

TABLE OF CONTENTS

	page
* Lessons learned: please send us your opinion	1
* Successful briefing programmes at IRC	1
* Latrine development - The Thai experience	2
* New ENSIC publication	3
* International courses in The Netherlands	4

SUCCESSFUL BRIEFING PROGRAMMES AT IRC.

Since early 1986 IRC has received an increasing number of national and expatriate project staff, researchers, consultants and others for the briefing programmes organized for individuals and small groups. In 1988 about 50 nationals and expatriates involved in rural and urban water supply and sanitation programmes in Asia,

Africa and Latin America successfully completed IRC's briefing programmes, that lasted from 2 to 10 days.

Furthermore, international organizations and donor agencies showed an increasing interest in the programmes. The briefing programmes combine the study, selection and compilation of documentation on key subjects with job-oriented training, on the basis of the expertise available within IRC. Usually the programmes are specially designed for and discussed with the sponsors in order to meet the specific learning and information objectives of the participants. This approach to training cum briefing has been developed because many engineers, sociologists, economists, technicians, community workers and other professionals who have been adequately trained encounter difficulties in applying their knowledge and skills in the context of an integrated water supply and sanitation programme,

LESSONS LEARNED: PLEASE SEND US YOUR OPINION.

We are now in the last year of the International Drinking Water Supply and Sanitation Decade. Over the years, numerous Decade Assessments have been prepared, and currently WHO in Geneva is compiling the 1988 review based on information supplied by the countries. The ideas leading up to the Decade go back a long time. In 1972 the International Conference on Environment in Stockholm was the first occasion where water supply and sanitation received international attention. In 1974/75 in the Ad Hoc Working Group on Rural Potable Water Supply and Sanitation, nine agencies started discussions in order to prepare "an international programme relating to water supply and sanitation", as we stated in our Annual Report of 1975. Remember the 1977 Water Conference in Mar del Plata? The Decade was conceived there, following preparations at the country level.

Before that in the sixties, the doctors at WHO had realized that water supply and sanitation improvements could contribute to preventing water-related diseases. WHO's request to establish a centre that could play a role in the generation and transfer of knowledge on this issue was picked up by the Netherlands Government. That is how IRC came into existence in 1968, and in 1988 we celebrated our 20th anniversary.

We feel that this is an opportune moment to devote a complete newsletter to other people's opinions on what has been achieved in the water supply and sanitation sector in the past 20 years. What lessons have been learned? IRC would like to give you a chance to contribute. We plan to look back in a special issue of the IRC Newsletter to be published towards the end of April or early in May, and would welcome contributions from readers from both developing countries and external support agencies.

Contributions are welcome from "old hands" who were in Mar del Plata in 1977 when the Decade was conceived, as well as from younger staff members in the sector. Please limit your typed contribution to a maximum of 600 words. We would appreciate receiving your copy before 1 April 1989. Your contribution may either be of a general nature, or it may dwell on a specific subject or project. It would also be nice to receive feedback on IRC's contribution to your work.

Please send your contributions by mail, telex or fax to:

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IRC Newsletter
Mail: P.O.Box 93190
2509 AD The Hague
The Netherlands

telex: 33296
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Newsletter no. 180 - 189
- 1989



where they have to work with several disciplines within one team.

These different professionals would hardly benefit from additional (post graduate) training, but require practical information and support from other professionals. An important factor for success in their work is the availability of information about other people's experiences. For these professionals IRC's briefing programmes are aimed at creating an environment which allows them to develop a suitable approach to their work in water supply and sanitation, collect appropriate information, and have fruitful discussions with experienced professionals working at or invited by IRC.

During 1988 several small groups from developing country agencies attended a specially designed programme combining information collection to meet the various information needs in their programmes with training on specific subject fields. These fields included management of water supply and sanitation programmes, operation and maintenance for rural water supplies, community participation, and evaluation. Other subject fields covered in standard briefing programmes include hygiene education, cost recovery and community finance, training curriculum development, human resource development, design and construction of small community water supply and sanitation systems, solid waste management and urban sanitation, and water quality analysis. Briefing programmes focussing on technical subjects have covered a range of appropriate technology options like handpumps, dug and hand-drilled wells, slow sand filtration and pretreatment alternatives, public standposts, spring captation, gravity piped water supply, renewable energy for water pumping, and household options for improved water supply and sanitation.

Enthusiastic reactions from the field show that IRC's briefing programmes are seen by many of the participants as a cost-effective way to fill gaps in training and information in a very short period of time. To a large extent this positive result is being achieved because the participants of the programmes are generally very motivated, provided their subject area is well identified. By means of the programme the participants are given an opportunity to tailor their project planning to their needs. They are stimulated individually to prepare a working document which combined with a 'package' of documentation will be the final and clearly distinguishable result of the programme. This 'training cum briefing' methodology is still evolving, and we feel that in the future many more professionals may benefit

from this opportunity to refresh or update their knowledge and collect the information they need.

It is hoped that donors and international agencies will sponsor national staff members working in government agencies, training institutions, projects, and local organizations to attend a briefing programme. A programme of 3 to 10 days can be considered in some cases as an appropriate and low-cost alternative (US\$ 800 for a standard five day programme, lodging and daily subsistence not included), or as a complement to existing training courses which often last several months.

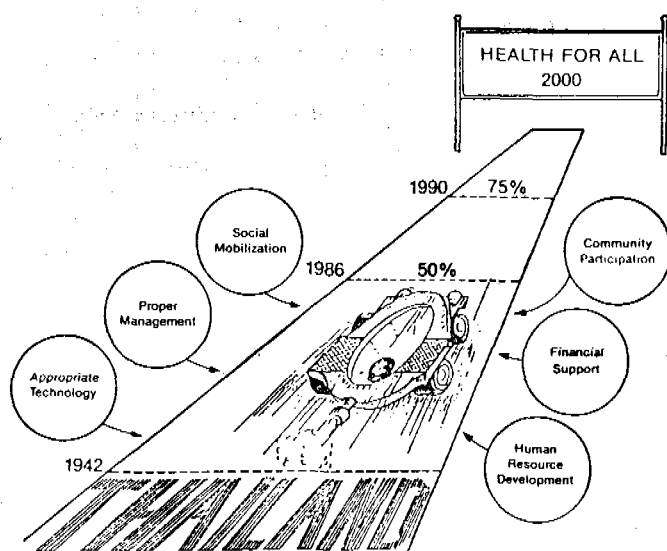
For additional information on dates, price rates, programme contents, and applications please contact IRC's training co-ordinator Teun Bastemeijer.

LATRINE DEVELOPMENT - THE THAI EXPERIENCE

Thailand is a country with a good on sanitation record. In 1986 the 7,3 million households in the country had 3,73 million latrines. The latrine coverage percentage of 51.16 is one of the highest in the developing world. To achieve the target of a 75 percent coverage by the end of 1990, 2.19 million latrines must be built. Looking further ahead to the Health for All by the Year 2000, in all 5,899 million extra latrines need to be constructed, at an estimated budget of 465 million Baht (approx. US\$ 19 million).

On an annual basis that is more than the sum that was spent in the last Five Year Plan, but the Thai Department of Health is confident that both the 1990 and 2000 targets will be achieved. This was made clear in the "Four Decades of Latrine Development" document recently published by the Thai Department of Health in co-operation with UNICEF. The interesting study quotes various reasons for this confidence: the long tradition of government commitment to quality of life improvement, and active promotion work by several government agencies. Furthermore politicians will soon take part in latrine promotion, an increasing number of village committees will accelerate the installation of latrines, experience with the social mobilization approach will be beneficial to future programme implementation, and the private sector has joined in latrine promotion.

The Thai experience in latrine development can be traced back to Sukhothai Era 700 years ago, but the real progress was made in the past four decades. In the village health and sanitation projects started in the



sixties, a locally designed water sealed latrine proved to be the most appropriate technology for the country. Experiences have revealed that motivation is the most important element leading to the success of latrine development. The Thai motivation strategy for social mobilization is discussed at length in this document.

With some modifications this approach may also be applied elsewhere. Based on the lessons learned during the past four decades, the Thai research team suggests a set of programme guides for latrine development which may be useful to all concerned with this technology in the rural areas of developing countries. This includes advice on the required policy, terms of reference, recruitment and personnel management, advocacy, orientation, staff training, organization strategy, technology, community participation, financial management, monitoring and evaluation.

This is a fine example of knowledge transfer from South to South. Valuable and relevant Thai experiences and documents have been consolidated in English for use elsewhere. We are pleased that the IRC Newsletter can serve as an intermediary in this process.

For more information on the Thai Latrine Experience please contact:

UNICEF
East Asia & Pakistan Regional Office
P.O. Box 2-154
Bangkok
Thailand

NEW ENSIC PUBLICATION

"Trends in Water Treatment Technologies", is the most recent publication we received from the Environmental Sanitation Information Centre at the Asian Institute of Technology in Bangkok. Co-authored by S. Vigneswaren, S. Shanmuganatha, and Abdullah Al Mamoon (all from AIT), it was published as no.23/24 in ENSIC's Environmental Sanitation Reviews.

The authors argue that developing countries are easily tempted by the glamour of high-tech water treatment technology, without considering the complications of operation and maintenance that follow. Generally high-tech alternatives must be imported from abroad, thus increasing the capital cost of the equipment, depleting foreign exchange reserves, and making the water supply system dependent on imported spare parts.

Therefore, there is a great need for developing countries to develop their own technologies. There are, in fact, quite a number of appropriate treatment alternatives available and already in use in the developing countries themselves. The authors point to countries like Brazil, China and India, which have developed several treatment techniques (traditional and non-conventional) which are used extensively.

Unfortunately, many public health and engineering professionals have not given much thought to those methods. For example, treatment technologies such as gravel-bed flocculators are overlooked in favour of more complex conventional techniques such as mechanical flocculators. There are scores of such more appropriate treatment technologies which could be successfully applied in the developing world.

The main aim of this review is therefore, to highlight some of these technologies which have either proven their value or look promising. The review brings together a selection of technologies: rapid mixing (of chemicals for treatment plants of up to 50 000 m³/d capacity), flocculation, sedimentation, filtration and disinfection, pre-chlorination filtration in iron, and manganese removal and defluorisation, which are not limited to specific conditions. The authors advise to always first test a certain technology in a pilot scale study before applying it on a large scale.

Brief descriptions are provided of basic concepts, practical design criteria and application status to facilitate easier access to them.

The document provides a useful overview for developing country decision-makers, planners and engineers in the

water supply sector, and a commendable example of work originating from and being published in the developing world for the developing countries.

This review contains 92 pages with appendices and is available at a price of US\$ 8 (excluding mailing costs) from:

ENSIC; P.O.Box 2754
Bangkok 10501; Thailand

INTERNATIONAL COURSES IN THE NETHERLANDS

Anaerobic Waste Water Treatment

The International Institute for Hydraulic and Environmental Engineering (IHE) in Delft and the Agricultural University of Wageningen will organize an international course on Anaerobic Wastewater Treatment from June 27 to August 20, 1989, to be held in the Netherlands.

The purpose of the course is to offer state-of-the-art knowledge about modern anaerobic waste treatment processes to engineers and scientists from both industrialized and developing countries. Emphasis will be placed on industrial and domestic wastewater treatment. The course will enable participants to determine the feasibility of these technologies in specific situations, and to guide the entire process from the selection of technologies to the design and construction of an installation, and finally to its operation and maintenance.

Special attention is directed towards the transfer of knowledge to developing countries. Information on recent innovations is still scarce in these countries, while it is there that anaerobic technologies can be most rewarding, particularly in terms of their potential for domestic wastewater treatment, and for waste recycling.

Applicants should possess a B.Sc. degree in engineering (civil, chemical or agricultural), chemistry, microbiology or other field related to environmental or sanitary

engineering and have at least one year of experience in waste treatment.

Further information and requests for admission should be directed to :

The Registrar of IHE, P.O. Box 3015, 2601 DA Delft, The Netherlands.

Short Courses in Groundwater Modelling

The Delft office of the International Groundwater Modelling Centre (IGWMC), in collaboration with the International Institute for Hydraulic and Environmental Engineering (IHE) is organizing short courses in groundwater modelling. The programme for 1989-1990 is available from:

IHE; Wim Spaans, course leader
P.O.Box 3015
2601 DA Delft
The Netherlands

Rural Energy Planning and Environment

In co-operation with the International Institute for Aerospace Survey and Earth Sciences (ITC), the University of Twente is organizing the seventh International Course on Rural Energy Planning and Environment. It is scheduled for 1 May till 1 July 1989. The contents of this course, which was designed for planners and decision-makers at national and district levels in various sectors in developing countries, include the important environmental aspects of rural energy planning.

Applicants are required to have a B.Sc or M.Sc degree or the equivalent of a recognized university degree and at least two years of professional experience.

Additional information on admission, application, fee, selection, and study programme can be obtained from:

The Course Administrator
Technology and Development Group
University of Twente
P.O.Box 217
7500 AE Enschede
The Netherlands

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Desktop publishing: Irene van Dielen
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TABLE OF CONTENTS

	page
* Operation and maintenance receiving increased attention	1
* Handpump production: are local manufacturers successful?	2
* IRC-MDF special course on management for sustainability in water supply and sanitation programmes	3
* Two new IRC titles on hygiene education	3

OPERATION AND MAINTENANCE RECEIVING INCREASED ATTENTION

During the International Drinking Water Supply and Sanitation Decade, operation and maintenance (O&M) has been recognized as one of the main constraints hampering the success of water supply and sanitation programmes. In the WHO/GTZ publication "Global Concepts for Water Supply and Sanitation" it is one of six points of action for global cooperation beyond the Decade.

Increased attention is being given to the problem at both international and country levels. At the international level, an informal meeting on O&M was held in The Hague in November 1988, following the International Consultation for the Coordination of Drinking Water Supply and Sanitation. The meeting took place on 5 November and was attended by representatives of 10 External Support Agencies involved in operation and maintenance in water supply and sanitation.

The participants made brief presentations on projects and activities being implemented, and it was apparent that there were not many projects that dealt specifically with O&M issues.

Mention was made of the scarcity of documents which can be utilized in a practical manner by operational staff of water agencies and projects. Some of the ESA's are already tackling this problem through the preparation of guidance material and manuals on O&M.

At the country level, various workshops and seminars have been, or are being organized, most of which concern rural water supply maintenance. For example, a seminar on maintenance of rural water supply facilities is being planned in Guinea Bissau in April 1989, and various others are being planned with support of CIEH in francophone African countries like Niger, Burkina Faso, and Mali.

A good example of a successful workshop is the National Workshop on Village Level Maintenance of Handpumps sponsored by the Danish International Development Agency (DANIDA). The workshop, held in April 1988 at the National Environmental

Engineering Research Institute in Nagpur, India was co-sponsored by UNICEF and convened by the Department of Rural Development, Ministry of Agriculture of the Government of India.

The workshop reflected the government's firm commitment to achieving the targets of the International Drinking Water Supply and Sanitation Decade: safe drinking water for all by 1990. Providing safe water to 227,000 problem villages could not be achieved through a centralized system, so it was decided to drill borewells and fit them with handpumps.

In the recently circulated workshop report, chief rapporteur Averthanus L. D'Souza states that the accelerated rate of installations to reach Decade goals has brought with it an increased problem of pump maintenance. Cumbersome, difficult to maintain handpumps require design improvements to make them lighter and simpler to maintain locally. There are not only technological problems associated with maintenance, however - there has been a lack of attention to sociological problems. Inherent practices and local attitudes which hamper good water management need to be modified if improvement in the health status of the people is to be achieved.

In an attempt to ensure smooth functioning of the existing handpumps, various tiered maintenance "systems" have been tried out in different parts of India. The proponents of these systems came together to discuss their strengths and weaknesses, and to arrive at practical recommendations to improve the rural drinking water programme. DANIDA subsequently proposed the National Workshop on Village Level Maintenance of Handpumps to the Department of Rural Development of the Government of India.

The 95 participants represented State Governments, voluntary agencies, manufacturers of handpumps and spare parts, inspection agencies, and the Bureau of Indian Standards. Several UNICEF officers participated, as well as bilateral agencies SIDA (Swedish International Development Authority) and DANIDA.

The discussions resulted in the realization that in order to successfully achieve village-level maintenance of handpumps, concerted efforts must be made in three areas: community involvement in the maintenance programme, training of Assistant and Junior Engineers as trainers of village mechanics, and development of improved handpumps to facilitate village-level maintenance by handpump caretakers. In that context, Mr. D'Souza reported that several recommendations for action were made.

Despite the consensus on village-level maintenance, it became clear that villagers would only accept responsibility if a feeling of ownership was involved. It was therefore recommended that village communities be



involved in all phases of the handpump programme from its inception, so that they become aware of their ownership of the installations and their responsibilities to keep them in good order. This involvement includes site selection, identification of those to be trained as caretakers, and formation of committees to supervise handpump maintenance. Because women are the principal water managers and bear the major burden of collection and use of water, it was urged that influential women be identified, taught communication skills, and be trained to function as community leaders. Further, it was recommended that teachers and students promote hygienic water and sanitation habits, of which preventive handpump maintenance forms an important component.

Village 'water committees' should be set up to supervise the handpump programme at village level. Such a committee would supervise the work of the handpump caretaker, decide on fees to be paid to the handpump mechanic as well as the levy to be charged to handpump users to cover the cost of maintenance, and assume responsibility for the village water supply programme in general.

It was felt that if Assistant and Junior Engineers received training in community organization and communication, they would be more effective in transferring technical knowledge and skills to the villagers, and supporting the village handpump mechanics. They must be sensitized to the socio-cultural context in which the programme is being implemented, and must be aware of the socio-economic realities in the villages, particularly the needs of the village women.

Training courses for self-employed mechanics from the villages should be intensified, since the delegation of the responsibility of handpump maintenance to the local community is a very important component of the programme.

