Energy and Water Resources Development, who represented Zimbabwe at the September INFO-IMPACT meeting, and whose report to the National Action Committee must have been convincing.

KNOWLEDGE TRANSFER IN INDIA

India is making great progress in trying to supply as many problem villages as possible with clean water and sanitation. Interesting experiences can be reported in the transfer of knowledge within India and from India to other developing countries. The development and production of the India Mark II handpump is a well known example. This pump is also being produced in Africa.

Some recent examples of Indian-style knowledge generation and transfer concern the technology on water filter candles using precoated filters to treat large flows. The National Research Development Corporation of India (NRDC) recently transferred the Indian experience in this technology to an Indonesian firm. Since the early 1970's Indian research on water filter candles in the state sector has spread to 27 manufacturers within India itself. The NRDC provided training for the Indonesians and a demonstration of the process from start to finish.

The National Environmental Engineering Research Institute (NEERI) in Nagpur is also active in developing and handing over know how to the private sector. CSIR News, the journal of the Council for Scientific and Industrial Research reports that NEERI has handed over its expertise on manufacture of water analysis kits to an Indian plastics manufacturer. These kits can immediately be applied in on-site water quality monitoring and surveillance, which form part of the Water Technology Mission programme, that India is currently executing to serve 227 000 problem villages.

TABLE OF CONTENTS

	Page
* Draft Cost Recovery Frameworks for Community Water Supply and Household Sanitation Developed	1
* DIVINER - Information system on water and sanitation in Asia	2
* New IRC Publication: Trilingual Interwater Thesaurus	3
* New Course at Wye: The Economics of Water Resources	3
* Health Care Course	4

DRAFT COST RECOVERY FRAMEWORKS FOR COMMUNITY WATER SUPPLY AND HOUSEHOLD SANITATION DEVELOPED

Because more than half of the population of the developing world is still deprived of drinking water and adequate sanitation, the provision of community water supply and sanitation free of charge to some implies that these services will not be extended to others. Serious budget constraints currently hamper intensified community water supply and sanitation programmes, making the issue of cost recovery from users a critical one. Compounding this problem is one of proper apportionment of the burden of charges between people of different needs and means. Water tariff systems for example, need to be based on user equity as well as agency autonomy, resource use efficiency and expansion of services if cost recovery is to be facilitated. The general difficulty in recovering costs has resulted in cost containment becoming an essential complementary ingredient of sound financial management.

Consultations

From 21-23 June, an Informal Study Group Meeting was held at the International Reference Centre for Community Water Supply and Sanitation (IRC), in The Hague, the Netherlands, to further discuss some of these issues. The meeting was a follow-up to the Third Informal Consultation on Institutional Development held from 11-15 April at the headquarters of the World Health Organization (WHO) in Geneva. Since November 1985, WHO has held three such consultations to deal with institutional development in community

water supply and sanitation, particularly the difficult issue of cost recovery. The first consultation, attended by senior officials from developing countries, resulted in recommendations on administrative organization, decentralization, intersectoral action, coordination, community involvement and development, and transfer of resources. The second consultation, in October 1987, was made possible by voluntary participation from consulting firms, universities, the International Labour Office, and IRC. It dealt chiefly with transfers of funds, and had as its objective, to recommend improvements in revenue collection methods and reduction of non-revenue water.

The third and most recent consultation for the first time included representatives of financing agencies, and aimed to review the recommendations of the second consultation and prepare relevant guidance material in draft form. This material is intended to be submitted for discussion by potential users at a meeting of national officials to be convened by WHO in November 1988. In addition to detailed recommendations related to agency-managed systems, development of a model for dealing with cost recovery in community-managed water supplies was initiated. Besides the definition of fundamental principles, the model developed included the identification of key elements of cost and sustainability, the assessment of required community and agency inputs and their relative importance during development and recurrent phases, and the identification of available options for expense coverage.

Study group meeting

This work was continued at the Informal Study Group Meeting held in The Hague. Here a working group from the third consultation focussed on the task of examining cost recovery for community maintainable water supply and sanitation systems, expanding on the work from the earlier Geneva consultations. The group set out to develop the basis for draft guidelines for practitioners, and to answer the following questions: what should be recovered, why, from whom, when and how. Of particular concern was the subject of cost recovery issues in settings where it is difficult to obtain monetary contributions or user payments to fully or partially cover investment and operation and maintenance expenditures.

It was decided that cost recovery must be viewed as a means that contributes to achievement of higher-order goals and impacts related to community water supply interventions, for example, improved health, improved quality of life, and increased economic development. As



such, cost recovery can neither be considered an isolated theme nor an end in itself.

For community-managed installations, the study group felt that the expression "cost recovery" should not be construed as a hard-line, no-compromise economic decision of an outside authoritarian institution to recover its own expenses and maintain a liquid cash position. "Expense coverage" was offered as an alternative term.

Sustainability and Coverage

The importance of cost recovery is twofold. For community water supply interventions, it is a critical building block of project sustainability; responsibility for operation and maintenance of constructed facilities is at some point transferred from the ministry or organization responsible for construction to the community, and means have to be found to effect these responsibilities. For low cost household sanitation interventions, cost recovery is an important means leading to widespread latrine coverage, i.e. increased general ownership and use. Ultimate responsibility for construction of simple, on-site, non water-borne sanitation units (e.g. VIP latrines) and on-going cleaning and periodic maintenance rests with individual households, who, again, have to mobilize the resources required.