The Workshop also recommended that handpump manufacturers intensify their research to design appropriate village-level operated (VLOM) handpumps, which will lessen the dependence on engineers for maintenance and repair. The pumps should be safe and simple to use and maintain, with spare parts being readily available at low cost.

In order to keep up with the increased rate of installation of handpumps as a result of Decade targets, stepping up of efforts to set up effective maintenance systems was recommended. For these systems to become viable, the Workshop recommended that additional attention be paid to the following:

- mobilization of local resources to lessen dependency on already overloaded government services;
- intensification of training programmes to reduce dependence on services of engineers from government departments;
- encouragement of participation of voluntary agencies in rural drinking water supply programmes, to benefit from their special skills in community organization, health education and motivational programmes;
- employment of qualified sociologists and economists in State Government departments to ensure that the sociological and cultural aspects of the programmes are not neglected;

- involvement of women, including in leadership training, and priority to their selection when choosing caretakers and handpump mechanics;
- payment by users to recover costs of maintaining handpumps, to solve financial problems associated with maintenance and to reinforce a sense of ownership;
- preventive maintenance and regular inspection to reduce the incidence of breakdowns and increase the life of handpumps.

As a result of the success of this workshop, it was recommended that regional workshops be held prior to the next national workshop in India.

HANDPUMP PRODUCTION: ARE LOCAL MANUFACTURERS SUCCESSFUL?

Since the publication of the final report of the UNDP/World Bank Handpump Test Programme in 1987, manufacturers in industrialized countries have adapted the designs of their handpumps to comply with the handpump selection criteria presented in the report, and have in some cases made joint-venture arrangements with manufacturers in developing countries. There are an increasing number of handpump workshops, and industries in developing countries have started producing handpumps, including some innovative designs.

Local manufacturing in various countries in Africa and Asia is being developed following different options:

- local production of pump components and/or spare parts which need frequent replacement;
- local manufacturing of main pump components using imported spare parts such as bearings;
- local manufacturing of complete handpumps.

The decision to manufacture handpumps locally is often considered a good step towards the assurance of a suitable type of handpump and the provision of an adequate supply of spare parts, provided pump components are produced according to official specifications and the pumps are subjected to quality control. India, where about ten factories produce the standard India Mark II pump and where spare parts are readily available, is a good example of successful local manufacture and maintenance (see also IRC's Technical Paper no. 25 "Handpumps, Issues and Concepts in Rural Water Supply Programmes").

When manufacturing locally, it is important to avoid highly sophisticated processes and large investments, and to maximize the use of materials from the local market. Sophisticated manufacturing processes have in some cases prompted local manufacturers to modify the design of pumps. This results in various non-standard pumps bearing the same name as the original pump (such cases were for instance reported during the round table meeting organized by CIEH in Ouagadougou in February 1988).

Reasons for governments to encourage local manufacturing include the assumed lower costs of locally produced pumps, lower transport costs, more reliable supply of spare parts, savings in foreign exchange, development of local industries and

employment, easier standardization of handpumps, and better control of conditions under which handpumps are supplied by manufacturers.

Feedback from handpump installation projects indicates however, that in some cases the assumed advantages of local manufacturing do not materialize. Among the problems being reported by project staff in the field are large variations in quality of handpumps and spare parts, overly large tolerances, different spare parts in pumps of the same type which are manufactured in different periods, high prices, and introduction of modified pumps without proper fieldtesting.

Some of these problems relate to factors beyond the control of manufacturers. The use of standard components, for instance, like PVC pipes sold on the local market, sometimes affects the functioning of the pumps. Furthermore, import taxes on parts may raise production costs of local handpumps.

Although it is generally admitted that standardization and thorough quality control are important conditions to ensure the reliability of handpumps, it appears that governments meet with difficulties in introducing specifications and quality criteria for handpumps. Despite these setbacks, significant progress is being made and experience is being gained in local handpump development and manufacturing.

IRC feels that much can be learned from what has already been established. To support the efforts undertaken in developing countries, both by local entrepreneurs and manufacturers from industrialized countries, an exploratory desk study is necessary concerning the technical, organizational and economical aspects of local manufacturing of handpumps and spare parts. The primary purpose of this study will be to determine the viability of local production, and identify the key factors and conditions affecting its success. IRC is interested to hear about practical solutions for the problems mentioned, about results of monitoring locally produced handpumps in the field, and about private sector initiatives fostering the research and development capability in developing countries. Handpump manufacturers, national governments and projects are invited to collaborate with IRC in assembling as much information as possible for the above study.

IRC-MDF SPECIAL COURSE ON MANAGEMENT FOR SUSTAINABILITY IN WATER SUPPLY AND SANITATION PROGRAMMES

Over the last decade there has been a considerable increase in the rate of implementation of water supply and sanitation programmes aimed to provide water to rural and peri-urban populations in developing countries. Although great numbers of people are now being served more adequately, there is a need to ensure the long term sustainability of the constructed facilities. Project managers and planners are generally well aware of this, but often lack the specific methodological tools and up-to-date information which would allow them to integrate sustainability components into the various phases of their programmes.

The IRC and the MDF have designed a special three week course entitled "management programmes" to fill this gap. The MDF (Management for Development Foundation) is a non-profit foundation in the Netherlands which offers training and other services to

meet management development needs and improve management and organization skills of those responsible for or working in development programmes.

The course includes an introduction to key aspects of sustainability, and allows participants to focus their updated knowledge and skills on their own programme or project in a logical framework.

The course is tailored for planners, project managers and senior national and expatriate staff with different professional backgrounds, but with considerable experience in water supply and sanitation programmes for peri-urban and rural areas.

It aims to refresh participants' knowledge concerning sustainability aspects of integrated water supply and sanitation programmes, and to upgrade specific management skills needed to ensure sustainability of water supply and sanitation facilities.

The course is divided into two main parts, the first of which is held at IRC, the second at MDF.

The part at IRC will concentrate on key subjects concerning sustainability. IRC's specialists will provide the necessary inputs. IRC's automated database will be accessible for participants as required, and library staff will assist participants in locating information.

The second part, at MDF, will concentrate on methodological aspects of how to integrate sustainability-oriented objectives and activities in a project plan and how to monitor the achievements made towards this integration. The activities during this part of the course will be done in small groups.

Next, each participant will be assisted in preparing a final resource document oriented towards further use in his/her project. An introduction to the use of computers and wordprocessing will allow participants to prepare these documents individually. Personal computers will be at their disposal during this part of the course.

The course duration is three weeks. The programme will be held Monday through Friday of each week.

The course fee is Dfl 6000 or US\$ 3000, hotel accommodation and daily subsistence not included. The course fee is due in advance.

The course will be held in the period from 22 May to 9 June. A maximum of 15 participants will be admitted for this first course.

For more information please contact IRC's training section.

TWO NEW IRC TITLES ON HYGIENE EDUCATION

One of the major lessons of the International Drinking Water Supply and Sanitation Decade is that the mere provision of improved water supply and sanitation facilities is not a guarantee for decisive improvements in community health. Improved health from water supply and sanitation facilities can only be expected when accompanied by improved hygiene practices. Therefore, attention is being increasingly directed to hygiene education activities in order to change attitudes and behaviour so that the chain of disease transmission associated with inadequate levels of hygiene and sanitation can be broken.

Recognizing the need for information on this subject, two major donors have commissioned joint work with IRC, which recently resulted in two new IRC publications. "Hygiene Education in Water Supply and Sanitation Programmes, literature review and annotated bibliography", no. 27 in the Technical Paper Series, was the most recently published book early this year, jointly produced with the Section for Research and Technology of the Netherlands Directorate-General for Development Co-operation. The second title, published late in 1988, was "Water Supply and Sanitation in Primary School Education in Developing Countries", no. 13 in the Occasional Paper Series. The paper was prepared with support from the Division of Environmental Health of the World Health Organization.

In the literature review and annotated bibliography (TP27) authors Lizette Burgers, Marieke Boot and Christine van Wijk-Sijbesma (the three 'software' specialists from IRC) present an overview of current knowledge and experience in hygiene education. They reviewed nearly 600 documents, of which several were part of IRC's documentation holdings. The remainder were received as feedback from a mail survey to 80 projects and individuals having particular expertise and experience, and from a request for information in our newsletter.

The authors argue that in spite of the wealth of documents reviewed, information on hygiene education was found to be fragmented and limited in comprehensiveness. There is an abundance of information on specific subjects such as village health workers, the role of women in family hygiene and the use of audio-visual aids, yet information is seriously lacking on planning, implementation, impact, and cost-effectiveness of hygiene education programmes. Also, more information is available on hygiene education activities in water supply than in sanitation projects, and on rural than on urban areas. The authors conclude that there is an urgent need for a more comprehensive record of hygiene education experiences, which at present are lost to ongoing and future projects.

The 160-page book contains chapters on importance and purpose of hygiene education, target groups, changing hygiene related behaviour, approaches to hygiene education, organization and cost, manpower characteristics and training, audio-visual tools, and school hygiene education. Throughout the document the authors included quotations and abstracts from individual studies. In all, 582 references are given of which 27 are more extensively dealt with in the annotated bibliography at the back. Together with relevant addresses, this facilitates access to information on key aspects of hygiene education including trends, experiences and constraints.

TP27 is intended primarily for those concerned with public health, primary health care and community health in relation to water supply and sanitation. The aim is not only to provide a wide audience with the state-of-the-art, but also to stimulate developments in hygiene education and further research to increase its effectiveness. The book may also serve as an introduction to the subject for project staff, especially those at field level. Researchers, trainers and students may find it a useful and easy reference for background information.

The other title, "Water Supply and Sanitation in Primary School Education in Developing Countries", no. 13 in the Occasional Paper Series was prepared by Dr. Barry Karlin, consultant to IRC together with IRC's Jan Teun Visscher. School hygiene education can contribute greatly to improving water supply and sanitation related behaviour. By establishing basic hygiene practices, school programmes can reinforce or help to modify attitudes and habits developed in the home.

Information for this desk study was reviewed from more than 200 teaching and reference materials obtained from a wide range of sources. In many countries school hygiene facilities are either in poor condition or are lacking altogether, representing a serious health hazard for the children in the school. One overriding conclusion of this preliminary analysis is that although strengthening of school hygiene facilities is urgently required, it cannot be done in isolation. Another major drawback is that over 429 million school-aged children do not attend school. Results may therefore only be expected when these facilities are improved simultaneously with hygiene educational efforts.

The 47-page study contains suggestions for strengthening school hygiene education. Four appendices provide 17 country overviews, 12 examples of teaching materials and information on pretesting audio-visual materials. A list of organizations concerned with development and production of school hygiene education programmes and materials, of which 20 from Africa, 21 from Asia, 7 from Latin America, 5 from North America, and 7 from Europe, is also included.

Costs of the new publications are:

ordercode TP27 US\$ 25 (incl. surface mailing)

ordercode OP13 US\$ 7.50 (incl. surface mailing)

If surface/airlifted (S.A.L.) is requested, please add 30 percent.

Copies of the new titles can be obtained from IRC, preferably by transferring the amount to account number: 4218421 of the Postbank The Netherlands in the name of IRC, making reference to the ordercode and NL181.

Chief Editor:	Dick de Jong
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Layout	Irene van Dielen
with contributions from:	Teun Bastemeijer

Table of Contents

	Page
* Key issues for development of water sector	1
* Meeting on information at IRC	2
* Sponsored swimming : US\$ 250 000	3
* New publications on sanitation	3
* IT Publishes articles from Waterlines	4

KEY ISSUES FOR DEVELOPMENT OF WATER SECTOR

Development of the water supply and sanitation sector in the 1990s has been a key issue in various international, regional and national meetings. In Pakistan two review meetings in 1988 took place with support from the World Bank; one on case studies in rural water supply and sanitation and one on future policy for the sector in the country. These meetings have led to the clear identification of ten key sets of issues for development of the sector, which we list below because we feel that the questions raised are essential to other countries and programmes as well. Not only answers to these questions but especially actions that follow will determine the improvement of services to rural communities.

This information is based on a draft report prepared by Hafiz A. Pasha and Michael G. McGarry.

1. Sector priority and financing

- What factors should determine the priority and allocation of resources for the development of the rural water and sanitation sector?
- What should be the service-level targets in the medium and long-term and what, consequently, should be the sector's share of GDP and public sector plan allocations?
- What should be the share of international funding versus domestic resources in the development of the sector? How important are the different costs/terms of financing and conditions associated with greater resort to external sources?
- What share of the total domestic resources required for the sector should be mobilized by different levels of government, viz., federal, provincial, local and by the beneficiaries?

- To what extent should soft terms on international loans be passed on to final beneficiaries?

2. Integrated approach to development

- What are the key inter-sectoral (water, sanitation, drainage and hygiene education) relationships which have to be promoted so as to maximize the benefits from investments in the sector?
- How can the integration of different components be achieved in the best manner institutionally?
- How can households and communities be induced to contribute their own resources towards the provision of sanitation and drainage?
- What mechanisms can be used to create a general health awareness and to promote hygiene education?
- How can hygiene education best be delivered within available institutions in the government, NGOs and communities, given that any such input has to be provided at the community level on a continuing long-term basis?

3. Institutional framework

- What should be the overall institutional mix and allocation of responsibilities for development of the sector?
- What should be the respective roles of the various ministries' departments?
- How can adequate software expertise in sociology, community development, economics and finance be introduced into existing institutions which have primarily an engineering orientation?
- What should be the nature of village-level organizations (individual or clusters of villages, elected/nominated, multi-purpose/single project, permanent/temporary) to ensure effective user participation in the process of identification, execution and management of projects in the sector?
- What type of human resource development activities need to be undertaken for institutional strengthening in the sector?

4. Choice of technology

- What constitutes 'basic' service level in the sector?
- How can the technology be made upgradable and adaptable to changing conditions?
- What types of technology are likely to be readily acceptable to users/beneficiaries?



- What should be the trade-off between, on the one hand, high capital cost/low O & M cost technology and, on the other hand, low capital cost/high O & M cost technology?
- How can the labour needs of the chosen technology be enhanced to reflect local manpower resources and enable greater community participation?

5. Sustainability of investments

- What implications do different technologies have on the rate of depletion of different natural resources in the environment, e.g., on the depletion or pollution of groundwater?
- What types of institutional arrangements need to be made at the local level to ensure proper operation and maintenance?
- How can adequate emphasis be placed on using existing infrastructure properly as opposed to expanding capacity, especially through donor agency funds?

6. Cost recovery

- What should be the extent of capital and O & M cost recovery in the sector?
- What is the best method of financing (tariffs versus taxes, regular collections versus collections in response to need)?
- To what extent should financing be decentralized, or community-based?
- How can the process of cost recovery be effectively integrated within the existing institutional/community structure?

7. Role of the private sector

- Given that the private sector is a major but often unco-ordinated and informal resource for the sector, how can its efficiency be enhanced?
- Which sub-sectoral and geographical areas have the greatest potential for an enhanced private sector?
- What support systems (credit, technology development and standardization, marketing, skill development, etc.) need to be instituted to fulfill the private sector's potential?
- How far can the government rely on the private sector to achieve the stated objectives? What contribution can the private sector make in reducing the financial burden on the public sector for developing the sector?

8. Role of women

- What needs to be done to bring about a greater recognition that the primary beneficiaries in the sector are women and children?

- How can the role of women as key participants in project development and implementation be enhanced without conflicting with social and cultural attitudes?
- What are the training and other inputs required to increase the supply of women as managers and professionals in the sector?

9. Delivery mechanisms

- How can effective delivery methods, proven to be efficient in similar socio-economic and institutional settings, be replicated on a significant scale within the existing government and institutional framework?
- How can the community be made an active and respected partner in project development and execution?
- How can community confidence, capacity and managerial strengths be built up?

10. Investment planning, project preparation

- What type of planning for the sector should be undertaken at different levels of government - federal, provincial, local?
- What should be the planning goals and targets? For example, is the target of full water supply and health coverage and 50 percent sanitation (hygienic disposal of human waste) for the rural population attainable by the year 2000?
- How can technologies and delivery methods be standardized for different parts of the country?
- What should be the institutional process for project preparation and appraisal so as to minimize delays and depoliticize, to whatever extent possible, the selection criteria?
- How can plans prepared for the target be best put into operation to meet targets?

MEETING ON INFORMATION AT IRC

At the end of May 1989 the 1990 Committee of the ESA Collaborative Council will, in its second meeting in Geneva, amongst other things review the work done by two temporary working groups in the context of the Framework for Global Co-operation beyond the Decade for the water sector. This framework, conceived at Interlaken in October 1987, was endorsed by a great variety of external support agencies (ESAs) (see Newsletter no. 179, December 1988). The two temporary working groups, one on applied research and one on communication of information, were to review and appraise existing activities, identify gaps and recommend a programme of new activities. For both working groups terms of references were drafted in the Hague Consultation in November, and were reviewed and updated by the 1990 Committee meeting in December in Paris.

A Core Group consisting of IRC, UNDP, WHO, CEFIGRE and the UNDP/World Bank Programme guided the Temporary Working Group on Communication of Information (TWG-INFO), with IRC in the leadership role. Since January the TWG-INFO has held three meetings involving a total of more than 50 water supply and sanitation sector and information specialists. At the final meeting in the Hague from 11-13 April, 30 participants, including 12 from developing countries, finalized the group's recommendations on four categories: public information and promotion, technical information exchange, project and sector information, and management information.

The TWG-INFO analysis of information issues confirmed that communication of information is a matter of priority importance in future plans for accelerating the provision of sustainable water supply and sanitation programmes in developing countries. The emphasis in the work of the TWG has been on the assessment of measures needed to strengthen the motivation and the capacity of developing country governments to give increased priority to the water supply and sanitation sector in the 1990's, and to meet the new challenges which have emerged in recent years.