Important cost recovery distinctions can therefore be made between household sanitation and community water supply. For the latter, operational expenditures usually represent a much larger share of total project-life costs. Cost coverage relates primarily to operational activities to meet operation, maintenance and replacement expenses. For low-cost sanitation schemes, cost coverage relates primarily to investment activities to meet costs of construction materials, labour, etc. For water supply projects the main goal is sustainability, while for low-cost sanitation schemes, it is expanded, improved latrine coverage.

Frameworks

The outputs of the cost recovery discussions in The Hague were thus two draft frameworks, one applying to community water supply and the other to household sanitation. They provide the bases for interactive processes involving project planners and beneficiaries. They are flexible, and can be modified to suit particular use and user requirements. Perhaps their greatest value will occur when they are actively used by project actors as tools in joint planning and decision making processes.

The frameworks have several possible applications. During a project development phase, they can be used during project preparation to identify resource inputs, commitments, responsibilities and rights of project beneficiaries and responsible executing agencies, and to prepare budgets for donors, executing agencies and communities. For project appraisal, they can serve to

determine soundness of project design regarding cost recovery and sustainability.

During the operational phase the frameworks can again be used for project appraisal, this time to assess soundness of existing project design as to cost recovery and sustainability.

Other possible uses for the frameworks may be as tools for developing community water supply sector cost recovery policies and strategies, defining monitoring indicators, and raising awareness of cost recovery issues through case studies and workshops.

The frameworks are therefore intended as analytical tools to be used to achieve better understanding of cost recovery issues in project development. It is felt they can help ensure that cost recovery principles be identified, analyzed, planned, designed into projects, applied, refined and evaluated in different country-/programme-/project level contexts.

The frameworks, which can be applied in a similar manner to both water supply and household sanitation, are comprised of six steps:

Steps 1 and 2 are used initially to clearly define application, units of measurement, desired results, and intended users of the exercise.

Step 3 is used to identify and assess required inputs and their timing for project actors, with inputs framed within larger development contexts of sustainability for water supply, and increased latrines coverage for sanitation. **Step 4** is used to quantify cash and in-kind inputs identified in step 3.

Steps 5 and 6 are used to identify, select and finalize sources of required cash and non-cash inputs.

These six steps are intended to develop and refine information that leads to more realistic planning, better decision making, and fair, equitable establishment of reciprocal responsibilities, commitments and rights.

Though the frameworks are primarily designed for projects in rural settings, they are also deemed applicable to urban settings where similar circumstances may be encountered, such as certain slums, squatter communities and peri-urban areas receiving extensions of services.

Follow-up

The draft frameworks will now be reviewed by potential users in developing and supporting countries initially in the November meeting at WHO, after which they will be field tested, refined, and modified as appropriate. Further, expense and investment coverage case studies, with data and experiences translated into a common basis for comparative purposes, must be developed from a number of countries. A proposal for such activities, which will require donor support, is in preparation by IRC. Institutions in developing countries who would be interested in joint work to develop such case studies are invited to write to IRC.

DIVINER - INFORMATION SYSTEM ON WATER AND SANITATION IN ASIA

The value of information exchange is increasingly recognized as a means to solve water and sanitation problems in developing countries. IRC is currently working on the country follow-up of the Framework for

Technical Information Exchange which was developed and endorsed in various international meetings recently. We are happy to announce that Approtech Asia, through a grant from the International Development Research Centre (IDRC) of Canada, is developing a new information system on water. Called DIVINER, the system will gather, process, store, and disseminate information. Like the legendary diviner who seeks to discover the locations of underground water with a divining rod, the information system will help the user search for accurate, relevant, and timely information.

The system was conceived in response to the difficulty of non-governmental organizations (NGO's) in accessing information on water and sanitation. Information on the subject increases rapidly, but products and services often do not cater to the needs of NGO's, or are beyond their means. Six NGO's are participating in implementation of the project:

- Sarvodaya Shramadana Movement (SSM) for Sri Lanka;
- Village Education Resource Centre (VERC) for Bangladesh;
- Consortium on Rural Technology (CORT) for India;
- Population and Community Development Association (PDA) for Thailand;
- Wahana Lingkungan Hidup Indonesia (WALHI) for Indonesia;
- Philippine Business for Social Progress (PBSP) for the Philippines.

The system will handle queries pertaining to water and sanitation in the Southeast and South Asia region. Initial outputs on what work is going on are: a bibliography on the literature generated by Asian NGO's, a directory of community-based projects on water and sanitation, and a register of water and sanitation experts.

All the agencies in DIVINER are using the IRC classification system and the Interwater Thesaurus. The central database (at the Agricultural Information Bank for Asia in the Philippines) uses the IDRC-developed MINISIS storage and retrieval programme. The country focal points are to obtain a micro computer on which the CDS/ISIS (developed by UNESCO) programme will run. This will facilitate the link-up possibilities with agencies like ENSIC at the regional and IRC at the international level. Communication of input sheets and

floppy disks, as well as hard copy between the central database and the country units will occur by mail.

DIVINER also started a quarterly newsletter for information exchange in the system. We are looking forward to further co-operation with DIVINER. For more information write to:

Approtech Asia
1st Flr. Philippine Social Development Center Bldg.
Magallanes corner Real St., Intramuros
Manila, Philippines

NEW IRC PUBLICATION: TRILINGUAL INTERWATER THESAURUS

IRC has published a new trilingual "Interwater Thesaurus for Community Water Supply and Sanitation". It is a complete revision of the earlier Intermediate Thesaurus on Community Water Supply and Sanitation for Developing Countries. With funding from the International Development Research Centre (IDRC) of Canada, the new Interwater Thesaurus has been prepared by Mr. D. Leatherdale. The English, French and Spanish versions provide a controlled, identically structured multilingual vocabulary of terms used in water supply and sanitation for use in indexing, storage and retrieval of information.

The author and IRC produced this Thesaurus in co-operation with a working group consisting of representatives from four continents, and several specialized water and sanitation agencies. From the francophone countries the Association Francaise pour l'Etude des Eaux (AFEE) in France and the Centre Interfrancais d'Etudes Hydrauliques (CIEH) participated. From Latin America the Centro Panamericano de Ingenieria Sanitaria y Ciencias del Ambiente (CEPIS) in Peru provided the Spanish translation. From Asia the Environmental Sanitation Information Centre (ENSIC) of the Asian Institute of Technology participated. From the UK the Water Research Centre (WRC) contributed its expertise.

The Thesaurus aims to help librarians and documentation staff active in the water supply and sanitation sector to more effectively retrieve and transfer information on water supply and sanitation in and between developing countries around the world. It is also a useful tool for translators and professionals in the water sector who are working in research, documentation and publishing.

The Thesaurus consists of two volumes. Volume I, the main body, is available in English, French or Spanish, and contains an introduction and instruction for users, a schematic presentation of usage, a list of top terms, and the main list of descriptor and non-descriptor terms.

Volume II is the multilingual alphabetical index of used terms.

One set of the Interwater Thesaurus (one copy of each volume) costs US\$ 30.00. Separate copies of the index (volume II) cost US\$ 10.00. A complete set (the three languages and the index) costs US\$ 50.00. Discounts apply on developing country orders.

Order your preference from:

IRC

P.O. Box 93190
2509 AD The Hague
The Netherlands

NEW COURSE AT WYE: THE ECONOMICS OF WATER RESOURCES

The Wye Programme, leading to the qualifications of postgraduate Diploma or MSc in Agricultural Development for External students of the University of London, is a major initiative in international distance education. It started in 1988 with over 80 students worldwide, who study while they work and are examined in their countries of residence through the University's unique overseas examination system.

Among new courses available for February 1989 registration is The Economics of Water Resources designed by Ian Carruthers and Laurence Smith. The course focusses on the principles of water resource economics, and policy, planning and management applied to irrigation, drainage, groundwater and other relevant topics. Data collection and analysis for effective planning and management are a major concern of the course.

Students registered for the course receive a substantial package of materials comprising a course file of detailed study notes and exercises, a new textbook by Leslie Small and Ian Carruthers, plus other texts and readings.

The course can be taken as a component of Part II of the MSc in Agricultural Development, Part I of which consists of core courses in economic theory, project appraisal, survey methods, and policy analysis. Alternatively, the course can be taken on a special interest "one-off" basis through registration as an Affiliated Student of Wye College.

Prospectuses for the Diploma and MSc in Agricultural Development, and further information about the course

in the Economics of Water Resources can be obtained from: Henry Bernstein
Director of the External Programme
Wye College, University of London
Ashford
Kent TN25 5 AH
England, U.K.

HEALTH CARE COURSE

Implementing District Health Care, a ten-week course for health care workers at the district level is to be held for the second time at the Royal Tropical Institute in Amsterdam, from October 3 - December 16, 1988.

The curriculum for this course was specially designed to meet the existing needs in management capacity at the district level of the health care delivery system. The course is aimed at all health workers at this particular level, expatriate as well as national. A good competence in English is essential for active participation in discussions and group work.

further information on the course can be obtained from Dr. J. Eshuis, MPH

Department of International Education and Training
Royal Tropical Institute

Mauritskade 63
1092 AD Amsterdam

The Netherlands

Telephone (0)20/5688252 or 5688450

Telex 15080 KIT NL

Cable address INTROPEN

ERRATUM: UNICEF POLICY REVIEW

In the IRC Newsletter no. 176 of July 1988 a mistake slipped into the item: UNICEF POLICY REVIEW.

The word **not** had been omitted from the sentence "UNICEF inputs for water supply should be planned

and programmed without the corresponding components for environmental sanitation and hygiene education". The sentence should have read: "*UNICEF inputs for water supply should not be planned without the corresponding components for environmental sanitation and hygiene education*".

We apologize to our friends at UNICEF for the inconvenience.

TABLE OF CONTENTS	
	Page
* Recife Statement outlines innovative strategy for Latin America	1
* Europeans move on toxic waste dumping	2
* CESI database for better co-ordination	3
* Facts for Life	3
* New Handpumps publication IRC/IDRC	4
* UNESCO-sponsored course in hydrology	4

RECIFE STATEMENT OUTLINES INNOVATIVE STRATEGY FOR LATIN AMERICA

Some countries in Latin America are nearing their Decade targets for urban water supply, but expansion of sanitation and rural water services in many countries fall far short of expected goals. More than 100 million people in the region still lack a safe and adequate supply of drinking water, and over 200 million people lack adequate sanitation facilities. These statistics were produced by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) for the UNDP/World Bank seminar on water supply and sanitation for low-income populations in rural and peri-urban areas, which was held in Brazil in early October. At the close of discussions, delegates from 20 Latin American and Caribbean nations joined with officials from other developing regions and 20 donor agencies in issuing the "Recife Statement" aimed at transforming a worsening health situation for the region's poor (see below).