Mobilization of additional resources for the WSS sector in the 1990's is going to depend substantially on the right approach to **promotion and marketing** of the sector. The TWG believes that this calls for a clear commitment on the part of the ESAs to provide resources for a sustained and co-ordinated campaign at global and country levels. The campaign needs to draw on the lessons of the promotion for the International Drinking Water Supply and Sanitation Decade. The first priority must be to develop a global strategy in time for the launch of a WSS programme for the 1990's, and the aim is to have a complete corporate strategy prepared, endorsed and ready to implement before the planned Global Consultation in India in September 1990.

On **Technical Information Exchange (TIE)** the TWG-INFO felt that follow-up action on the earlier endorsed TIE-Framework in four or five pilot-countries, backed by strengthening of existing national and regional information centres and supported by standardization of formats and procedures for data collection and retrieval, could show rapid results. A number of outline proposals to do this were developed.

On **Project and Sector Information (PSI)** the TWG-INFO saw the Country External Support Information system (CESI) operated by WHO as a valuable springboard for developing countries. CESI can help them to develop their own systems for national data collection and dissemination, covering both project information and country-specific sector data. For this

process specific activities were proposed including maintenance and enhancement of the CESI operation. The TWG-INFO recommends initiation of pilot/demonstration projects in six to twelve countries.

The TWG-INFO noted the close links between its recommended strategies for co-ordinated support in the TIE and PSI categories. Developing countries should be encouraged to enhance their information management capabilities in both fields together, preferably in combined demonstration projects.

The links between TIE and PSI were also evident when the TWG-INFO discussed problems and needs associated with **Management Information Systems (MIS)**. It was recommended that support for MIS at national level should focus on raising awareness of policy makers to the value of various types of information, and on identification of successful tools and methodologies for sector management.

SPONSORED SWIMMING: US\$ 250 000

Over 50 000 children in the Netherlands last year were sponsored to swim for UNICEF-supported water projects. As we reported in our July 1988 Newsletter no. 176, the Netherlands UNICEF Committee mounted a massive campaign "Water.... we are swimming in it!" The swims, sponsored per lane, raised nearly US\$ 250 000 in 1988 for water projects in Burundi, where a pump costs about US\$ 1200. One girl in a village in the south of the Netherlands had organized 300 sponsors for her lanes, which brought in US\$ 650.

NEW PUBLICATIONS ON SANITATION

In March we received two new publications from the **Asian Institute of Technology** in Bangkok, Thailand on sanitation. The first one is entitled "Economic, Institutional and Technical Implications of Alternative Urban Sanitation and Recycling Options, a case study of Chonburi, Thailand". AIT published it together with Coopers & Lybrand Associates as AIT Report no. 230, funded by GTZ, the Deutsche Gesellschaft für Technische Zusammenarbeit, (German Agency for Technical Co-operation) based in the Federal Republic of Germany. The publication (dated May 1988) is not intended to serve as a plan for the city of Chonburi, a provincial town with 100 000 population, but is rather a comparison of alternative sanitation options based on preliminary engineering designs. The four options considered in this study were: a maximum sewerage option, minimum sewerage option, small-bore sewerage option and septic tank option.

In later chapters a more general discussion of technical alternatives and specific calculations follows, in which the authors deal with sewerage systems, on-site wastewater treatment and central wastewater treatment. The technical systems discussion results in a framework of cost estimates for investment as well as operation and maintenance costs. These in turn are used as inputs for an economic evaluation and an assessment of the institutional implications of the four options. The authors end with a set of conclusions and suggestions for further research.

The second publication concerns Environmental Sanitation Reviews no. 25, August 1988, published by the Environmental Sanitation Information Centre, and is entitled "Sanitation Technologies for Temperate and Cold Climates". This review contains a part of the work undertaken by Cowater International, Canada for the Ontario Ministry of the Environment, to study innovative technologies for water supply and wastewater management in use in the northern communities of Ontario and overseas. Database searches have been done to identify literature on relevant technologies "from Alaska and Norway to Thailand and Tanzania", the Cowater authors write. They briefly introduce and review 14 different technologies in various degree of depth.

For information on both publications contact:
Arthur Vespy
Asian Institute of Technology
Library and Documentation Centre
P.O.Box 2754
Bangkok 10501
Thailand

The Overseas Division of the UK Building Research Establishment has recently published the first of their Overseas Information Papers (OIP) which are aimed to give practical construction advice for developing countries. OIP 1, entitled "A Permeable Lining for Seepage Pits" describes how to fabricate a simple block mould and from it, manufacture concrete or sand/cement trapezoidal-shaped blocks suitable for pit latrine substructures, soakaways or shallow wells. This useful paper can be obtained from:
Publication Sales
Building Research Establishment
Garston, Watford WD2 7JR
United Kingdom

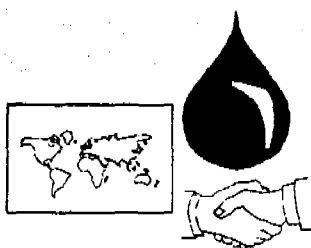
The Overseas Division of BRE indicates that they are seeking further experience in the production and use of this type of block together with information on costs relative to alternative local lining options for pit latrines and soakaways.

From the International Ferrocement Information Centre, we have received booklet number 8 in their Do It Yourself Series entitled "Ferrocement Pour-Flush Latrine". This booklet, which is well illustrated with photographs and diagrams, gives a step-by-step description of how to fabricate the various components of a water seal latrine including the pan, trap, lead-off pipe and leach pit cover, using ferrocement. Claiming that the use of ferrocement is highly appropriate as it requires little capital, simple tools, easily obtainable materials, and is cheap and easy to fabricate makes this publication suitable for engineers, planners, field workers and householders. The book is priced at US \$4.00 surface mail or US \$6.00 air mail, and it is available from:
International Ferrocement Information Centre
Asian Institute of Technology
P.O.Box 2754
Bangkok 10501
Thailand

IT PUBLISHES ARTICLES FROM WATERLINES

Intermediate Technology Publications has recently published "Community Water Development". The book is a collection of articles on the development of appropriate technologies for water supplies published over the last seven years in Waterlines and Appropriate Technology magazines. The 60 articles selected by the technical editor of Waterlines, Charles Kerr, illustrate the changes in thinking which have taken place in the International Water Supply and Sanitation Decade. The various sections cover sources of supply, pumping methods, transport and storage as well as education and training, and questions of planning and management. It is available at pounds sterling 9.95 from:
IT Publications
103/105 Southampton Row
London WC1B 4HH
United Kingdom

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Donor Cooperation to Bring Safe Water and Sanitation to All

Supplement no.5 to IRC Newsletter 182

Following is an informal progress report by the UNDP-World Bank Water and Sanitation Program on its joint activities with other members of the international donor community to keep the momentum and spirit of the International Drinking Water Supply and Sanitation Decade going.

RWSGS ASSUME GROWING ROLE IN SECTOR DEVELOPMENT

The UNDP-World Bank Program's Regional Water and Sanitation Groups (RWSGs) are now operational in Abidjan (West Africa), Nairobi (East Africa), and New Delhi (South Asia), with a fourth planned for Latin America and the Caribbean by the end of the year. Plans also are being considered for expansion of the Program's team in China to cover East Asia and for setting up a group in the Middle East.

The RWSGs bring a new approach to international technical cooperation. Funded by UNDP, the World Bank and other donors, they are composed of five to ten sector specialists equipped to help governments in a full range of sector development: from overall sector planning and strategy formulation to the design and implementation of investment projects. Each team is based regionally near the countries it serves but outside any particular government agency. The RWSGs' services are strictly demand driven, and the teams operate on the basis of annual work plans formulated jointly with countries and collaborating donor agencies.

An important spin-off of the RWSGs has been their ability to coordinate donor efforts in a particular region due to the international nature of their funding and staffing. For example, the RWSG for East Africa is composed of staff funded by UNDP, the Norwegian Ministry of Development Cooperation, DANIDA, FINNIDA, ODA and the French Ministère de la Coopération. Two staff are seconded from the World Bank, one is seconded from WHO, and SIDA

has agreed to fund an associate expert. The groups can be supplemented with specialized consultants in fields not represented on the team.

RWSG managers are responsible for field activities and have broad authority over day-to-day operations, thus ensuring flexibility. Supervised by the World Bank's Water Supply and Sanitation Division (INUWS), RWSG activities are closely integrated with all components of the UNDP-World Bank Water and Sanitation Program, including global applied research, information dissemination and exchange, waste management and recycling, and the International Training Network.

FUNDS RECEIVED FROM NORWAY AND WEST GERMANY

The UNDP-World Bank Program has received a contribution of \$4.5 million from the Government of Norway, the largest bilateral contribution the Program has ever received at one time. The funds will be used to design, implement and evaluate low-cost community water supply and sanitation projects in three countries (tentatively Zambia, Pakistan and Guatemala); to finance two professional staff members in the Program's Regional Water Supply and Sanitation Group in Nairobi, and one in Latin America; to cofinance (with UNDP Zimbabwe) a Training Network Center at the University of Zimbabwe in Harare; to post a Program staff in Zimbabwe and another country to be selected; and to finance a Program staff member in Washington and additional consultancy services.

GTZ also has provided funds for the Program's

Resource Recovery Project to conduct demonstration projects in Guatemala, where monitoring and evaluation of an integrated liquid and solid waste management and recycling project is being developed in Alameda Norte, Guatemala City; in Peru, where monitoring of the San Juan waste-fed aquaculture demonstration project continues; and in India, to support an international seminar on Waste-Fed Aquaculture in Calcutta.

DUTCH ACTIVE IN INDONESIA

Approximately \$2.6 million in funding from the Dutch Government has now been guaranteed to set up a water supply and sanitation project in Indonesia. The Community Water and Sanitation Project will address the needs of urban and rural communities and hopefully serve as a catalyst to stimulate large-scale implementation in the sector. The project also will address the imbalance between sector development in rural and urban areas, as well as the need for an integrated approach to water and sanitation. The first stage will include training, social marketing, and the development of operational guidelines. During the second stage, a demonstration project will be set up to test and refine the guidelines.

NIGERIA PROJECT LAUNCHED: SOCIOCULTURAL STUDY BEGINS

With funding from the UNDP and the Netherlands, the largest in-country demonstration project ever executed by the UNDP-World Bank Program has been implemented in Nigeria. UNDP has committed \$3 million to the project, and the Dutch Government's contribution of \$775,000 when combined with in-country contributions in local currency bring total financial support for the project to \$5.5 million. The funds will be used in part to cover the cost of a Nigerian advisor who will work with the project to study and prepare a manual on the role of women in development.

The project has begun by studying the sociocultural environment of Plateau State. The results will be used for planning both hardware and software aspects of the project and in developing a simplified methodology that can be used in subsequent surveys by national consultants in the remaining project

states and, hopefully, in other water and sanitation projects in Nigeria. Plateau State will be the pilot state for developing and testing innovative approaches to be used by the project.

CIDA-FINANCED BOLGATANGA COMMUNITY WATER SUPPLY PROJECT

The Bolgatanga demonstration project funded by CIDA and executed by the Ghana Water and Sewerage Corporation serves about 15,000 people living around some 50 pumpsites in Bolgatanga district in Ghana. The project is designed to fit into the Water Health Integrated Program in the Upper East and West regions of Ghana.

The project's main purpose is to see if communities will take responsibility for managing their own water supply systems. One of the first steps undertaken has been to encourage community development committees to be formed that will serve as a link between the project staff and villages. The committee will establish and maintain an accounting and savings system for maintaining pumps, have responsibility for getting pumps fixed, and ensure that pumps will be used properly. The project is being designed and implemented by a team of technical and community development specialists, together with a small group of extension workers. A core team consisting of a project manager, an advisor, and specialists in training, community development, health, sanitation, handpumps, and hydrogeology has been at work on the project since July.

UNDP INITIATES PROJECT IN GHANA

A project planned for Kumasi City, to be executed by the UNDP-World Bank Program, will develop and promote the principle of strategic planning and strategic management of the provision of sanitation services. This approach allows the designer to consider not only conventional sewerage, but also lower-cost alternative sewer systems and on-site sanitation technologies.

This will be the first time that intermediate technologies will have been introduced into West Africa. If successful, it will provide a model for Bank involvement in sewerage and sanitation in Ghana and other West African countries.

TABLE OF CONTENTS

	Page
* SPECIAL ISSUE	
-Growing up in the Decade	
-Long-term solution: Education	1
* SPECIAL IRC/IHS COURSE ON ENVIRONMENTAL SANITATION FOR LOW-INCOME URBAN COMMUNITIES	2
* INTERNATIONAL WATER TRIBUNAL IN 1991	3
* WHO PUBLISHES INTERESTING HRD CASE STUDIES	4
* REDUCED BENTAZON DISCHARGE IN RHINE	4

SPECIAL ISSUE

In the January issue of the IRC Newsletter (no. 180) we invited your contributions to lessons learned in the International Drinking Water Supply and Sanitation Decade. This special newsletter reflects the opinions received as a result of our request. We would like to thank all those who took the time to contribute.

As a first article we decided to publish the contribution of Mr. K.C. Hoole, which is interesting food for thought. Mr. Hoole is working as an engineer in the Rural Water Supply and Sanitation Project in Sri Lanka. We have also summarized the contribution of another consulting engineer, Mr. J. de B. Ashworth from the United Kingdom. Finally, our friends from the National Environmental Engineering Research Institute (NEERI) from Nagpur in India stressed that "only a holological approach will provide long term relief to people in terms of availability of potable water and effective sanitation". To show how they undertake this integrated approach NEERI director Professor P. Khanna submitted a 14 page summary of work done in 1988 by his institute in four districts for the Water Mission Directorate of the Government of India. For more detailed information readers can contact NEERI directly.

Address: Nehru Marg
Nagpur 440020; INDIA

We now turn to the personal view of Mr. Hoole.

Growing up in the Decade

"In many ways I am a product of the "Decade". I passed through the Decade firstly as an engineering volunteer in Nepal, then via the newly formed WEDC at Loughborough University on to Africa and back to Asia. Caught up in the altruism and bright hopes of the early years and maturing with the actual experiences and realization of the true extent of the problem, I saw the great U.N. move the goal post and knew that even less ambitious aims were, in most cases, still not attainable.

The major lesson learnt was that the problems could not be solved by engineering alone and that engineering was only one part of a large complex solution. I was fortunate to be able to undertake further studies and broaden my knowledge to find out what it was to be an in-line officer in a government department in a country whose economic situation was poor and getting worse.

It is not pleasant to be told ... "You are the expert, we expect you do more with a smaller budget"... It's not easy to be allocated "votes" which are so unrealistic that it's impossible to cover the pumping costs, never mind buy chemicals, fuels, spare parts or pay allowances, overtime, etc. How do you motivate men to provide a service to the public when you cannot pay them their allowances and they really need the money?

At least I knew it was a contract, three years and then somewhere else, hopefully better. Not so for my local colleagues, for them there was no escape. No matter how the politicians played it, they were the ones at the end of the line who had to jump when they were told to. You don't say no to the Minister. You find the money even if it means taking resources from somewhere else - someone else must do without.

And so I learned about the real world.

It's excellent when someone designs a wind mill that is more efficient, can be easily manufactured in a LDC - but when you can't get spares for the two existing types of wind mills you are already trying to keep going, how



do you justify introducing yet another type? The donor agency may be being generous but when they leave, you are the one left with a budget that is getting smaller - and there is another Minister shouting!

So, where do we go from here? Well, with the world's population doubling every 20 years or so, just maintaining the present coverage is a mammoth task. Perhaps it is best not to set ourselves too ambitious a target. But let's not give up. It's still possible to find good projects and new encouragement. (I've been very lucky here in Sri Lanka).

I haven't found "The Answer" and I don't think there is one answer. However, I believe I can contribute a few suggestions:

Firstly, there are the politicians, always the politicians - convince them that you cannot get something without paying for it and maintaining it, in the long run nothing is "free".

Secondly, there is the long term viability of the new schemes. It is encouraging to find projects where the operation and maintenance is seen to be one of the major long term aims. However, this is not always the case, despite the painful lessons of the Decade, and it is imperative to promote the O & M aspects to the prominence it requires.

More directly, here is a question for the IRC and other similar organizations:

How does a Technician in a rural area in a Third World country:

- (a) afford to buy any of the excellent literature you produce?
- (b) obtain the foreign currency to pay for it, even if he can afford it?

There are plenty of people who would benefit from having more information. Yet we find an excellent magazine like "Waterlines" struggling to survive. Why not send "Waterlines" free to all Third World technicians who request it, and you will greatly help and encourage the people who are actually out there in the front line. Surely someone can afford the relatively small amount it would take to accomplish this valuable task.

I know I'm not the only one who 'grew up' during the Decade. I know we have all learnt many things. The problems are still there. Therefore let's look at the

"Decade" as a starting point, it certainly cannot be an end."

Long-Term Solution: Education

"The operations and maintenance of water and sewage treatment plants in developing countries does not capture many people's imagination. But the number of these projects that fail soon after completion is very upsetting", writes J. de B. Ashworth. Various financing systems offer only short-term solutions in his view. Financial and manpower resources in developing countries are over-stretched.

"For a country to generate its own capability for the management of all technical projects, not just water and sanitation, requires major national education programmes. The support needed would have to be measured in decades and not years. Education of the whole country would allow the evolution of technical skills to take place."

These were the first reactions we received in time for publication in this newsletter. Because new contributions keep trickling in, we have decided to continue this initiative. If you still have an interesting view about lessons learned in the IDWSS Decade, write it up, preferably in 600 to 800 words, and mail it to us for possible publication in the future.

SPECIAL IRC/IHS COURSE ON ENVIRONMENTAL SANITATION FOR LOW-INCOME URBAN COMMUNITIES

A large proportion of the low-income urban population in Africa, Asia and Latin America does not have safe and reliable water supply and sanitation facilities. The rapid growth of the urban population combined with lack of drainage and sewerage systems result in increasing environmental and health problems.

Solving these problems requires innovative solutions on the basis of community participation.