The ECLAC report, based on the review half way through the Decade, reaches the following conclusions:

1. investment in drinking water supply and sanitation in most countries of the region has been seriously reduced by the general economic recession prevailing in Latin America and the Caribbean since 1981;
2. the effect of the reduced resources available to the sector has been to curtail both maintenance of existing systems and the expansion of services;
3. the impact of the reduction of resources has been felt most severely by lower income groups;
4. there is an urgent need, therefore, to develop specific programmes to improve services to lower income groups;
5. these special programmes should be built around cost minimizing technology so as to liberate them, as far as possible, from dependence on resources external to the sector.

"Several countries of the region are sliding back," said Mr. Per Engebak of UNICEF, "and their populations are now worse off than when the Water Decade started." ECLAC figures show, for instance, that in Guatemala water coverage fell from 45 per cent in 1980 to 36 per cent in 1985.

During the meeting several delegates provided examples of innovative strategies and technologies for provision of basic services at much lower than conventional costs. Active technical information exchange can play an important role to prepare professionals in the sector and stimulate adoption of low-cost technologies. Although some delegates spoke of technological and institutional deficiencies in the region's efforts, others noted that water and sanitation services have not yet been given the political priority they deserve from governments and aid donors. The political commitment of the Indian government was highlighted as an example of others to follow.

It was agreed at the meeting that community responsibility and the involvement of women is essential for the sustainability of successful water and sanitation projects.

RECIFE STATEMENT

To increase water and sanitation services to the peri-urban and rural poor the Recife Statement recommends that governments of the region:

1. *Take action to address the pressing needs of the low-income populations in line with goals recommended by international development agencies.*
2. *Give priority to ecological considerations, i.e. water conservation and pollution control in sector planning.*
3. *Adopt procedures facilitating popular debate before implementing water and sanitation programmes.*
4. *Adopt low-cost and simplified technologies to assure better and faster attainment of high service levels.*
5. *Give highest priority to communities which have received little or no help thus far.*
6. *Use existing water and sanitation infrastructure more effectively to attain more equitable sector services and postpone new investment.*
7. *Support institutional development, staff training, fair tariffs and strict payment collection.*
8. *Establish mechanisms to ensure the participation of women at all stages of project design and implementation.*
9. *Make greater use of the Pan American Information Network for Sanitary Engineering (REPDISCA) to facilitate comparative analysis of national sector performance.*



10. Decentralize resource allocation and decision-making authority to encourage development of local capabilities.
11. Emphasize intense health and hygiene education using creative participatory techniques and materials.
12. Allocate responsibilities to those institutions most in touch with the benefitting populations.
13. Consider a wide range of private and public organizations to whom project responsibilities can be allocated.
14. Include community and user groups in field activities, planning and policy-making as much as possible.

The meeting also called on international donor organizations to:

1. Provide more external aid in the form of grants and low-interest rate loans.
2. Reduce intermediate mechanisms in international funding to minimize bureaucratic waste.
3. Increase funding for training programmes to keep sector professionals up to date on management and technology.

EUROPEANS MOVE ON TOXIC WASTE DUMPING

Several European governments have taken action to curb export of dangerous toxic waste from Europe to non-European Economic Community countries. The Netherlands environment minister signed a bill on 15 October, which stipulates that export of dangerous waste requires the written consent of both the country of origin and the country of destination of the waste. It also establishes rules for registration of and information on export, import and transport of toxic waste. In a letter to the Dutch parliament, Minister Ed Nijpels added that the Dutch government will verify whether the toxic waste can be disposed of in the country of destination without damage to the local environment. The geohydrological situation in the country concerned will receive special attention.

The Netherlands is the fourth country after Belgium, Denmark and Greece to enact European regulations on toxic waste export. With the addition of the verification requirement the Netherlands government goes a step further than required under the current EEC regulations.

Other European governments are expected to enact similar regulations within the next year. European countries have been under pressure from public opinion recently. The scandal of toxic waste dumping efforts

from industrialized countries to developing countries has caused a public outcry, especially in Europe and Africa.

Shiploads of dangerous waste from the United States of America, Norway and Italy were exported/dumped or underway, predominantly to African countries. In countries such as Nigeria, Benin, Equatorial Guinea, and Republic of Congo waste disposal contracts were signed at far lower prices than in Europe. Apart from direct health hazards, dumping of toxic waste can also pose a great danger to the quality of groundwater in the developing world.

Following the international publicity and protests by environmentalists, several West African countries have taken strong action. People have been arrested, and laws on import of toxic waste are becoming more stringent. Illegally dumped loads have been taken back by European ships; the "Karin B" has become world famous, having collected the earlier dumped waste from Nigeria and now being unable to unload the cargo in Italy, where it originated, or in other European waste processing centres.

Another ship, the "Kian Sea" has been trying in vain since August 1986 to get rid of 13 000 tons of contaminated ash from the incinerators of the US city of Philadelphia. After successive attempts in the Bahamas, Bermuda, Honduras, the Dominican Republic, the Cape Verdian isles, Guineau Bissau and Liberia, the Kian Sea managed to unload 3000 tons in Haiti.