Institutions in developing countries and staff working in urban programmes are well aware of the problems. They often have no experience in integrated community water supply and sanitation programmes, however, and lack knowledge of appropriate technology and service levels. IRC together with the Institute for Housing Studies (IHS) in Rotterdam is organizing a two-week course on environmental sanitation for low-income

urban communities. The course has been developed for planners, engineers, health officers and other staff responsible for the planning and implementation of community water supply and sanitation, low-cost infrastructure, and hygiene education programmes for low-income urban areas.

Entitled "Community Water Supply and Environmental Sanitation for Low-Income Urban Communities". The course is scheduled to take place from 20 November to 1 December. The first week will take place at IRC, during which the course programme will concentrate on innovative experiences on community water supply and environmental sanitation and on integrated community-based approaches. During the second week at IHS, the programme will concentrate on the role of urban institutions and communities in the provision and management of water supply and sanitation services.

Lectures and working group discussions will build upon recent field experiences of IRC and IHS staff and resource persons. Extensive use will be made of case descriptions, training material and other documentation. Each participant will be required to prepare a strategy document and to collect relevant documentation for use in their organizations.

The course fee of US\$ 2000 per participant is due in advance. For daily subsistence costs and hotel accommodation participants are advised to allow for US\$ 100 per day. Moderately priced lodging in The Hague and Rotterdam can be provided. For applications and more information please contact: IRC, Teun Bastmeijer, Course co-ordinator IRC/IHS course; P.O.Box 93190, 2509 AD The Hague, The Netherlands
Telefax +31 - 70-814034

INTERNATIONAL WATER TRIBUNAL IN 1991

The second International Water Tribunal will be held in Europe in the second half of 1991. For the first time it will hear complaints by environmental organizations from developing countries about companies and international companies' agencies' operations which cause problems with water quality and quantity. These cases will be scientifically researched, the defendants

will be notified, and the cases will be judged by internationally renowned judges.

This was decided during a workshop in Rotterdam in April, attended by 16 delegates from environmentalist organizations all over the world. The workshop was organized by the International Water Tribunal Foundation, with financial assistance from the City of Rotterdam, the Commission of the European Community and the World Wildlife Fund in the Netherlands. Funding for the second tribunal still has to be found.

The first International Water Tribunal was held in 1983 and concentrated mainly on chemical pollution of the European water sources. Nineteen charges were heard by the independent jury, which in 18 cases considered the charges brought against industrial companies and governments justified.

The April workshop in Rotterdam agreed that broadening the second IWT to include other water problems and developing countries would be useful for a number of reasons:

- to share knowledge and expertise on how to approach water problems;
- to establish north-south relationships and partnerships between non governmental agencies;
- to educate public opinion about water problems;
- to initiate more research into water related problems in developing countries.

"We would like to mirror not only bad but also some good projects, which show the way to solutions", Gerard Peet, chairman of the IWT Foundation said in Rotterdam. NGOs are requested to submit charges focussing on quantitative water management (including irrigation), domestic sewerage, mining, oil spills, and the effects of the seawater rise and erosion. The organizers plan to have approximately ten cases researched, for which a total of fls 350 000 (appr. US\$ 160 000) is budgetted.

After the research the defendants will be notified and given a fair chance to defend themselves at the 1991 tribunal.

For more information write to:
International Water Tribunal
Arthur van Norden (co-ordinator)
Damrak 83 - I; 1012 LN Amsterdam
The Netherlands

WHO PUBLISHES INTERESTING HRD CASE STUDIES

The Community Water Supply and Sanitation Unit (CWSS), of the Division of Environmental Health of the World Health Organization has recently published four interesting case studies on human resources development in the water and sanitation sector. Jointly produced with the Swedish International Development Authority (SIDA), the case studies aim to document and illustrate various methods used in different parts of the world to improve human performance in the sector.

The four published so far are:

* Managing the managers

How the Philippines Local Water Utilities Administration supports general managers of 350 water districts by providing management advisors.

* Job descriptions prove their worth

How the 11-city Organization-Management-Training project based training on task-oriented job descriptions and thus became a model for the whole of Indonesia.

* Training programme gets a new profile

How the Water Resources Institute in Tanzania reshaped its curricula to meet the country's need for skilled sanitation technicians.

* Strategic planning workshop sets development project on its feet

How a workshop in Tanzania created the turning point for a Health-Sanitation-Water programme.

Activities and projects selected for this series are all of an innovative nature. They show that there are usually a variety of methods other than classroom training to help people do their jobs better. The case studies aim to provide the reader with a total perspective of what

was done, how it was done, why it was done and an assessment of its effectiveness.

These collected experiences should give the reader ideas which can be adapted to improve other activities and projects in his or her own environment. The series aims to be a source of inspiration for action and deliberate change. Four additional titles are in the pipeline.

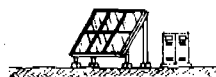
For more information about a specific case study, or the project please contact:
Manager, EHE/Community Water Supply and Sanitation
World Health Organization
1211 Geneva 27
Switzerland

REDUCED BENTAZON DISCHARGE IN RHINE

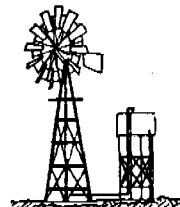
The chemical concern BASF has constructed a treatment unit in Ludwigshafen, West Germany, which considerably reduces the discharge of the harmful crop protection chemical bentazon into the waters of the Rhine River. BASF announced in early May that with the effluent going through the new treatment unit the concentration of bentazon in the water is reduced to less than 0.1 microgram per liter of drinking water (the European drinkwater standard). Drinking water companies in the Netherlands have confirmed the figure.

The Dutch drinking water industry welcomes the environmental measures taken by the German company, since part of the drinking water supply in the Netherlands depends on the Rhine water. Bentazon discharges by European industries in recent years have forced the water companies to invest some 30 to 40 million guilders in purification plants.

Chief Editor:	Dick de Jong
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	Cor Dietvorst



Renewable Energy Sources for Rural Water Supply



SUPPLEMENT NO. 3 to IRC Newsletter 183, June 1989

RENEWED INTEREST IN ANIMAL TRACTION

There is a growing interest in the oldest form of renewable energy: the use of animal power in water lifting. The term "animal power" refers to employing the muscular power of animals. Animal power is used traditionally for raising water in many developing countries throughout North Africa, the Middle East and Asia. The animals are used in two ways:

- for direct lifting, by hauling a rope or ropes to raise one or two buckets. Examples are the "Delou", a one-bucket system being used in Northern Africa, The Sahel, the Near East, Persia and India; and the "Gueroult", an alternatingly filled and emptied two-bucket system developed and used in Senegal.
- for operating a water wheel or chain of buckets through gears by walking on a circular track harnessed to a pivoted arm. Examples are the "Stoney's moat", a simple circular moat for drawing depths of about 6 m, and the "Manege Sahores" a modernized version of the circular moat for large drawing depths, up to 15 m.

A classic example of animal power found in Arabic-Islamic countries is the waterwheel with an animal trotting steadily along on a circular track, thereby transmitting the energy from its rotary motion (horizontal plane) to the waterwheel (vertical plane) via an angular gear. Waterwheels can be classified by their mode of operation and type of drawing depth or by the type of transmission they employ. The greatest depth (5-20 m) can be achieved with an endless bucket ladder, such as the "Noria". Bucket wheels with the water vessels arranged around or integrated into the wheel perimeter like the "Tabout", can draw water from 2-4 m, and spiral wheels like the "Thympan" can lift water from 0.3-2.5 m.

Animal traction, widely used in small scale irrigation, has only been incidentally applied in communal drinking water pumping. An important reason is that animals usually are privately owned while drinking water supply is a community concern. With new approaches to community development this gap between private and communal property could be bridged.

IRC would like to assess to what extent animal power for water lifting could substitute for or complement motorization. Animal power, for example, could be successfully applied in rural areas of developing countries, where electric power is unavailable, fuel for engines is too expensive and maintenance facilities are rare. The documentation on practical experience gained to date in the field of animal-power technology is still limited. Therefore IRC welcomes any information on the development and use of animal-powered water-lifting devices to be able to complete a survey on all potentially interesting applications and their respective performance data.

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FIGHTING LIMITS WINDPUMPING IN MOZAMBIQUE

With support from the Dutch aid agency NOVIB, the Agricultural Department (DPA) of the Gaza province, northeast of the Mozambican capital Maputo, has reached a production level of about one windpump a week. At DPA's workshop at Saicumbane, near Xai-Xai, around a hundred 2.75 m units of the CWD-2740 model have been made for the owners of small holdings of 1 or 2 hectares. Tests with a lightweight 2m prototype, also designed by the Dutch Consultancy Services Wind Energy Developing Countries (CWD), hold great promise for the many families which cultivate smaller plots in the valley of the Limpopo.

The potential for windpump installation along the Limpopo and other rivers runs into the thousands. However, ongoing fighting in Mozambique has made pump-maintenance in the fields of the 100 km long valley increasingly difficult.

Winds in the Limpopo valley are around 4m/s in a steady diurnal pattern; meager for wind turbines, but just fine for windpumps. The absence of really strong winds in fact is an advantage. Close to the river previous large scale irrigation with surface water has salinated the soil; at times so much water was drawn from the river

that the tide penetrated the fresh water upstream. The plots at the foothills have not been affected however and good groundwater is found at no more than a few meters depth.

A windpump can enable farmers to reap a third harvest from their land. But according to Dutch expatriate Ad van der Nat, who works on DPA's technical staff, their main concern is to guarantee two rain-fed crops, because the rainy seasons have been erratic over the last years. With parts for engine pumps virtually unavailable and diesel supplies unreliable, a windpump is in fact their best guarantee.

The high groundwater table makes the low cost, local production design of CWD quite feasible. A simple piston pump, mounted above ground, suffices. Van der Nat: "We don't have to worry about the water hammer problems such relatively fast running machines may run into when pumping from great depths. Since the five pilot units were installed in 1983, technical problems have been the least of DPA's worries".

"Without local production windpumping wouldn't be feasible at all. The hard currency constraints are suffocating". The CWD-2740 sells for 550.000 Metical. Officially this is the equivalent of US \$ 765, but on the black market the Metical fetches less than half the official rate. To back the Metical and create room for their own investments, the Mozambican authorities generally require that the value in local currency of imports with foreign sponsoring is deposited in a special fund. If this rule were applied to windpump manufacture, few farmers could afford one. In accordance with the promotion of small scale agriculture decided upon at the fourth party congress, only 20 percent is demanded from DPA for the raw materials it uses in its windmills.

Another means of keeping the initial investment down is operation of the windpump without a storage tank. The water stored in the topsoil sustains many crops over windless periods. If a farmer later on wants to plant more demanding crops, he can hire a DPA crew to build a tank. Cement, as all raw materials, is unavailable elsewhere if you can only pay in local currency. "The agricultural aspects of windpump use have really not had enough attention", adds Van der Nat. "There is no irrigation tradition in the region. I'm sure there is plenty of room for improvement of farm economics through extension work. Hopefully we will find funds and get permission from the Dutch authorities for a mission of a CWD agronomist. A credit scheme is already being discussed with the Mozambicans."

A technical man himself, Van der Nat also has high expectations of the experimental floating valve which has now been introduced for the pump of the 2m prototype. It facilitates start-up and through the better use made of low winds, the 2m CWD-2000 with floating valve outperforms the CWD-2740. "The market for such a machine will be gigantic", says Van der Nat.

On the other hand, he thinks the scope for wind turbines is very small. Supply of hydro-electricity and grid penetration are quite good. That is also why the DPA windpumps are not used for village water supply. Though the direct lines from the Koborabassa Dam to the capital are cut, those to South Africa are miraculously immune to bandit attacks. Mozambique now re-imports its electricity from South Africa. In the Gaza province electricity from the grid is now available and affordable some 80 percent of the time, in spite of the detour.

For more information contact:

CWD, Consultancy Services Wind Energy Developing Countries
P.O. Box 85
3800 Amersfoort
The Netherlands

SOLAR PHOTOVOLTAIC PRODUCTS: A GUIDE FOR DEVELOPMENT WORKERS

Thousands of small solar powered devices are in use in developing countries for lighting, vaccine refrigeration, water pumping and other important development applications. Most of these have been purchased in small numbers by individuals, private voluntary organizations and donor agencies. The number of systems currently in use is extremely small compared to the potential demand. A major reason for this is a lack of objective, impartial information on products available in a form suitable for development workers. Often photovoltaic products are mistakenly considered R&D products rather than commercially available equipment.

To meet this need I.T. Power and the Beyer Institute have produced a guide to photovoltaic products, to be used by individual and institutional purchasers in developing countries. The guide has been sponsored by the Swedish Missionary Council Office for International Development Co-operation. The main purpose of the guide written by Anthony Derrick, Catherine Francis and Varis Bokalders, is to provide assistance in selecting photovoltaic systems for water pumping, water treatment, lighting, reaggregation, communication and various other small-scale applications.

The Guide is in A4 format, has 127 pages and costs £12.50 (excluding postage). It can be ordered from:

Intermediate Technology Publications, Unit 25,
Longmead, Shaftesbury, Dorset, SP7 8PL, UK.

For further information on I.T. Power activities please contact Anthony Derrick at:

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United Kingdom.

TABLE OF CONTENTS

	Page
* Community involvement: lessons learned	1
* Management and organization aspects in evaluation need improvement	3
* Short course on management for sustainability will be repeated	4
* Course on all aspects on the use of wind energy for water pumping	4

COMMUNITY INVOLVEMENT: LESSONS LEARNED
Have you heard this before?

"We drilled a well and installed a handpump but no one maintained it and it was quickly broken."

"People were encouraged to drink water from the new protected supply but they don't seem to understand."

"Even though we paid for all of the capital costs, people are unwilling to pay for chlorination and pumping."

Complaints such as these can be heard in almost any office with responsibilities for water and sanitation development. Greater community participation is often viewed as the solution to such problems, but there is little agreement about the forms it will take, the costs in time and manpower, and implications for programme organization and manpower development.

IRC has a long-standing reputation for its work on community participation in water supply and sanitation projects. From selected and condensed information published in literature reviews by IRC and recent advice work on the involvement of women, a number of lessons emerge which may be useful for the work of various IRC Newsletter readers. The following is a selection of conclusions under fifteen headings based on the work done on this subject for UNDP, DGIS, (the Dutch Directorate General for International Co-operation) and NORAD (the Norwegian Agency for International Development).

1. Need for community participation

There is overwhelming evidence that water and sanitation projects often fail to achieve their longer-term goals of reliable functioning, general use and progressive development. Community participation based on joint planning and decision-making helps to serve more people with reliable and acceptable budgets

and can be a catalyst for further community development.

2. Development of models

With adequate political readiness and sufficient support, community participation models can be developed which are applicable in large-scale water supply and sanitation programmes. Measuring social and political readiness is suggested for various types and intensities of community participation. Although achieving desired levels of community participation is sometimes very complex, it appears to be cost-effective and to promote better use of facilities.

3. Assessment and exchange of experience

Better use can be made of existing community participation experiences with improved documentation and dissemination of results. Assessing results of varying levels of community participation in ongoing programmes in a particular country or region can encourage use of field experience in national programmes and policies and stimulate inter-programme co-ordination among programme planners and donors.

4. Planning and decision-making

Prior to the Alma Ata declaration and the proclamation of the International Drinking Water Supply and Sanitation Decade, it was generally assumed that a level of community participation equivalent to compliance with official requests would be sufficient. The present trend is toward joint decision-making between agency and community organization representatives in charge of water supply or health. Clearly defined rights and responsibilities and training are integral parts of this community-based approach to improved water supply and sanitation.

5. Maintenance and use

Concern for and maintenance of water supply and sanitation systems is often associated with convenience and a pride of ownership which comes from early involvement in decision-making, rather than with considerations of health protection. Organized community action also puts peer pressure on residents to accept new technologies and behavioural patterns.

6. Involvement of women

An impressive amount of field material shows that women play important roles in achieving project

success through participation in local planning, design and management. Nevertheless, they continue to have only limited involvement in large-scale programmes. Participation of women should be systematically encouraged by indicating during project identification and programme planning how and for what purpose they will be involved in each phase of the project, and by allocating required resources for project staff, research, training and financing.

7. Community financing

More flexible approaches stressing community choice, affordability of options and locally appropriate financing systems are emerging to enable communities to meet recurrent costs of improved water supply and sanitation. In some programmes communities also contribute to capital costs through long-term loans. Actual terms depend on local socio-economic conditions and may vary from zero to 100% repayment over a period of 20 years.

8. Project cycle

There is a danger in inviting local participation too late in the project planning and implementation process. During pre-planning at the local level, organized community support in data collection and problem identification can already influence future relationships and lay a basis for partnership.

9. Planning of community participation

The professional caliber of planning required for technical aspects of water supply and sanitation projects is also needed with respect to community participation. Social scientists have played valuable roles in vital data collection, in anticipating potential pitfalls, in developing and testing community participation procedures as part of new or ongoing projects, and in training field workers, including preparation of very useful field manuals.

10. Organizational demands and financing

Community organization and education processes leading to high and appropriate levels of community participation require sufficient time, specially trained manpower and enough flexibility to cope with varying socio-economic and cultural circumstances. Each project plan should indicate how it will allow for this process and earmark reasonable and separate funds for this purpose. Experiences of present field programmes indicate that a reservation of 5% of the total project budget for community participation and hygiene education, as recommended by recent donor meetings, are on the low side for low-cost technology projects such as handpumps, wells and piped gravity systems.

11. Change of attitudes

Achieving higher levels of community participation sometimes requires painful changes within agencies, requiring greater flexibility, sensitivity and less

paternalism; as well as within communities which have come to expect governments to take care of them.

12. Water and sanitation for all

Marginal groups such as dispersed populations and people in low-income urban areas are too often excluded from large-scale programmes. Programmes which foster community self-improvements in water supply and sanitation, such as carried out by many non-governmental organizations, offer an excellent potential to serve these groups. They deserve greater and more co-ordinated support.