In Latin America danger signs are also appearing. At the September meeting of the International Water Supply Association in Brazil, the director of the Centro Panamericano de Ingeniería Sanitaria y Ciencias del Ambiente (CEPIS), Alberto Flórez Muñoz, reported toxic waste dumping in Venezuela, which came to light last year only when environmental pollution was noticed. He mentioned mining areas in Latin America in particular as targets, often on the basis of contracts between individual companies and without knowledge of the governments concerned. The lack of laboratories and trained personnel in some areas hampers the control and early detection of changes in water quality, indicated by algal growth and mutations in fish and plants.

Tightening of legislation is now the answer of both developing country governments and the European Community. The European parliament is demanding a ban on export of toxic waste to developing countries. The current developments necessitate expansion of the waste disposal capacity in Europe.

CESI DATABASE FOR BETTER CO-ORDINATION

To improve co-ordination of aid efforts in the water supply and sanitation sector among external support agencies, and between those agencies and government ministries and departments in developing countries, a computerized database entitled CESI - Country External Support Information - is being developed by the CWS Unit of the Environmental Health Division at WHO in Geneva.

CESI collects information about ongoing and completed projects supported by external support agencies (ESA's) in developing countries. Additional data on projects in preparation, or for which funding is being solicited comes both from the agencies and from developing country governments.

The data is analyzed, standardized and coded by the co-ordinating secretariat in Geneva. Prime users are the ESA's, potential users include decision makers in countries co-operating with external support agencies. They can obtain regular updates in a variety of forms, such as project listings for selected countries. Output can be in the form of hard copy or microcomputer diskette, or can be transmitted electronically to the user's own microcomputer. How this service will be financed is still being discussed.

CESI springs from an initiative of the members of the Development Assistance Committee (DAC) of the Organization of Economic Co-operation and Development. Co-sponsored by the United Nations Development Programme (UNDP) and the Federal Republic of Germany's Agency for Technical Co-operation GTZ, the CESI system has been tested and refined since its inception in 1986. A recent consultation among funding agencies at CEFIGRE, in Sophia Antipolis, France discussed proposals for further development in the next two years.

At its present stage of development, the CESI system has broad support from the participating donor agencies and development banks. It is seen as fulfilling a worthwhile function in providing information on a country by country basis on the activities of all major external support agencies operating in the water and sanitation sector.

The meeting endorsed the plan to introduce pilot schemes in four developing countries to demonstrate the usefulness at the country level. For developing country governments regular updating of CESI data from so many different sources will ultimately give a continuous check on aid flows and requests in the sector, often covering several ministries and numerous aid agencies.

The data can help to set and adjust programme priorities and to track progress towards national targets set for the sector. Data from other countries highlight similar

approaches and technologies. They may point the way to opportunities for information exchange to solve problems and learn from successes and failures of past experiences.

The consultation in France discussed core funding proposals to maintain the present operation over the next two years, which requires a flexible financing package. Various donors have pledged funds, but for the development stage a gap of US\$ 300 000 needs to be bridged.

Details and advice about participating in the CESI system can be obtained from: CWS Unit, Environmental Health Division, World Health Organization, 1211 Geneva 27 Switzerland

FACTS FOR LIFE

Diarrhoea can be prevented by breastfeeding, by immunizing all children against measles, by using latrines, by keeping food and water clean, and by washing hands before touching food. This is one of the health messages in the booklet "Facts for Life, a communications challenge". This book was drawn up in consultation with leading medical authorities and child health workers from all regions, and finalized in co-operation with the World Health Organization.

The 50 page booklet, which will be published by UNICEF in five languages, will appear in late 1988 or early 1989. It contains vital information on child health in the form of basic messages not only on diarrhoea and home hygiene, but also on safe motherhood, breast-feeding, immunization, respiratory infections, malaria, timing births, promoting child growth and AIDS.

IRC enthusiastically supports the ambitious goals behind this booklet, which is to try to involve all of society's principal and permanent communications mechanisms - schools, mass-media, employers, unions, religious and community leaders, voluntary organizations, youth movements, and women's groups - in taking on the challenge of communicating this information to today's parents. The booklet is hoped to be a starting point for discussions, a digest of the information which every family has a right to know, and a source of suggestions and examples of how that can be put at the disposal of the majority.

The core version of Facts for Life (which will be available at under US\$ 1 per copy) will be published in English, French, Spanish, Portuguese and Arabic. In many countries there will be a need to translate and

adapt this material to reflect the individual nation's health priorities and communications opportunities.

For more information, order forms etc. contact Jaclyn Tierney, Division of Information and Public Affairs, Room H9F, UNICEF House, 3 UN Plaza, New York, N.Y. 10017, USA

NEW HANDPUMPS PUBLICATION IRC/IDRC

As announced in earlier newsletters the new publication "Handpumps, Issues and concepts in rural water supply programmes", number 25 in the IRC Technical Paper Series, is now available from IRC. This book has been prepared by IRC in co-operation with The International Development Research Centre, Canada. On IDRC's behalf IRC is mailing 500 copies of the book to handpump-related addresses from the IDRC mailing list.

There are many parts of the world where as many as half of the handpumps which have been installed are out of order at any particular time. If full advantage is to be taken of the potential simplicity, low-cost and dependability of hand pumped groundwater, important lessons have to be learnt from past successes and failures.