13. Urban areas

Community participation for improved water supply and sanitation in urban areas has received little attention from donors in spite of the realities of rapid urbanization, inadequacy of present types of services and high risks to public health. There is a need for a systematic and extensive review of current approaches and experiments to develop greater insight in effective community participation for various types of low-income urban areas.

14. Research

There is still a lack of systematic operational research on community participation in water supply and sanitation programmes. Reliable data are needed describing the cost-effectiveness of various aspects of community participation, including various levels of local involvement in planning, forms of decision making, innovative educational and motivational techniques, manpower training, and secondary benefits such as reduced health risks and productive use of water and time gains. To improve comparability of findings, donors should agree on a common definition of indicators used in such studies.

15. Follow-up of recommendations

A number of steps need to be taken to implement the above recommendations. Information about community participation and education should be made available in appropriate forms to officials in donor and national agencies with responsibilities for project planning and implementation. There is a need to promote the exchange of existing information about community participation at the region/country level and to generate additional information on selected issues such as cost-effectiveness of participatory approaches, community-based financing and management, socio-economic benefits at micro (community and household) level, and agency support and monitoring systems. Further, at the region/country level donor agencies and national governments involved in water supply and sanitation programmes need to clarify and co-ordinate their policies to ensure strong and consistent community participation activities.

IRC is currently working on a number of these issues in collaboration with other agencies. From 8-12 May IRC

hosted a meeting of 16 representatives from six countries and nine national and donor organizations involved in water and sanitation projects, convened by the German Organization for Technical Co-operation GTZ. Recognizing that water supply and sanitation projects should be based on community participation and hygiene education (CPHE), papers had been prepared prior to the meeting identifying basic components of CPHE common to such projects. The purpose of the meeting was to review these papers and to establish a strategy framework for CPHE.

The meeting concluded that community management is an absolute necessity for sustainable water supply and sanitation projects. The group also made three recommendations to the 1990 Committee: support of a promotional effort on CPHE to key target groups at the national and international level; stimulation of wide dissemination and integration of CPHE strategies into existing water supply and sanitation projects, adapting them to country specific realities; and ensuring that sustainability and capacity building at the community level are a driving force, and as such integrated into the processes of planning and construction of improved facilities.

MANAGEMENT AND ORGANIZATION ASPECTS IN EVALUATION NEED IMPROVEMENT

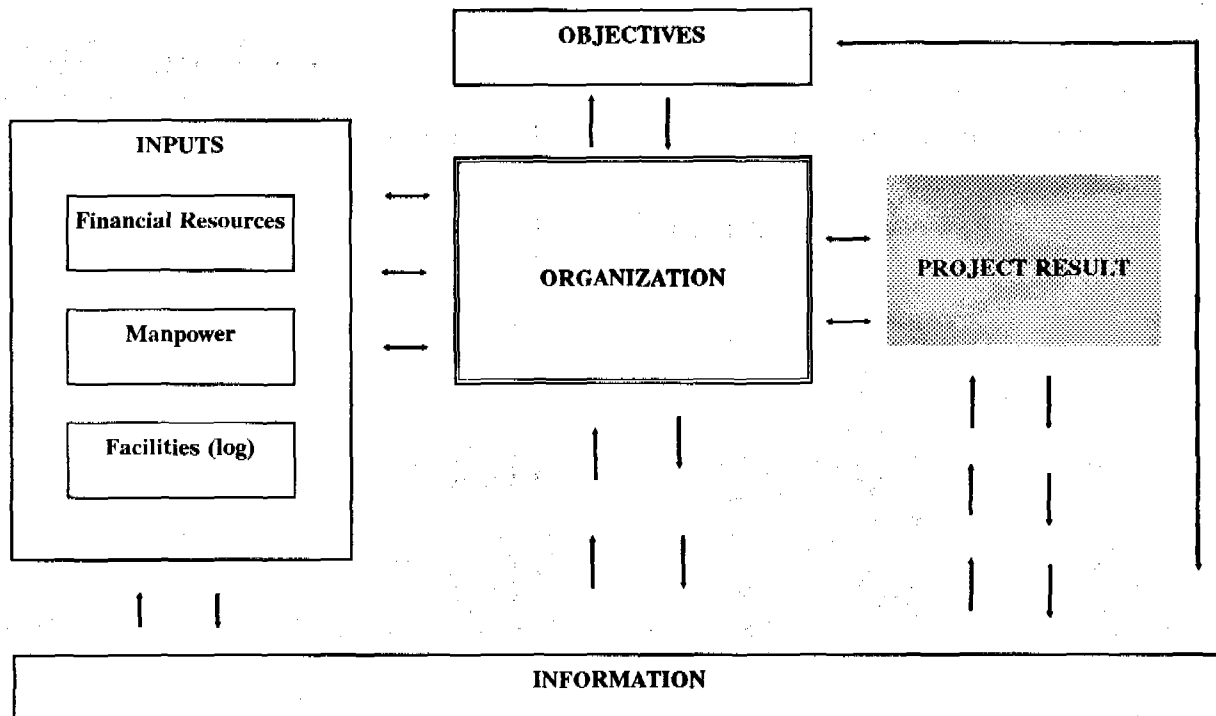
The attention given to management and organization aspects in evaluation of donor-assisted projects in developing countries is insufficient and needs to be improved. This is the main conclusion of a study on this subject by two graduating students from the Agricultural University of Wageningen. In their three-month study at IRC they looked at an initial

selection of 270 reports dealing with evaluation of community water supply and sanitation projects and programmes. For their actual research they selected and screened 47 reports and interviewed experts within and outside IRC.

The researchers found that evaluation of management and organization aspects is seldom carried out systematically. For example, project inputs in terms of manpower, money and materials are often not related to project objectives and strategy. Overspending of budgets is seldom explained, and logistical problems are often only described while no causes or integrated solutions are given. Although manpower availability is usually covered, little attention is given to personnel management. The infrastructure is usually not mentioned, the organization is not properly analyzed and there is little information on decision making processes and community involvement. Evaluation reports contain little on use of information for project management.

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

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



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

SHORT COURSE ON MANAGEMENT FOR SUSTAINABILITY WILL BE REPEATED

Following the success of the first short course on management for sustainability in water supply and sanitation programmes, IRC and the Management for Development Foundation (MDF) will repeat the course from 6 to 24 November 1989.

Participants of the first course held from 22 May to 9 June, consisted of seven individuals from UNICEF, the Netherlands and project managers and senior staff from Zambia, Tanzania, Kenya, Sierra Leone, Honduras, and Yemen Arabic Republic. The course addresses management for sustainability by reviewing relevant aspects of the problem, and relating the acquired knowledge to the project environment of each participant. The course was jointly evaluated and participants emphasized that it clearly fills a gap left by existing training courses. They also suggested valuable improvements which will be incorporated in the second course later in the year.

The improved three-week course programme for November 1989 includes four blocks:

Block I Management for Sustainability

- Elements for sustainability
- Case presentation by project manager
- Identifying constraints
- Role of the project manager

Block II Planning for sustainability

- Project goals and objectives
- Management information and monitoring
- Monitoring of functioning and use of facilities
- Project organization and activities
- Reporting

Block III Key factors for sustainability

- Institutional development
- Maintenance system development
- Cost recovery
- Role of user communities
- Technology selection

Block IV Project framework

- Identifying project activities
- Assessment using sustainability criteria
- Allocation of project resources
- Development of management indicators
- Presentations

The course will be most useful for project managers of rural and peri-urban water supply and sanitation programmes as well as planners and programme officers supporting and monitoring these programmes. It is expected that the participants will draw from their own experience to contribute to the course and will exchange experiences with other participants. For this reason, the course is not suitable for junior staff.

The course fee for the adapted course remains US\$ 3000 per participant, not including hotel and daily expenses. Applicants are invited to write IRC indicating their sponsoring organization or project, upon which they will receive an application form.

COURSE ON ALL ASPECTS OF THE USE OF WIND ENERGY FOR WATER PUMPING

The University of Reading (in the U.K.) and Consultancy Services Wind Energy Developing Countries (CWD) are jointly organizing a comprehensive course on all aspects of the use of wind energy for water pumping from 31 October through 8 December at Twente University Holland. The tuition fee is Dfl. 5.400,=. Further details are available from: CWD

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UNDP-World Bank
Water and Sanitation
Program

Donor Cooperation to Bring Safe Water and Sanitation to All

Supplement no. 6 to IRC Newsletter 184

Following is an informal progress report by the UNDP-World Bank Water and Sanitation Program on its joint activities with other members of the international donor community to keep the momentum and spirit of the International Drinking Water Supply and Sanitation Decade going.

The 1990 Delhi Conference

A global conference on water supply and sanitation for low-income populations, focusing on strategies for extending sustainable services to the unserved in the 1990s and beyond, is planned in New Delhi, India, Sept. 12-19, 1990. The conference will be organized by the UNDP-World Bank Program on behalf of UNDP and hosted by the Government of India (GOI). A tentative agenda has been prepared and is being discussed with the GOI.

RWSG Developments

The Regional Water and Sanitation Group (RWSG) for East Asia and the Pacific has gone into operation in Singapore, and major management changes have taken place in the other RWSGs as well. Saul Arlosoroff, formerly UNDP-World Bank Water and Sanitation Program Manager at Washington headquarters, heads up the East Asia group. Arlosoroff replaces Gerhard Tschannerl, who had been serving as acting group manager from his Beijing post. Arlosoroff is one of the founders of the UNDP-Bank Program and has been a forceful advocate in support of better water and sanitation services for the poor in developing countries. Tschannerl will work closely with Arlosoroff and continue his responsibilities for the countries in East Asia where he has been active.

Tauno Skytta has become the first manager of the new South Asia RWSG headquartered in New Delhi, India. Skytta has been with the Bank since 1976 and with the Program from 1982 through 1986

in Nairobi. Working with him in Delhi will be Wendy Quarry, a community development specialist; Arun Mudgal, a production engineer; and Robert Boydell, a senior rural water and sanitation specialist, who joins the group from Washington headquarters where he was the program officer handling South Asia.

Alain Locussol left Washington in April to take over as manager of the West Africa RWSG. He replaces Gunter Heyland, who has retired from the Bank. The West Africa group has brought on board a financial analyst, Uche Mbanefo, formerly World Bank Resident Representative in Zambia, who is familiar with alternative financing schemes.

In the East Africa RWSG, John Blaxall will be taking over as manager from Lars Rasmussen on October 15. Blaxall has spent most of his career at the World Bank. His most recent assignment has been in the office of the Director of the Infrastructure and Urban Development Department. He previously served as Assistant Director of the Projects Departments for East Asia and Latin America. Rasmussen, who has been in Nairobi for three years, is moving to the Infrastructure Division of the World Bank Africa Technical Department.

National Professionals Training Program Proposed

The Program is proposing development of a UNDP-World Bank Water and Sanitation National Professionals Training Project. The project would strengthen the participation of local and regional professional staff in the Program and motivate young

professionals through intensive involvement in the sector. The project would seek out likely future decision makers and managers and place them for up to two years in the RWSGs or country teams to gain experience in a full range of sector activities. Start-up funding has been identified. If all goes as planned, we hope to have the first fellows in post by April 1990.

Project Launched in Kumasi, Ghana

The government of Ghana is investing 103 million cedis (US \$360,500) in a low-cost human waste pilot project in Kumasi city that may become a model for urban sewerage and sanitation programs throughout the country. The Kumasi Metropolitan Authority, the Ghana Water and Sewerage Corporation, and the University of Science and Technology have developed a detailed two-year work plan with UNDP and the World Bank. Local staff have been recruited and activities have started.

The project is being executed by the Bank and supported by a grant of \$664,000 from UNDP (GHA/87/016). Sanitation technology choice for each community will be based on: the community's willingness to pay, technical feasibility, and upgradability to higher levels of service. Technologies to be considered will range from ventilated improved pit latrines developed in Kumasi (the KVIP) all the way up to conventional sewerage. The public and private sectors and communities will be enlisted in the construction and maintenance of the system.

Another project component will set up a Training Network Center on water and sanitation technologies for low-income groups at the University of Science and Technology. The center will provide a focal point in Ghana for information on such technologies.

In Indonesia, a new Community Water and Sanitation Project has begun in conjunction with the Ministry of Public Works, the Ministry of Public Health, the Ministry of Home Affairs, and the National Planning Board. Approximately US\$2.6 million in funding from the Dutch Government and US\$1 million from UNDP (INS/88/005) will finance the project.

Project Document Signed for ITN Center in Zimbabwe

A new project (ZIM/88/006) was approved recently to establish an International Training Network

(ITN) center at the University of Zimbabwe in Harare. The center will be cofunded by the Norwegian Ministry of Development Cooperation and UNDP Zimbabwe. It will be represented on the National Action Committee subcommittee on Training and Education, and will work closely with the leading institutions now conducting research on low-cost water and sanitation in Zimbabwe. Courses also will be taught on communication, community development, teaching, and planning.

Mirzapur Study Completed, Reviewed at Bangladesh Workshop

A workshop was held in Bangladesh in May to review a report on the Mirzapur Study of the health impact of an integrated water supply, sanitation and health education project in Mirzapur, about 60 kilometers north of Dhaka. The workshop also reviewed manufacture of the Tara handpump, another component of the Mirzapur project.

The Mirzapur Study report, which will shortly be published by the Program, was prepared by Sandy Cairncross of the London School of Hygiene and Tropical Medicine. The Mirzapur project was carried out by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) under contract to the Program and was financed by the Canadian International Development Agency (CIDA).

A quasi-experimental design was used for the health impact study, in which two areas were studied over a period of four years. Data collection began in 1984, before any intervention, and continued until December 1987. One area of two villages (the intervention area) received an improved water supply, sanitation and hygiene package under the project, while three villages in another area (the control area) received no such intervention. The two areas were five kilometers apart.

The findings showed that the incidence of diarrhoea in the intervention area fell to three quarters of that in the control area. The incidence and proportion of persistent diarrhoea episodes and the incidence of dysentery also fell in the intervention area by comparison with the control area. The biggest difference between the two areas was in the proportion of days on which the average child suffered from diarrhoea; in the intervention area the prevalence of diarrhoea in small children was reduced by half.

TABLE OF CONTENTS

	Page
* Pace of work quickens on resources coverage for sustainability	1
* World Health Assembly calls for sustained effort during the 1990's	4
* Globe '90, International Environment Industry Trade Fair and Conference	4

PACE OF WORK QUICKENS ON RESOURCES COVERAGE FOR SUSTAINABILITY

Since our earlier Newsletter article (no. 177, August 1988) there have been a number of interesting developments in the area of resources coverage and cost recovery. These include inter-country and national workshops and meetings, field applications, and practical use of the material from the earlier consultations in various countries.

Most of these activities are direct or indirect follow-up to the Fourth Consultation on Institutional Development in Community Water Supply and Sanitation, held at WHO in Geneva in November 1988. In its role as WHO Collaborating Centre, IRC has been able to play a part in the promotion and support of many of these initiatives.

FORMATION OF A WORKING GROUP

Flowing from the consultations in 1987 and 1988 a 70-strong Working Group has been formed for Resources Coverage and Cost Recovery under the aegis of WHO. Comprised of senior sector officials from developing countries, representatives of external support agencies (ESAs) and private consultants, this group has been vital in reviewing, together with other interested agencies, the draft report from the Fourth Consultation, and in initiating the country level activities.

ACTIVITIES IN THE DEVELOPING COUNTRIES

Country-level activities related to the ongoing work have been reported from Kenya, Malaysia, Morocco, Niger, Philippines, Rwanda, Thailand and Zambia. The following examples are taken from Zambia and the Philippines, and are followed by some general conclusions from country level work so far.

Zambia

At the end of January, a sub-regional working group meeting was held in Mongu, Western Province, Zambia, with support from the Norwegian Agency for International Development (NORAD), IRC and the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Fifteen national representatives from Malawi, Zambia and Zimbabwe attended the meeting, as well as three resource persons from the Fourth Consultation. Volume II (largely community-managed systems) of the two-part meeting report of the Fourth Consultation was reviewed, and the approach was given a short try-out in the Water Supply Programme in Western Province. This field application provided good insights into the key aspects related to the sustainability of the Programme.

The Mongu meeting concluded that the principles of cost recovery and resource coverage outlined in the report appeared valid, and that they form a good potential framework for policy formulation, planning, project appraisal and evaluation. It was clear that government commitment will be essential for promoting sustainability through such an approach.

The meeting recommended further improvements to the methodology outlined in Volume II, and agreed on a linked series of action plans in all three participating countries and at the sub-regional level. The activities include national workshops in each country, field applications in ongoing projects, and subsequent review meetings to compare experiences. A call was made for ESAs to offer continuing support to these initiatives.

Philippines

In Manila, a National Workshop was held in April to validate the contents of the draft report of the Fourth Consultation. The 21 participants, representing water and sanitation-related government agencies, ESAs, NGOs and consultants, found the principles and guidelines set out in the draft report to be in accordance with existing practice. They recommended that the material be made fully operational through development of the report and initiation of follow-up activities. Field testing at the community level is currently underway in several communities and should be completed by mid-September 1989, and further government initiatives on improved cost recovery and sustainability approaches are being implemented.



Observations

The country level experiences in discussing and applying the methodologies put forward in the Fourth Consultation Report, yielded several general observations:

- Emphasis should be placed on "sustainability", (which conveys a two-way flow of resources, together with community as well as agency decisions and responsibilities), rather than on "cost recovery", which implies a one-way flow of cash only.
- In countries where responsibilities for water supply and sanitation are decentralized, field applications should embrace a range of activities at national, regional and local levels, and provisions should be made for evaluation of results at each level.
- There is a need for two types of additional documents: one which can be easily used as a comprehensive guide for application in countries and one that is appropriate for use by political decision-makers at all levels.

MEETING ON MOBILISATION OF RESOURCES FOR WATER SUPPLY AND SANITATION

On behalf of WHO, IRC hosted a consultation and planning meeting on Mobilisation of Resources for Water Supply and Sanitation on 18 and 19 July 1989. The consultation was a follow-up to the Fourth Consultation held at WHO in Geneva last November, and was specifically targeted at helping plan and co-ordinate the support from interested ESAs to future work. In line with the partnership approach to planning, the 12 participants who met in The Hague in July represented both the ESAs and developing countries themselves. The main objective was discussion and agreement on a co-ordinated workplan for resources coverage and cost recovery, particularly for future support to country-level activities and material that would stimulate and assist this.

The group reviewed recent country level and international work, as well as discussing how to proceed with current and planned activities, which include: finalization of the latest cost recovery meeting reports; preparation of further user and policy level documents and their promotion and dissemination; and field application and adaptation at country level.

ESAs Agree on Importance of Sustainability

While all the ESAs present in The Hague agreed on the approach to sustainability, they each have their own preferences in promoting and supporting its implementation. Some prefer to react to country requests rather than to make inputs to inter-country programmes, while others prefer collaborative arrangements in the framework of broader regional support programmes. All the ESAs wish to see further direct country-level activities evolve.

Although some ESAs would consider supporting specific activities, most would find it easier to build resources coverage/cost recovery activities into existing investment-related projects and programmes. They all emphasize the importance of strengthening institutions at country level and of working through national and decentralized frameworks.

The ESAs agreed to further collaborate on the development and promotion of application of the sustainability methodology through such mechanisms as field applications, training and publications. The need to supplement the guidance material with advice on how to choose suitable indicators for monitoring and evaluating its impact on sector development was also emphasized.

The agencies present at the meeting indicated that they also had a number of specific areas of interest for the short and medium term.

Framework for Action

An Action Plan which met with the agreement of both developing countries and ESA representatives was formulated, consisting of two main elements: the further development of *guidance material* and further *country-level applications*.

It is hoped that in the coming year, the exchange of information between members of the Working Group and other interested agencies will be intensified, so that the publication of the *guidance materials* will correspond to country needs and can be followed by appropriate country-level activities.

The first step in the further development of the *guidance materials* is the finalization of the report of the Fourth Consultation by 15 October. Publication in English and French is expected before 15 November 1989.

Preparation of further guidance material includes *a brief for policy makers* from developing countries and ESAs (in draft form before November 1989 and in final form before July 1990), and also before July 1990, separate *guides for largely agency- and largely community-managed systems*. Both guides will contain general principles, objectives, processes and applications.

The targets for completion of the guidance materials have been set to ensure their earliest possible use at the country level, as well as feedback in the early stages of their use. The timing is also such that an outline of the brief for policy makers can be presented at the sixteenth meeting of the Steering Committee for the IDWSSD in October 1989, and a first draft can be presented to the Collaborative Council at its meeting in November. Finally the two guides, scheduled for completion before July 1990 should be ready for presentation at the End of Decade Meeting in New

Delhi late in 1990. The use of the newly developed guidance material will be promoted through the 70-strong Working Group, journals and newsletters, and regional and country-level workshops and seminars. In the meantime, the report of the Fourth Consultation will be used in the continuing field applications.

The participants of the meeting agreed upon eight main areas of potential *country-level application*:

- institutional development and human resources development, in particular, on-the-job and formal training;
- sector policy formulation;
- sector, programme and project planning;
- project appraisal;
- project implementation;
- operation and maintenance;
- project monitoring and evaluation;
- case studies to gain insights into project experiences.

CONTINUING WHO AND IRC ACTIVITIES

WHO will finalize the report of the Fourth Consultation and co-ordinate subsequent preparation of guidance material, with appropriate inputs from IRC. WHO regional offices have expressed interest in carrying out country activities, for example in Malaysia and Portugal. Further, WHO will make presentations based on the guidance material at several international meetings including World Water '89 in London in November. WHO will also contribute to a new training programme on wastewater re-use, in which the guidance material will be used in preparation.

IRC sees many opportunities for application and promotion of the guideline principles in its ongoing support work, particularly in its demonstration projects, advisory and evaluation services, in training, and through incorporation in its future publications. IRC would continue its support of country level initiatives, should financial resources be made available for this work, and also would help link them together through regional activities. IRC's earlier work on community-based financial management could be further developed in co-operation with other ESAs, to assist in the application of the approach at a practical level.

EXAMPLE OF ON-GOING PROGRAMME ON COST RECOVERY

As a result of the NORAD-funded sub-regional workshop on cost recovery held in the Western Province Zambia in January, the Water Department of the Malawi Ministry of Works and the Centre for Social Research at the University of Malawi recently jointly prepared a proposal linking together a series of

cost/resources coverage activities. The proposal, presented to and accepted by the Netherlands Directorate General for International Co-operation, will benefit the Malawi water and sanitation sector as a whole, and will enhance the ongoing DGIS-funded and IRC-supported Piped Supplies for Small Communities project in Malawi. DGIS will fund the project with a grant of DFL 44,000.

The objective of the activities is to field test and adapt the draft guideline manuals developed during the earlier consultations, and to gain some insights for future Malawi policy discussions on the issues of sustainability and resources coverage.

Through a national workshop with approximately 15 participants, the draft guidelines will be introduced to a multi-sectoral group comprised of ministerial and institutional participants concerned with water supply and sanitation. Participants will be trained in practical field use of the guidelines, data collection methodology will be developed, and a team with a multi-sectoral outlook will be formed to carry out field work.

Subsequently, three water supply and sanitation projects will field test the resources coverage approach. Data will be collected, a professional meeting will be held to analyse the data, a preliminary report will be drafted, and finally, a sub-regional follow-up meeting will be held to link in with the findings from other countries in the region.

Similar activities are underway or being planned in Ethiopia, Zambia and Zimbabwe. As reported by WHO at the recent meeting in The Hague, other country level activities are also planned in other countries which have shown interest in joining these linked initiatives.

It is clear that the earlier joint work on resources coverage/cost recovery in Geneva, The Hague and at country level, is meeting a need felt widely by national agencies involved in water and sanitation, for practical guidance on these issues. In large measure this success reflects the nature of the approach adopted by WHO and, in support to the work, by IRC and other participants:

- wide consensus
- early involvement of key developing country representatives
- emphasis on practical guidance
- early transition to country-level activities, linked through the Working Group.

In this way, as well as providing specific guidance, the work on resources coverage/cost recovery may well act as a model for work in other crucial areas of future sector development.

WORLD HEALTH ASSEMBLY CALLS FOR SUSTAINED EFFORT DURING THE 1990'S

In its May meeting, the Forty-second World Health Assembly adopted a resolution calling for a sustained effort to enable activities initiated during the International Drinking Water Supply and Sanitation Decade to be extended and intensified during the 1990's. The assembly requested WHO to submit a progress report at the end of the Decade for the Forty-fifth Assembly in 1992, as well as its updated strategy for water supply and sanitation within the framework of the health-for-all strategy.

The Assembly noted that despite the significant progress to date in expanding services during the Decade, over 1100 million inhabitants of developing countries, particularly in rural areas, still have no access to an adequate and safe water supply, and approximately 1800 million have no appropriate facilities for excreta disposal.

In view of rapid population growth, particularly the continued urban expansion, service coverage will begin to decline if programme implementation is not accelerated. The WHO assembly urged member states to:

- develop strategies and plans to accelerate the implementation of national water supply and sanitation programmes as integral components of national health policies;
- expand development of this sector during the 1990's with emphasis on the rural underserved and the urban poor;
- adopt innovative approaches to the promotion of financing water supply and sanitation programmes, including economic incentives, cost-sharing procedures and devices such as revolving funds geared towards the achievement of maximum coverage of needs.

The Assembly urged external support agencies to:

- increase funding for the water supply and sanitation sector, with special attention to the least developed countries;
- improve information exchange, co-ordination and co-operation, particularly at country level, in order to increase the effectiveness of their support to national programmes.

The WHO regional committees were invited to review regional policies and strategies for the provision of safe water supply and adequate sanitation, and accordingly reaffirm the priority accorded to those programmes as essential to the maintenance of community health.

WHO's Director General was requested to play an active role in co-ordination and collaboration within the global framework, which was established in 1988 with the consensus of external support agencies, to assist the governments of developing countries in achieving the widest possible provision of water supply and sanitation services in the years ahead. He was also requested to explore, with partners in the United Nations system, the desirability of extending the formal framework of the Decade until the year 2000.

GLOBE '90, INTERNATIONAL ENVIRONMENT INDUSTRY TRADE FAIR AND CONFERENCE

From 19-23 March 1990, the Canadian Government will be hosting GLOBE '90, North America's first International Environment Industry Trade Fair and Conference in Vancouver, British Columbia. The event will serve as a meeting place for the discussion of constructive business approaches to resolve environmental issues. It will bring together industrial and government users and suppliers of environmental products, services and technology; and international lending institutions to seek creative business-oriented solutions to environmental challenges.

The Conference will focus on practical solutions for transforming critical environmental issues facing government and industry into cost-effective, profitable business opportunities, while the Trade Fair will offer a unique opportunity for the international environment industry to present its products and services to user companies and key decision makers.

GLOBE '90 will officially be sponsored by the federal and provincial governments of Canada, and co-sponsored by major national and international associations and financial institutions. More information can be acquired by writing to:

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TABLE OF CONTENTS

	Page
* ESA Collaborative Council to hold second Meeting	1
* UNICEF: US\$ 69 million to WATSAN in 1988	3
* World Bank: US\$ 791 million in loans to ten countries	3
* UNDP launches "Source"	4
* WEDC hosts 16th conference: infrastructure for low-income communities	4

ESA COLLABORATIVE COUNCIL TO HOLD SECOND MEETING

From 28 November to 2 December the Collaborative Council for External Support Agencies (ESAs) in the water sector will hold its second meeting at the headquarters of CEFIGRE in Sophia Antipolis (France), hosted by the French Government.

The meeting will focus on the following objectives:

- to define strategies for the sector in developing countries in the 1990's including lessons from the Decade;
- to examine the future collaborative work programme and the corresponding resources, including the preparation of a global meeting to be hosted by India in New Delhi in September 1990.

The meeting of the 1990 Committee of the Collaborative Council held in Geneva in May laid the groundwork for the upcoming meeting. In Geneva the 1990 Committee reviewed the reports of temporary working groups (TWGs) and developed proposals for promoting further activities by ESAs at country level, regionally and globally. Representation of developing countries and NGOs in Collaborative Council activities, as well as proposals for additional temporary working groups on Institutional Development and Operation and Maintenance were also discussed.

TWG-Applied Research

The Committee endorsed the four global objectives which form the framework of the TWG-Applied Research: expansion of service coverage and enhancement of existing service coverage; maximization of service benefits; sustainability of coverage and service provision; and environmental sustainability of water supply and sanitation efforts. It also added two extra areas of emphasis: recognition of problems in

low-income urban areas, and the need to develop low-cost and appropriate water supply and treatment technologies, including desalination for arid and semi-arid areas.

The TWG's report, which reviewed current research activities and needs, has since been updated by WASH for wide circulation, incorporating modifications suggested at the meeting.

TWG-Communication of Information (TWG-INFO)

The report of the TWG-INFO was also endorsed by the 1990 Committee (see NL 182, April 1989). Based on the conclusions of the meeting, the Chairman's Office and Secretariat were requested to:

- seek support for a feasibility/programme definition study to further the development of a Public Information and Promotion (PIP) approach for the 1990s;
- Urge ESA's to adopt and strengthen 'Communication of Information' as an essential element of proposed water supply and sanitation programmes and concepts;
- promote further development of country project proposals based on preliminary projects in the TWG's report;
- nominate and seek support from leading agencies for assistance to country-level activities; and
- encourage activities leading to standardization of information tools and reporting systems.

Country-Level Sector Support

Country-level sector support, a focal point of the upcoming meeting, also received significant attention. It was reported that the CESI (Country External Support Information) system is now fully operational for exchanging project information among 40 participating ESAs. Other ESAs are urged to contribute to the CESI programme fund established by WHO.

Activities initiated since the Collaborative Council's first meeting in Paris in December 1988, which were directed towards promoting coordinated sector support at the country level, were reviewed on the basis of written reports of regional meetings.



Asia

After an informal regional meeting in Manila, the Asian Development Bank assembled a task force to prepare a regional consultation in June 1990. The approximately 20 countries who will be invited will discuss the main obstacle to rapid sector development in the region: the lack of well-thought out sector strategies. At least five Asian developing countries will be invited to present their comprehensive sector strategies at the consultation, and many others will present what plans they have.

Latin America and the Caribbean

A Round Table Meeting of managers of water supply and sanitation agencies held in Washington D.C. in May identified institutional weakness as the major constraint facing many countries in the Latin American Region. The 1990 Committee endorsed the recommendation to establish sub-regional working groups within the Latin American Region to analyze institution development and organization, integrated planning of sector requirements, and appropriate technology. These sub-regional groups are seen as an important channel to the country level.

ESAs were urged to initiate country-level follow-up, based on the conclusions of the Washington meeting and the planned sub-regional working groups.

A second regional meeting is being planned in November for the Caribbean countries, with senior sector managers of the Caribbean and ESA representatives being among those invited.

The Chairman reported that the Inter-American Development Bank (IADB) had itself identified three major areas of concern: institutional development, environmental pollution and the role of women in the sector. Opportunities to collaborate with the IADB will be followed up.

Africa

The African Development Bank (AfDB), after reinforcing its own sector capabilities, may be prepared to host an informal meeting of ESAs to consider the scope of country-level sector support in the African Region.

A number of ESAs have invited co-financing proposals from individual countries through the AfDB's pipeline projects for the sector, for which the Bank is seeking joint financing. Other ESA's are urged to invite similar proposals.

It was reported that the UNDP/World Bank Rural Water Supply Groups (RWSGs) in Africa are holding discussions with several African countries seeking to host donor meetings, based on sector strategies which

would require ESA support for their preparation and implementation.

Arab World

Water and sanitation are seen as a priority sector in the Arab States. The Kuwait Fund has already been an active partner in the Collaborative Council, and the Arab fund has in principle agreed to join, and to assume a leadership role for coordination of ESA activities at the country level.

Proposed activities

To assist country-level sector support, a series of recommendations for action by ESAs, the Chairman's office and the Secretariat were formulated.

- ESAs were urged to review and comment on draft sector development guidelines, which had been developed by the UNDP/World Bank Programme.
- The number of countries requesting and receiving sector support should be increased substantially through promotion and follow-up by World Bank RWSGs, individual ESAs and the Chairman's Office. ESAs were urged to provide continued support to the RWSGs, to assist in rapid follow-up to country requests for assistance.
- A 'co-ordination facilitator' in a government sector agency should be identified in countries seeking assistance in the co-ordination of ESA support activities. A counterpart facilitator from the ESA community in the country should also be identified. The facilitators would assist all those involved in co-ordinating country-level ESA activities.
- A summary of issues raised and conclusions drawn from the regional meetings in Asia and Latin America and from the UNDP Resident Representatives' information on country level sector support should be prepared for discussion at the November meeting of the Collaborative Council.
- WHO will report on relevant aspects of the Decade Assessment, which was being prepared for the UN General Assembly. WHO was also requested to invite a report from the Steering Committee for the International Drinking Water Supply and Sanitation Decade on plans for end of Decade activities.
- ESAs were urged to respond to the Secretariat's request for information on the regions and/or areas where they may be willing to support developing country requests for sector development assistance.

Discussions about the relationships between ESAs, The Collaborative Council, the Framework for Global Cooperation, and developing country governments led to an agreement that "The common purpose of all recommended activities is assistance to developing

countries in their aims to strengthen sector strategies and thereby substantially extend service coverage. The Collaborative Council's role is to help countries, donors and NGOs to co-ordinate their activities within the country towards that purpose. This will include sharing of experiences and adoption of agreed strategies at subregional, regional and global levels, where appropriate, using the Framework for Global Cooperation", which was formally established at the meeting in The Hague in November 1988 (see Newsletter no. 179; December 1988).

UNICEF: US\$ 69 MILLION TO WATSAN IN 1988

"From the age of six months onwards, the environment of the child is the community. Help the community to develop essential services, provide access to safe drinking water, sanitation, immunization and basic health care, and the child will have the necessary protection to develop into a healthy, productive citizen." UNICEF's Executive Director James P. Grant spreads a few interesting messages in the Annual Report 1989, which we in the community water supply and sanitation sector should take to heart.

Safe water supply and basic sanitation can be had for about US\$ 6 per person per year, Mr. Grant continues. "In every area of human need it is now possible to make significant progress thorough relatively modest shifts in resources which are very often weighted against the poorest and neediest groups in favour of those who are better off." The UNICEF director gives examples from the health sector. Hospitals, doctors and medical technologies which reach only 15% of the population, often claim 60 to 80% of the budget. In education, more than half of total government spending is often allocated to the 10 or 20% of students from higher-income groups who go to secondary schools and universities.

In water and sanitation, 80% of the US\$ 12 billion now being spent each year is devoted to services for better-off urban groups. To remedy this situation Mr. Grant calls for political will, modest resources and a reallocation of priorities to mother and child care.

The annual report also describes the achievements of UNICEF in the water and sanitation sector. During 1988 UNICEF co-operated with 90 countries in WATSAN (water and sanitation) projects or activities, with a financial input of US\$ 69 million. Of these projects 38 are in Africa, 22 in the Americas and the Caribbean, 21 in Asia and nine in the Middle East and North Africa.

Some 109 000 water supply systems were completed during the year, including 93 342 wells with handpumps installed, 2642 standpipes, 10 389 improved traditional sources and 2257 yard taps and household connections. An estimated 20 760 000 people benefitted from these services. Also completed in 1988 were 228 930 sanitary excreta disposal facilities for about 1 577 000 persons.