The formula for future success includes strong emphasis on an integrated approach to community water supply programme planning and implementation. This is the main theme of the new book on handpumps. In the early chapters the monograph discusses technical aspects, which include appropriate application of the five principle types of handpumps and the latest advances in design and manufacture, with special emphasis on plastic. Chapter 3 describes the new approach needed to project planning, giving priority to generation of systems which will be sustainable and used. Chapter 4 stresses that community involvement must start early, influencing the choice of technology, project planning and implementation, and maintenance organization. Chapter 5 describes the range of techniques available for constructing wells and the technical considerations for selection of borehole locations. In the next chapter installation requirements of various handpump types are provided, including design considerations for the surrounding apron construction. Chapter 7 looks at some of the shortcomings of past maintenance strategies, analyses the alternatives available on the basis of the requirements of properly selected and installed handpumps, and discusses ways in which preferred strategies can be organized and funded. The last chapter describes the benefits and pitfalls of local manufacture

of handpumps, and stresses the importance of quality control. It also provides manufacturing requirements and information on plastic pumps and components, and pumps made by village artisans. Four appendices provide the latest research findings, discharge estimates and cost comparisons.

This publication should be seen as a companion document to the World Bank publication, "Community Water Supply: The Handpump Option". It has been written especially for programme staff, planners and policy makers. Its contents will also be of interest to project management staff, as it discusses the combination of technical activities with broader programme development and socio-economic progress, and the integration of software activities such as community consultation, health education and training into the overall programme.

The book's advice is necessarily general in nature, and as such it should be seen as a tool for developing implementation manuals for specific projects or programmes. The book contains 163 pages, has tables and figures and costs US\$ 24.00.

UNESCO-SPONSORED COURSE IN HYDROLOGY

From 1 February to 31 July 1989 the Research Centre for Water Resources Development VITUKI in Budapest, Hungary will organize the 20th International Post-graduate Course on Hydrology under sponsorship of UNESCO. These courses are Hungary's contribution to the International Hydrological Programme to assist developing countries, as well as to international co-operation in hydrology in general. To date a total of 275 students from 51 countries have participated in this course.

The curriculum of the new course has been adapted based on the recommendations of a recent UNESCO evaluation of earlier courses. Eight subjects will be covered: mathematical methods and computer application, general fluid mechanics, geosciences, hydrological processes, hydrological observations and primary data processing, hydrological analysis and modelling, environmental aspects, and application of hydrology in water management.

Deadline for application was 30 September, for information contact: VITUKI, Research Centre for Water Resources Development, Pf. 27 H-1453 Budapest, Hungary

TABLE OF CONTENTS

	Page
* Better donor co-ordination agreed at The Hague meeting	1
* Future for lending in sector looks better	2
* Small projects training manual produced in Sudan	2
* Sanitary microbiology course; Leeds, U.K.	3
* Child-to-Child programme promotes primary health care	3
* New IRC publication on Nepal case	3
* New OP on community participation and women's involvement in WS&S	4

BETTER DONOR CO-ORDINATION AGREED AT THE HAGUE MEETING

Substantial enhancement of assistance to developing countries in achieving accelerated provision of water supply and sanitation services in the remainder of the International Drinking Water Supply and Sanitation Decade and beyond. This is the aim of the programme of the newly formed Collaborative Council of external support agencies, which was established in a meeting in The Hague 2 - 4 November 1988. Co-sponsored by the World Health Organization and the Directorate General for International Co-operation of the Netherlands government and organized by IRC, the meeting formally established a Framework for Global Co-operation of the external support community and developing countries.

"It is without precedent that the international community comes together within a framework for global co-operation in order to be more responsive to the needs for clean water and adequate sanitation in developing countries". This was part of the message from Mr. G. Arthur Brown, Associate Administrator of UNDP to the International Consultation for the Co-ordination of Water Supply and Sanitation Programmes.

More than 60 representatives of developing countries, multilateral, regional and bilateral agencies, non-governmental organizations and appropriate research organizations agreed at this meeting that the main element of the framework is to support

country-level actions initiated by the developing countries themselves.

The Hague meeting is the fourth consultation of international development assistance organizations aimed at seeking ways and means of jointly improving co-ordination within the sector at all levels, and introducing new technologies and development approaches that would render available resources more effective. Mid-Decade reviews indicate that service coverage up to 1985 has barely kept ahead of population growth, but in The Hague everybody agreed that the Decade has contributed to new thinking, to better co-ordination and to doing more with the same amount of money.

"Ten years ago I would not have dreamt to be involved in such a simple thing as a handpump... now people in my country are crying out for them", said Mr.N.K. Msimbira, Principal Secretary of the Ministry of Water of Tanzania, who presented the developing country view at the consultation. Planners and technicians have undergone a change in attitude and are much more aware now that any technology has to be acceptable, maintainable and affordable for the communities concerned.

The per capita cost of providing water and sanitation services for one person at the start of the Decade averaged nearly US\$ 300. By the late 1980s, thanks to improved low-cost technologies, the cost per person has been reduced to about US\$ 180. In Southeast Asia, the per capita costs of providing safe drinking water in rural areas has fallen to as little as US\$ 15, improved water and sanitation together can cost as little as US\$ 30.

The present momentum of the Decade should be continued in the nineties, the meeting agreed, by translating the experience so far into supporting developing countries in a series of soundly based sector development programmes in as many developing countries as possible.

The new ESA Collaborative Council has nominated three temporary working groups from among its members. The first one will make recommendations for co-ordinated support for country-level work programmes. This includes more effective programmes of ESA technical and financial assistance to developing country governments which wish to strengthen the sector, using the successful experiences of the Decade in such fields as technology development, socio-economic approaches and planning mechanisms.

The programmes will respond to the recent Brundtland Commission report on the environment and sustainable development by extending ESA-coordinated support for



developing country activities in the field of environmental protection, water conservation and waste management.