WORLD BANK: US\$ 791 MILLION IN LOANS TO TEN COUNTRIES

In the World Bank's activities water supply and sewerage only play a minor part, and concentrate mainly on urban water supply and sanitation. This becomes clear from the Bank's 1989 Annual Report. By June the Bank had approved loans to ten projects totalling US\$ 791.2 million, of which US\$ 222 million were IDA loans under soft conditions. This compares to six project loans approved in 1987/88 totalling US\$ 535.3 million.

Under the IDA arrangement Pakistan is the largest recipient (US\$ 125 million), for a second water supply and sanitation project in Karachi. Other IDA loans were approved for Ghana: US\$ 25 million, for strengthening the Ghana Water and Sewerage Corporation; Guinea: \$40 million for investments in the water supply sector and institutional reforms; Haiti: \$ 20 million for water supply in Port-au-Prince; and the People's Democratic Republic of Yemen: \$12 million for water supply and institution strengthening in Al Mukalla, the country's second largest city.

Under the IBRD loan arrangement the following project loans were approved (in US\$):

Brazil	280 million for strengthening of planning, revenue mobilization and operation in the São Paulo State Water Company
Egypt	36 million for improving water distribution by the Alexandria Water General Authority
Mexico	20 million for an integrated project serving 200 000 people
Nigeria	173.2 million for doubling of production and distribution capacities of the Lagos State Water Corporation
Yugoslavia	60 million for a water supply and sewerage project for the Sloven coastal region.

On June 30, 1989 the total of the cumulative lending operations of the Bank to the sector was US\$ 9.8 billion

or 4.37% of the IBRD/IDA loans. This was marginally down from the 4.45% in 1988.

In the 1989 report the World Bank does not mention the collaboration with UNDP in the joint UNDP-World Bank Water and Sanitation Programme and the joint activities with other members of the international donor community, which keep the momentum and spirit of the International Drinking Water Supply and Sanitation Decade going. Under this programme country level activities are carried out in Ethiopia, Ghana, Kenya and Nigeria in Africa; China, India, Indonesia and Pakistan in Asia; and Bolivia in Latin America.

UNDP-World Bank Regional Water and Sanitation Groups are operating in Abidjan for West Africa, in Nairobi for East Africa, in Singapore for East Asia and the Pacific, and in New Delhi for South Asia.

UNDP LAUNCHES "SOURCE"

The United Nations Development Programme (UNDP) has launched the new periodical "Source" to facilitate the flow of information about the new Collaborative Framework efforts. Within this framework the international community is collaborating to better contribute to improved water, sanitation and health education services in the developing countries between now and the end of the century.

"As we look toward the year 2000, environmental challenges confront humankind as never before. Our air, our forests, our lands and our waters are increasingly threatened", writes William H. Draper III, Administrator of UNDP in his message in the first issue of the magazine. "Even as nature's balance is put to the test, a major portion of humanity remains trapped in poverty - denied the bare essentials for a decent life. Clearly we must redouble our efforts and come up with bolder, more effective and concerted solutions to these problems."

In his message the UNDP Administrator also refers to the achievements in the past decade. Substantial progress has been made, but the goal is far from being reached. In less than ten years, new or improved water supplies have been provided to over 500 million people throughout the developing world. Better sanitation has been provided to 250 million, but only a small number of developing countries will attain universal coverage by 1990.

Continuing population growth in much of the developing world has made the task more difficult, Mr. Draper explains. In many countries rapid

urbanization has overwhelmed the capacity of city water, sanitation and waste management services. Economic austerity has slowed the pace of sector investments, and foreign aid commitments to water and sanitation have fallen short of expectations.

The Collaborative Council, with more than 40 donor aid institutions, is committed to increasing both the quality and quantity of water and sanitation investments from now until the year 2000. Together with other members of the UN family, UNDP is assuming a key role in this new partnership.

WEDC HOSTS 16TH CONFERENCE: INFRASTRUCTURE FOR LOW-INCOME COMMUNITIES

The Water, Engineering and Development Centre (WEDC) of the Loughborough University of Technology, Leicestershire, UK will be holding its 16th Conference in Hyderabad, India from 27-31 August 1990. The conference concerns 'Infrastructure for Low Income Communities', and will deal in detail with various aspects of planning and improvement of both urban and rural communities. More general subjects such as low-cost sanitation, community participation and involvement of women, financial and management aspects, and health education will also be part of the programme.

The conference is intended for those actively involved in the planning, management, construction, operation, maintenance and use of infrastructure for low-income communities in rural areas or in towns and cities.

Offers for papers are now being called for the conference, with particular interest going out to contributions from women authors and about women's involvement in infrastructure. The co-organizers will also be pleased to receive offers of papers about the involvement of non-government organizations in the provision of infrastructure, as well as offers of papers from authors who are working for or with NGO's. The deadline for offers for papers is 31 December 1989.

The conference fee will be £200. Additional information can be obtained from:

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The Water and Sanitation for Health Project: Multidisciplinary Technical Assistance and Information Sharing

Supplement no. 1 to IRC Newsletter 186

The Water and Sanitation for Health (WASH) Project was established in 1980 by the U.S. Agency for International Development to provide technical assistance for host governments, AID missions and bureaus, and other agencies and organizations engaged in development activities. WASH, which works on a multi-year, multi-million dollar contract, functions as AID's water and sanitation technical assistance arm. All requests for WASH consultant services are channeled through the USAID Mission in the country where the assistance takes place and are reviewed by AID's Bureau for Science and Technology, Office of Health, for approval.

WASH does not carry out water and sanitation projects itself but instead provides those agencies and organizations which do with guidance, useful materials and methods, and the benefits of its experience so that they can do the best possible job in improving water and sanitation systems in developing countries. WASH works not only on the technical and engineering aspects of water supply and sanitation but also in the areas of community participation, involvement of women, hygiene education, training, and finance. These "software" aspects are of paramount importance if the systems built are to last and to bring about real improvements in people's lives.

WASH Information Services

In addition to carrying out technical assistance in the field, the WASH Project publishes a variety of reports on topics of interest to development practitioners concerned with water supply and sanitation. The following list highlights some of the most recent of these reports:

- * ***Training Guide for a Management Development Program in Water and Sanitation Institutions.*** This is the latest in a series of step-by-step guides for conducting technical training workshops. Other guides cover latrine construction, spring capping, rainwater catchment systems, the promotion of community participation, well improvement, and handpump installation and maintenance.
- * ***The WASH Catalog.*** This collection of six pamphlets covers health issues in water supply and sanitation; institutional and human

resources development; information and technology transfer; operations, maintenance, and finance; community participation and the role of women; and program and project development. Each pamphlet begins with a short overview of what WASH has learned about the topic followed by an annotated list of WASH manuals, guidelines, and conference papers on issues of common interest.

- * ***Pump Selection: A Field Guide for Developing Countries.*** This guide contains practical information about how to choose the pump and the power source best suited (and most economical) for a given local.
- * ***What Makes Hygiene Education Successful? Experience from Togo, Sri Lanka, and Yemen and Its Relevance for Project Design.*** This report examines the factors involved in the successful integration of water supply and sanitation and hygiene education.

Every year WASH publishes a Progress Report containing a cumulative list of all activities and reports and a brief review of the year's major activities and new undertakings. This Progress Report, like all WASH publications, is available upon request.

WASH Information Databases and Networks

The WASH Project runs three information-sharing networks: one on rainwater harvesting, another on peri-urban water and sanitation issues, and a third on guinea worm disease control.

The Rainwater Harvesting Information Center was established to serve as a focal point of collaboration and information exchange for individuals and organizations interested in rainwater catchment technologies. In addition to maintaining a documentation center and database, the Center is organizing a network of interested individuals and institutions.

In the summer of 1989, the Center conducted a survey of the network's 277 members to find out how the Center could be most useful and to gather information on what kinds of technologies are being used and with what success. This survey yielded valuable information and prompted some exchanges among members with similar problems.

Network members come from 80 different countries—76 percent from the Third World—and are involved in a wide range of rainwater activities: research and field trials, training, community participation, construction of cisterns, development of training manuals, and financing projects, to name the major ones.

The first issue of the Center's newsletter, *Raindrop*, was sent out with the survey questionnaire and was received so enthusiastically that the WASH Project decided to regularize its publication. In the next issue, which is due out in November, the spotlight will be on the importance of strong community participation in setting up rainwater harvesting systems.

WASH consultant, Carl Linblad, who is supervising publication of *Raindrop*, is excited about the role the newsletter can play in promoting rainwater harvesting around the globe. He hopes that network members will contribute articles. Two useful columns will be featured in each issue of the newsletter: "Information Resources," which will list available books and pamphlets, and "Technology News," which will describe some of the more recent experimental mechanisms for use with rainwater harvesting systems. In all issues of *Raindrop* the emphasis will be on practical, field-oriented information. Linblad, who is a member of the staff of VITA (Volunteers in Technical Assistance), worked on a rainwater harvesting project in Togo for USAID.

At present the Center's fast-growing rainwater harvesting document collection consists of nearly 300 reports, articles, and books. A specialized thesaurus was created to index the rainwater literature, and a bibliographic database was developed on dBASEIII+. The database, which is named RAINCOLL, allows for searches and retrieval of documents by keyword, author, title, country, and language. RAINCOLL has definitely filled a void in the literature. In 1984, a search for literature on rainwater harvesting was carried out on the major environmental and engineering databases. This search retrieved only five citations!

Aside from maintaining bibliographic and organizational databases, the Rainwater Harvesting Information Center responds to information requests and sends out reports and information packets. The Center recently provided comprehensive literature searches and information for rainwater research projects in India and Bangladesh. Access to the Information Center's database is available to any

member. For example, if one member works with ferrocement cisterns and wants to know the names of other projects with similar experience, he can simply phone or write WASH's librarian, Dan Campbell, being as specific as possible about what information is desired.

The WASH Project has carried out a number of field assignments on rainwater harvesting and has published a training manual for conducting a two-week workshop for local project promoters in rainwater systems. The manual provides step-by-step instructions for the workshop, including information on some of the most commonly applied catchment technologies.

The Peri-Urban Information Network was set up in response to the growing concern regarding the poor economic and social conditions of urban and peri-urban areas of developing countries. The network is a centralized databank of existing information about current projects, evaluations, lessons learned, and on-going research on urban and peri-urban water and sanitation problems. (In the coming year WASH will be carrying out some preliminary reviews of peri-urban issues to answer such questions as what type of water supply and sanitation systems are appropriate in peri-urban areas, how can such systems be built so that they are sustainable, and what is distinctive about peri-urban hygiene needs.)

The Guinea Worm Disease Information Center reflects the growing interest in the control and eradication of dracunculiasis (guinea worm) by the development community. Organizations such as the World Health Organization, the U.S. Centers for Disease Control, and the Global 2000 Project have made statements of commitment to address this problem. WASH has been involved in several guinea worm prevention consultancies and collaborates on a regular basis with the Centers for Disease Control by translating into French the quarterly newsletter, "Guinea Worm Wrap-Up." (Guinea worm disease is prevalent in several francophone African countries.) The Network aims to meet the need to gather, coordinate, and disseminate information about this debilitating disease.

All interested individuals and organizations are welcome to join any of the WASH information networks. To inquire about the networks, or to order any WASH publication, simply contact Dan Campbell at the WASH Project, 1611 North Kent Street, Suite 1001, Arlington, Virginia 22209, USA, telephone (703) 243-8200, fax (703) 525-9137, telex WUI 64552.

TABLE OF CONTENTS

	Page
* EC and ACP countries ban waste ex-import	1
* Hydro power	
- Hydraulic rams: consumers guide	1
- River current pumps: the sling pump	2
* International courses on renewable energy	2
* Overview of experience of Juntas Administradoras in Latin America	2
* IRC's briefing and training programmes in the 1990's	3

EC AND ACP COUNTRIES BAN WASTE EX-IMPORT

The European Community and 66 countries from Africa, the Caribbean and the Pacific have signed an agreement to completely ban export and import of dangerous chemical and nuclear waste. Although the United Kingdom and France were hesitant to agree, a meeting in Luxembourg in October to negotiate the fourth Lome Convention 1990-1995 ultimately resulted in the EC countries promising to stop exporting chemical and nuclear waste to developing countries. The ACP countries declared that they will no longer accept these imports, which in the last 18 months have resulted in some "profitable deals" for certain countries.

In the November 1988 issue (no. 178) we reported the outcry in the industrialized countries and Africa and Latin America about shiploads of dangerous toxic waste from western countries ending up at dumps in developing countries. Legally or illegally imported, this waste dumping causes health hazards and also endangers the quality of ground and surface water.

Though various European countries had already banned export of dangerous waste, it took more than a year of negotiation and lobbying in Brussels to get the remainder of the EC members behind this agreement. There were furthermore a number of ACP countries which did not want to lose the possibility of additional income from waste import. The final agreement on the

banning of the waste trade will be part of the Lome agreement.

HYDRO POWER

Hydraulic rams: consumers guide

The hydraulic ram is a self-operating water pumping device which can be used for pumping drinking water from a spring or stream to a tank or reservoir at a higher level. The ram utilizes the energy contained in the water flowing through it to lift a small volume of this water to a higher level. The principle involved is the pressure surge which develops when a moving mass of water is suddenly stopped (water hammer). A steady and reliable supply of water is required, and the fall between the source and the ram must be sufficient to operate the ram. Given these conditions, a well-made ram will pump an given amount of water to a height of about 20 to 30 times the supply head with an efficiency of about 40 to 70%.

The interest in hydraulic rams for rural water supply programmes is increasing because their simplicity, ease of operation and maintenance, dependability and cost effectiveness are attractive features.

This has led to a number of questions concerning their mode of operation and performance characteristics. The department of Civil Engineering at Delft Technical University in The Netherlands has responded to these questions by carrying out and publishing a comparative study of twelve commercial and newly designed hydraulic rams.

The 19 page 'consumers guide' is based on laboratory and field tests, and next to a general description of hydraulic rams gives information on basic requirements, site selection, design calculations, installation and maintenance, prices and operating costs.

The prices of hydraulic rams vary from US\$ 1000 to 3500. The research in Rwanda showed that this price is a small part (about 10%) of the total cost of a complete water supply system. Pipes and accessories on the other hand consume 45% of the total cost of a complete water supply system. Rams do not have fuel costs, but recurring expenses for spare parts and maintenance must be considered: a caretaker is needed for regular check-ups and repairs on a weekly or monthly basis. Information on the price and availability of all parts and



materials, as well as the costs of a caretaker are essential to make a realistic estimate of the total cost of a water supply system equipped with a hydraulic ram.

The rams tested in the laboratory were checked in Rwanda on reliability, durability and possibilities for local maintenance. The results of the comparative laboratory tests are given in a table in the annex of the guide, as well as some specific remarks and assessments related to the field tests.

The guide "Hydraulic rams: consumers guide" can be obtained free of charge at the Centre for International Co-operation and Appropriate Technology (CICAT), P.O.Box 5048
2600 GA Delft
The Netherlands

River current pumps: the sling pump

A water-powered pump has been developed for use in streams and rivers, which is anchored to a pole in flowing water and uses a propeller to force water through a hose to wherever it is needed.

The sling pump as it is called, requires a flow of water running at a minimum of 0.4 m/sec and a depth of 25-30 cm. It is available in three sizes, with capacities ranging from 3,000 to 9,000 liters per day in water flowing at 0.65 m/sec. Several pumps can easily be harnessed together for a larger supply of water. The pump, which needs virtually no maintenance, is said to be suitable for a wide range of applications: drinking water supply, cattle watering and irrigation. It was developed by Per-Olof Karlsson and is selling well in Northern Sweden. Currently the pump is being exported to Somalia and Guinea-Bissau. For details write to JTM Product AB, Box 51, S-980
21 Jukasijarvi, Sweden

INTERNATIONAL COURSES ON RENEWABLE ENERGY

Wind energy for water pumping

A six week course on wind energy for water pumping is being organized by the University of Reading in the UK and Consultancy Services Wind Energy Developing Countries (CWD) in The Netherlands, in co-operation with the Technology and Development Group of the University of Twente, also in The Netherlands. The course is scheduled for 5 February through 16 March 1990, and is designed for engineers or persons with a technical background involved in projects requiring the

application of wind energy for water pumping. Enrollment priority will be given to those who are directly involved in field projects. Next to a general overview on energy resources the course includes wind and water resource analysis, economics of water pumping, technology of wind energy systems, feasibility and implementation of projects, and the role of institutions.

The course fee will be fl 5400, covering the costs of lectures, workshop sessions, the course manual and the social programme. Because the course will begin quite soon, course applicants are requested to contact as soon as possible:

Consultancy Services Wind Energy Developing Countries (CWD)
P.O.Box 85
3800 AB Amersfoort
The Netherlands
Telephone: 31-33-682174
Telefax: 31-33-615047

OVERVIEW OF EXPERIENCE OF JUNTAS ADMINISTRADORAS IN LATIN AMERICA

Juntas Administradoras (water committees) in Latin America are increasingly assuming the management responsibilities of water supply systems, but they are not properly prepared and trained to perform important tasks. Women play a decisive role in initiating water supply systems and influencing decisions made by men, but they are rarely members of the juntas. When they are members, women perform jobs such as water fee collection and operation rather than management tasks.

These are some of the preliminary findings from a current review on experiences with the organization and training of Juntas Administradoras in South and Central America which is being carried out by Peruvian consultant Norah Espejo for IRC. Donor and implementing agencies increasingly realize that village juntas play a crucial role in community-based water supplies, hence IRC's interest to document experience with organization and training of these committees. This comprehensive overview is the first of its kind for this region and will fill the information gap which currently exists on the subject.

As primary sources for information concerning the Latin American situation, material provided by the juntas themselves and government documents (including regulations and project evaluations) were reviewed. Project reports (mainly from the Water and Sanitation for Health project (WASH)) covering the

last ten years provided secondary sources, and 25 organizations in Latin America were approached by mail and telephone for additional information.

The study examines in detail, the various tasks and the performance of the Juntas Administradoras during preparation, construction and management of water supply systems.