Backing up its plans for country-level co-ordination, the Collaborative Council also initiated the preparation of work plans and nominated working groups for co-ordinated activities in the fields of information exchange and promotion of the water supply and sanitation sector at all levels, and establishment of priorities in applied research.

Recommendations of these three working groups will be reviewed by a temporary committee which will be called the 1990 Committee, and which will have a maximum of 20 members. The composition of this committee was not finalized in The Hague but will properly reflect the composition of the Council.

This committee has three main functions:

- preparation for maintaining the momentum in the sector beyond 1990;
- consideration of the temporary working group reports on the Council's work programme and transmission of recommendations to Council members;
- organization and monitoring of preparatory activities for a global consultation in 1990, which is scheduled to take place in India.

Until at least 1990 WHO will act as secretariat to the council. The first meeting of the 1990 Committee is planned for December 1988, for which the French government offered to be the host.

FUTURE FOR LENDING IN SECTOR LOOKS BETTER

The future for lending by the four major multilateral development banks in the water sector looks better than it has been. This is the opinion of Richard M. Greenberg and Nicholas H. Ludlow of Development Bank Associates in Washington. They write in the October issue of National Development, "As of mid-1988, over US\$ 4 billion worth of water supply projects are on the drawing boards at the four banks for approval through 1991. We can expect development bank water supply lending to continue rising steadily in dollar terms, even though its share of total lending by the banks is likely to remain proportionally about the same over the next five years".

In fiscal 1987 commitments for water supply and sanitation projects of the African, Asian, and Inter-American Development Banks and the World Bank reached a record high of US\$ 1.5 billion, or six percent of all commitments by the banks. Between 1983-1987 just over US\$ 6 billion was committed. With 63 percent of the lending, the World Bank dominates the development banks in loans to the sector. The

Inter-American Development Bank has a respectable share of 21 percent, and the African Development Bank a strong involvement in terms of numbers of projects.

The largest share (nearly a third) of the World Bank lending during 1983-1987 has been to the Europe, Middle East and North Africa region. This region is likely to continue to attract the largest share of the Bank's lending, given its relative scarce water resources.

In East and West Africa, which has the fastest rate of urban population growth of any region, water supply and sanitation capabilities are increasingly falling short of needs. The share of these two regions' World Bank commitments for WS&S projects, however, has fallen rather sharply in recent years.

In the future, claim Greenberg and Ludlow, this situation may be reversed. For example some of the largest water supply rehabilitation projects planned by the Bank are in Nigeria, and the African Development Bank also has a strong pipeline of urban water supply projects.

Latin America has also received a reduced share of WS&S funds from the World Bank in recent years, falling from US\$ 150 million in 1986 to US\$ 64 million last year. The Inter-American Development Bank, however, sharply increased its commitments to the water sector in this region in 1987 with projects to expand services in Brasilia, San Salvador and Central Venezuela. Massive World Bank water supply projects are in the planning stages in Brazil, Colombia and Mexico.

In Asia, the World Bank has approved loans for the expansion and improvement of water supply and sanitation systems of major urban areas in India and Bangladesh. In the future there will be a long-term development of projects in China. The Asian Development Bank has indicated that it is redirecting its financing in the sector towards provincial towns and rural areas, having focused on urban areas in the past. The ADB shares the World Bank's WS&S emphasis on cost recovery and rehabilitation of existing systems.

SMALL PROJECTS TRAINING MANUAL PRODUCED IN SUDAN

The Sudan Council of Churches has recently produced the three volume "Small Projects' Training Manual for Administration, Community Development, Water Supply and Sanitation".

The set, which was produced in the Council's Munuki Water and Sanitation Project, Juba is meant for training purposes, reference and guidance in small development projects. It deals with basic administration for small projects, guidelines for running a vehicle, community

development, very basic mathematics, lessons about basic technical knowledge and building administration, water supply with emphasis on hand-dug wells, and sanitation with emphasis on compost latrines. The book is divided into teaching units, with simple writing style and ample illustrations.

The manuals are available separately or as a set:

Volume I	Administration and Community Development	DM 15. =
Volume II	Water Supply	DM 29. =
Volume III	Sanitation	DM 11. =
Three volume set		DM 55. =

For postage and handling, add DM 7.30 in Germany; DM 8.40 in all other countries. Larger orders benefit from reduced mailing costs.

For ordering or additional information, please contact Rudi and Marta Guoth-Gumberger, Geibitzstr. 11, 8052 Moosburg, West Germany, Telephone: 08761/4195. Orders must be paid in advance. Please transfer funds to: Gumberger Rudolph, Postgirokonto Nr. 34660-809 BLZ 700 100 80, Postgiroamt München, West Germany, for Training Manual SCC.

SANITARY MICROBIOLOGY COURSE Leeds, U.K.

The British Council is offering a course in April 1989, aiming to investigate modern techniques for microbiological examination of drinking waters, domestic wastewater and activated sludges. Both theoretical and practical aspects will be covered, and particular attention will be paid to appropriate drinking water quality standards and the health aspects of the reuse of treated wastewater in agriculture. The special problems encountered in warm climates will also be considered in detail. In addition, the potential of microscopy as a rapid aid in the operation and control of activated sludge plants will be covered extensively.

The course is suitable for water quality analysts, sanitary engineers and specialists in health education and primary health care who are involved in the linkages between water, wastes and health. Engineers and/or chemists who are involved in the day-to-day operation of wastewater treatment plants will also find this course valuable.

Although attention will be focused on the particular problems experienced in warm climates, much of the course will also prove appropriate for Northern European and North American situations.

Applicants should have a sound technical background, preferably to degree standard or its equivalent.

However, applicants with relevant practical experience will also be considered.

The course, which can accommodate 20 participants, costs £1,295 (residential only) and will be held from 2-14 April 1989.

Further information and application forms are available from British Council Representatives overseas or from Courses Department, The British Council, 65 Davies Street, London W1Y 2AA United Kingdom.

CHILD-TO-CHILD PROGRAMME PROMOTES PRIMARY HEALTH CARE

The Child-to-Child Programme was inaugurated in 1979, the International Year of the Child. Its focus is on communication and development by schoolchildren to other children, their parents, and communities.

Child-to-Child has been particularly successful in integrating primary health care into primary school education, and there are now many countries in which primary health care is being integrated into the primary school curriculum.

Those interested in receiving information about Child-to-Child, or having reports on similar activities are asked to contact Child-to-Child, Room 883, Institute of Education, 20 Bedford Way, London WC1H 0AL, United Kingdom.

NEW IRC PUBLICATION ON NEPAL CASE

Good case studies in water supply and sanitation can be a useful tool for planners as well as project staff in other programmes and projects. In a joint venture with UNICEF in Nepal and the Swiss Association for Technical Assistance Helvetas, IRC has recently published "Ten years of experience: Community Water Supply and Sanitation Programme, Pokhara, Western Development Region, Nepal". It is number 26 in the Technical Paper Series and it documents developments and achievements from 1976 to 1986 in this programme in the hill areas of the Pokhara region.

The programme is still continuing and concerns gravity-fed water supply schemes with public tapstands, and school and household latrines. Four parties are working together in the programme: rural communities, the Nepali government, and the external support agencies UNICEF and Helvetas. The authors Marieke Boot, Research Officer at IRC and Han Hcijnen, the Programme Manager in Nepal from 1982 to 1986 prepared this case study with the conviction that sharing this experience will encourage others to view their own

projects in a wider timeframe. The study also demonstrates that sustainable achievements in community water supply and sanitation projects are possible with committed effort and enthusiastic support of all those involved.

The programme started in 1976 as a follow-up of the regular Nepali government/UNICEF water supply programme which has been running since 1971. During the first years efforts were concentrated on improving construction, including standardization of designs and procedures. Much attention was given to recruitment and manpower training. Gradually more time has been devoted to promotion of sanitation and maintenance, with rehabilitation of completed schemes becoming an important issue. More recently personal and environmental health have been promoted as a means to increase the benefit of new water supplies.

A very important feature of the programme has been the increasing appreciation of the value of community participation for the success of water supply and sanitation activities. From the start, the initiative for a water supply scheme had to come from the community through their elected village panchayat and district panchayat. Right from the beginning communities were invited to form user committees. It was only gradually understood, however, that programme success depended on a partnership of programme staff and communities in every aspect, from initial request to operation and maintenance. To this end, the programme has placed emphasis on communication and the active involvement of both men and women.

Preparation and publication of this document have been made possible with financial assistance from UNICEF Nepal and Helvetas.

The book is available at US\$ 20 from IRC.

NEW O.P. ON COMMUNITY PARTICIPATION AND WOMEN'S INVOLVEMENT IN WS&S

"Community Participation and Women's Involvement in Water Supply and Sanitation Projects" is the title of the Compendium Paper published as No.12 in the IRC Occasional Paper Series. It has been prepared on the request of and with financial support from the Netherlands Directorate General for International Co-operation, following a recommendation from the Development Assistance Committee of the Organization for Economic Co-operation and Development (OECD).

Based on studies in community participation and women's involvement carried out by IRC and on

available documentation, this document summarizes current thinking on community participation in the water supply and sanitation sector and discusses its value and limitations. By presenting a concise and practical summary on community participation and the involvement of women, this document aims to assist donors to obtain a rapid overview of this relevant subject area, and assist them in identifying aspects for further support in development and research.

Community participation, the organized involvement of a community in a development effort, is expected to reduce increasing project costs, increase service coverage and encourage technical and administrative flexibility. It is also anticipated that it will help improve operation and maintenance, stimulate broader socio-economic development and enhance community capacities for problem solving. There is evidence to support these expectations, although only limited amounts of data are currently available to demonstrate the cost-effectiveness. The danger is also noted that community participation may be used to absolve governments of their responsibilities, and to place undue demands on local resources.

A number of salient issues concern planners who seek to build community participation components into water and sanitation projects. Ways need to be found to expand the roles of women in all project stages because they take major responsibility for securing and using water, and in promoting household and personal hygiene. While there are countless forms of participation, the central issue to planners is the extent to which communities will have responsibility and authority for changes in their environment. New modes of planning, training and supervision need to be developed which are consistent with community participation principles. Excessive emphasis must not be placed on participation in construction or maintenance stages at the expense of involvement in pre-planning and planning including technical and administrative decision-making, and evaluation.

Techniques of community organization, manpower selection, training, supervision and logistic support are primary determinants of successful community participation. There is a need to make community participation information available to donor and national agency officials and to develop suitable training programmes for planners and project implementors. Evaluation procedures need strengthening, including the collection of cost-effectiveness data. Donors must agree on comparable indicators of cost-effectiveness for measuring inputs and effects.

The book is available at US\$ 7.50 from IRC.