Because water projects are still very construction oriented, a lack of integration results in the pre- and post-construction phases. Promotional work is therefore needed in the pre-construction phase. The juntas should receive training on project preparation, organization of local support, choice of the type of water system and tariff systems to enhance their capacity to prepare the community for the proper use of their water system in the future.

As in other areas of the world, in Latin America community enthusiasm is evidenced by participation in construction of water systems. However, juntas are seldom trained to operate the systems during this phase, which causes future operation and maintenance problems.

Because rural communities in Latin America must pay for their water, tariff setting and fee collection have become crucial issues. Due to a lack of training, widespread problems still exist with respect to this aspect of water committee management.

The study reveals the necessity for further development of juntas members' skills if an integrated approach is to be realized. IRC is committed to this effort, and urges other agencies to recognize training at the community level as an important policy issue for the coming years.

IRC plans to disseminate the findings in the form of a publication in the future, and at a later date experiences from water committees in Africa and Asia will also be documented. The research on water committees in Africa and Asia will concentrate on the relation between organization of water committees and their functioning. In the end this analysis aims to provide useful guidelines for planning of support and backup for village water committees. We would welcome any additional information from our readers about village water committees.

IRC'S BRIEFING AND TRAINING PROGRAMMES IN THE 1990's

Short briefing programmes and tailor-made training for field work are increasingly in demand. In the last three years IRC has offered short courses for more than 100

field staff from various agencies. The one- or two-week courses at IRC use an innovative approach based on interactive training and information selection and compilation. They have a strong individual bias which allows them to meet the specific job requirements of individual participants.

Each participant prepares summary reports and working documents to be used in their jobs. Feedback from the field and from organizations shows that the training and briefing programmes contribute to the effectiveness and sustainability of projects. This clearly indicates that the information and ideas exchanged at IRC are being used in the working environment.

IRC's collaboration with projects in developing countries has greatly increased as a result of the programmes. Because they are such an effective mechanism of information transfer and project development, IRC intends to continue and expand them, and has plans to develop and offer similar training programmes on a regional basis in the future. To be able to develop these programmes, IRC is seeking support from governments and donors supporting the sector.

The following types of programmes have evolved for different target groups:

- » **5-day standard briefing programmes** are organized for project staff in preparation for new jobs or assignments, or to update their knowledge and information.
- » **Special tailor-made training and briefing programmes** with a duration of 3 to 10 days are organized for senior staff from institutions involved in sector projects, for project managers, and for researchers. Generally, this last target group requires more intensive staff support and has broader information needs. For this reason these programmes require individual preparation and cannot be organized on a standardized basis.
- » **Short intensive briefings for senior professionals.** These programmes, with a duration of one or two days, have been organized for high level staff and senior professionals in External Support Agencies, consulting engineering firms, regional organizations, large Non-Governmental Organizations, as well as government ministries. These programmes put less emphasis on use of IRC's database and documentation. Participants are provided with pre-selected summary information concerning sector developments, and discuss pre-identified fields of interest with IRC specialists and resource persons from collaborating institutions.

- » **Short training programmes in collaboration with training institutes.** So far, two courses have been developed together with Dutch training institutes. The first concerns management for sustainability of water supply and sanitation programmes, and has been developed together with the Dutch Management for Development Foundation (MDF). The second course concerns community water supply and environmental sanitation for low-income urban communities. This course is being developed with the Institute for Housing Studies (IHS) in Rotterdam. These courses have been developed for different target groups and concentrate on different subjects. Both courses, however, address key issues such as community participation, role of women, resources coverage, community-based financial management and monitoring. During 1990, the courses will also cover relevant environmental factors effecting sector programmes.

For 1990, the following schedule is planned for standard briefing programmes:

8-12 January (week 2)
29 January-2 February (week 5)
26 February-2 March (week 9)
26-30 March (week 13)
23-27 April (week 17)
7-11 May (week 19)
28 May-8 June (week 22)
13-17 August (week 33)
10-14 September (week 37)
8-12 October (week 41)
26-30 November(week 48)
10-14 December (week 50)

Special tailor-made training and briefing programmes will be organized on request of interested agencies, projects and institutions for individuals and small

groups. Preferred periods are the months of March, June, and September.

Training courses are planned in the following periods:

1. **Management for sustainability in water supply and sanitation programmes:**
11-29 June (weeks 24, 25, 26)
12 November-2 December (weeks 46, 47, 48)
Course fee US\$ 3000,-
10-15 participants
2. **Community water supply and environmental sanitation for low-income urban communities:**
27 August-7 September (weeks 35 and 36)
Course fee US\$ 2000,-
10-15 participants

Cost of standard 5-day briefing programmes remains unchanged at US\$ 800 per participant. Special tailor-made programmes continue at the rate of US\$ 200 per participant per day. Short intensive briefings will continue to be offered at a rate of US\$ 300 per day per participant. These rates do not include hotel and living expenses. These rates and travel costs are often beyond the means of most agencies in the field which do not have a training budget, but in the past various donor and technical support agencies have supported participants for these short courses. These agencies include Dutch Directorate General for International Co-operation (DGIS), Danish International Development Agency (DANIDA), Norwegian Ministry of Development Co-operation (NORAD), Swedish International Development Authority (SIDA), Kreditanstalt für Wiederaufbau (KfW), Dutch Developing Co-operation (SNV), and UNICEF.

For more information write to IRC's training co-ordinator Teun Bastemeijer.

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TABLE OF CONTENTS

	Page		Page
* Collaborative Council discusses sustainability	1	* Test facility at AIT	4
* Swiss pay bulk supply of books in East Africa	2	* IRC plans programme for 1990-1992	5
* Natural coagulants in water treatment	2	* Information exchange plans 1990-1992	5
* Short course on communication manual and guidelines production in Zambia	3	* IRC's work on evaluation, monitoring and advice	7
* Low-tech sun power	3	* Conference on water supply boreholes and tubewells	8
* GATE/GTZ photo-voltaic info service	4	* SKAT co-publication	8

This is the last edition of 1989, a double issue.

We wish all our readers a happy, healthy and prosperous 1990

COLLABORATIVE COUNCIL DISCUSSES SUSTAINABILITY

The emphasis on sustainability of drinking water supply and sanitation programmes in future strategies means that as early as the planning stage, careful consideration needs to be given to the handover of projects to communities. These need to take the initiative and to be left in control and must be equipped to handle their new responsibilities. Governments should set their own priorities and realistic targets, preferably in a policy framework, to guide efficient provision of sustainable water supply and sanitation services. External support agencies (ESAs) should work within these national frameworks. Governments should co-ordinate the sector programmes of ESAs.

The Collaborative Council meeting hosted by the French at CEFIGRE in Sophia Antipolis, France from 28 November to 2 December 1989 made clear that this should be the direction for the 1990's. Of the 100 participants, nearly 20 experts from developing countries had a strong impact on the discussions about the strategies for the sector in the future. Lessons from the International Drinking Water Supply and Sanitation Decade were presented in five thematic presentations with follow-up discussions in working groups. The themes were:

1. Sustainable water supply and sanitation coverage in urban areas, presented by K. Dharmarajan, Ministry of Urban Development, Government of India.

2. Sustainable water supply and sanitation coverage in rural areas, presented by Julia Kunguru, Community Development Officer, KEFINCO, Kenya.
3. Water resources management issues of water supply and sanitation, presented by H. Romero Alvarez, Technical Advisor to the Director General, Mexican Institute of Water Technology, Mexico.
4. Environmental issues of water supply and sanitation, presented by Zhang Chonghua, Director, Department of Science, Technology, and Standards of the National Environmental Protection Agency, China.
5. Financial resource generation, presented by Harvey A. Garn, Infrastructure and Urban Development Department, World Bank.

In the plenary session the reports from the working groups on these themes were discussed. The first four reports were accepted as contributions to the strategy for the 1990's. The discussion on financial resource generation could not be finished at this meeting and will be concluded in a smaller informal group.

Important was that the issue of information rated high at the meeting. In virtually all the presentations and working group reports the importance of effective communication mechanisms and information exchange within developing countries were stressed to help the sector.

Martin Beyer, Executive Secretary for the Global Consultation in New Delhi scheduled for 10 - 13



September 1990, informed the ESAs about the plans for this meeting, which the Government of India has generously offered to host (final confirmation pending). The proposed theme for the consultation is "Safe Water and Sanitation for the 1990's: Serving the Unserved". UNDP is sponsoring the consultation and has invited co-sponsors from the Collaborative Council. Delegations consisting of three members will be invited from each developing country.

The Global Consultation will try to sum up the experiences of the Decade, and to provide a strong foundation for accelerated inputs in the sector worldwide during the 1990's. Mr. G. Ghosh, Joint Secretary and Director of the National Drinking Water Mission, Department of Rural Development in the Ministry of Agriculture from the Indian Government explained in Sophia Antipolis the theme of this consultation.

"It is the right of the unserved to demand service from us. They are not beggars. If the true philosophy of a welfare state is to be followed then land, water and air are to be equitably shared, and citizens should have access to them. Like land in the nineties, the water resource will be cornered by vested interests. It is our responsibility to propagate an equitable and community controlled distribution", Mr. Ghosh said. "This will also be the right approach to save the environment. It is the individual determination and collective venture which will take us to a better world. If on the threshold of the twenty-first century the modern science, technology, and resources cannot touch the ordinary people, then we are doomed. In my opinion, water supply and sanitation programmes are the most humane and important programme of the U.N. We must look forward to the next decade to provide more funds, more access to technologies, more mutual collaboration and free and frank exchange of views and ideas to make it a success".

SWISS PAY BULK SUPPLY OF BOOKS FOR EAST AFRICA

Various user surveys in developing countries indicate that foreign currency is a major problem to obtain relevant publications from abroad. In the past various donors have subsidized supply of documentation to individual countries to overcome this problem. For the first time ever this is being done on the basis of expressed demand in a region. Currently the Swiss bookhouse KODIS is sending thousands of learning materials in the form of books to Kenya, Tanzania, Somalia, Uganda, Sudan and Ethiopia. The books will be distributed by the Book Distribution Unit of AMREF in Nairobi, which in turn will re-distribute to

the various institutions in the region. Funding for this unique operation is being provided by the Swiss Development Cooperation (SDC).

And unique it is. In 1987 teachers and serving officers from both water institutions and health institutions in the East African region reviewed existing learning materials. For that purpose the Regional Network Centre for Water and Waste Management (RNC) based at AMREF in Kenya had organized one workshop for each sector. Based on the learning objectives for different levels of staff in their sector the participants identified, reviewed and prioritized books and the ITN audio-visual training materials for their programmes.

The workshops resulted in priority listing of 122 books. On top of the list were 459 copies of "Environmental Health Engineering in the Tropics" by Cairncross and Feacham, and 360 copies of IRC's "Small Community Water Supplies in Developing Countries", no. 18 in the Technical Paper Series. The list also contained eight other IRC titles. The workshops recommended RNC assistance to procure the selected training materials.

This is the first example of a regional user need survey in the field followed by donor support in the procurement of the selected materials. It is very much in line with the recommended actions in the Framework for Information Exchange developed by IRC, which has been endorsed in various international meetings.

Developing countries would benefit greatly if other donors could follow the example of Switzerland's SDC.

NATURAL COAGULANTS IN WATER TREATMENT

The use of natural coagulants in water treatment was the subject of an international seminar held in Yogyakarta, Indonesia in October 1989. The meeting was organized by the German Agency for Technical Co-operation (GTZ), Yayasan Dian Desa (an Indonesian NGO), and IDRC from Canada.

About 40 participants from Burundi, India, Indonesia, Nepal, Pakistan, Philippines, Sudan, Thailand, Federal Republic of Germany and United Kingdom discussed the socio-cultural and sanitary aspects of traditional uses in Asia of flocculating plant materials as alum-saving coagulant aids in water treatment. Emphasis was given to optimizing water coagulation with *Moringa oleifera* seeds (horseradish or drumstick tree) for the benefit of rural water supply.

Various tropical developing countries in Africa, Asia and Central and South America are now implementing projects with natural coagulants. This is supported by multidisciplinary research involving water treatment

technology, chemical and microbiological water quality, agro forestry and adaptation to country-specific social-cultural conditions, including laboratory work in several European universities.

The IRC Newsletter has been requested to disseminate future information from on-going research and demonstration projects on natural coagulants in water treatment and would therefore welcome response from its readers.

SHORT COURSE ON COMMUNICATION MANUAL AND GUIDELINES PRODUCTION IN ZAMBIA

To enhance and build on skills of national staff to initiate, develop, and produce guidelines, manuals and other communication materials a short course was held in Lusaka, Zambia in July 1989. It was organized by the IRC-supported Piped Supplies for Small Communities (PSSC) Project Zambia, of the Department of Water Affairs, and the Ministry of Water, Lands and Natural Resources. The Department of Social Development and Ministry of Health were also closely involved. Resource persons were Dr. Elizabeth Mumba of the University of Zambia and Mary Boesveld of IRC. These organizations are working together with other institutions in the PSSC information development and demonstration project. Sites at Mkushi and Kapyanga in Central Province, Lusitu in Southern Province and a peri-urban area in Lusaka Province are under investigation to be developed as local demonstration schemes. The PSSC project is an extension of the earlier Public Standpost Water Supplies project in Zambia, which lacked local communication materials for both fieldworkers and beneficiaries. As a result, much of the knowledge, skills, and experiences were not fully documented and were therefore more difficult to apply elsewhere. The new project which is funded by the Netherlands Government through IRC tries to overcome this difficulty.

"One of the permanent constraints in Zambia is that of language. There are seven official local languages", Mr. C.R. Kayombo, Director of Water Affairs said in his opening speech to the 11 participants. "And the areas where you work in the PSSC project will need translated materials in respective languages of the manuals and guidelines produced." Another problem is that Zambia has only few qualified people in the field of writing, Mr Kayombo continued. This and future workshops would help improve writing skills.

The participants discussed the step-by-step sequence in production of communication materials:

- identification of target group
- definition of the objective

- determination of the content
- writing
- decision on presentation
- pre-testing
- editing
- production
- distribution
- evaluation

In each of the steps the participants identified possibilities and constraints through discussing their own experiences and reviewing examples of communication materials from Zambia and Malawi. General constraints are firstly, lack of skills, particularly in organizing the production of a manual, and in appropriate writing and editing for specific target audiences.

A shortage of funds and equipment is also a main problem. This is related to a lack of incentives to produce manuals. Donors are often not convinced of the necessity to include the production of manuals and guidelines in projects. If they appear at all in project proposals, they usually have a low priority.

One way to overcome these difficulties would be to insist on a budget for production of communication materials wherever this is relevant, and at the same time to enhance the necessary skills among government staff.

Through group work the participants of the workshop developed three different outlines for manuals and a plan for producing them within the framework of the PSSC project. Full drafts of these manuals will be ready early in 1990. At that time a follow-up course is planned which will concentrate on pre-testing methods combined with a pre-testing exercise in the field.

LOW-TECH SUN POWER

In spite of the environmental benevolence it is unlikely that solar energy will become a major power source in this century because the dispersed nature of solar radiation requires complex and expensive equipment which is still inefficient for its collection and conversion to electricity. High-technology applications are not the only possibilities. Below two simple applications for sun power are described.

Solar water-bag

The solar water-bag can provide half a bucket of warm water in a short time and can be easily fabricated at home at low cost. A watertight bag, for example an old air pillow made of rubber, is painted black on the outside. Small thermocool buttons about 5 mm thick are fixed on the painted surface at regular intervals all over the bag. Then, using a strong adhesive, a transparent

polythene sheet or bag is pasted tightly over the buttons, the edges and corners are sealed in such a way that an air gap of about 5 mm is maintained all over the surface of the bag to avoid any heat loss by convection.

The bag is filled with water and placed in sunlight at a slight angle to ensure free convection for uniform heating. From time to time, the position of the bag may be changed as suitable. Enough water heats up in a few hours to take a casual bath.

For details, write to:
S.A. Vasentha Kumar,
Lecturer Mechanical Engineering,
M.I.T., Manipal - 576 119.
India

Solar disinfection

Biological micro-organisms including pathogens are usually particularly sensitive to direct solar radiation even in small concentrations. This knowledge can be applied to simple techniques for drinking water disinfection in rural and disadvantaged urban areas. Professor Aftim Acra at the American University in Beirut studied the effect of several hours of exposure to solar radiation to bacteria contaminating water in a clear glass or plastic container. He observed local residents using this technique when the water supply failed in parts of Beirut. A similar technique seems to have been in use traditionally in India and Africa and possibly other regions, perhaps for many centuries.

Walter Shearer, senior programme officer of the United Nations University writes that this technique was confirmed by a group of researchers in the Integrated Rural Energy Systems Association of the United Nations University co-ordinated by the Brace Research Institute in Canada. Their preliminary findings indicate that water from ground or surface sources can be disinfected of many kinds of bacterial pathogens if the water is clear, not highly contaminated, exposed to intense solar radiation for about 5 hours, and exposed in small (3 litre or less) transparent glass or plastic containers. In this case, the germicidal effect of the sun results not from heating but from the radiation itself, including some ultraviolet radiation.

More work can be done to develop solar techniques to eliminate toxins from waste emissions, cleanse land areas and bodies of water already contaminated, and disinfect water supplies. Fortuitously, many of the problems of solar power generation - energy storage, low efficiency, complex equipment and expense - are of less relevance for these applications.

THE GATE/GTZ PV-INFO SERVICE

Today, German Agency for Technical Co-operation (GTZ) is one of the largest German users of photo-voltaic energy in the Third World. With various large-scale projects for introducing and disseminating solar energy in developing countries, GTZ has acquired a wealth of know-how on photo-voltaic energy. The many enquiries addressed to GTZ from organizations, projects and individuals bear witness to the degree of interest in this technology. However information about photo-voltaic energy is difficult to get and existing agencies such as the GATE question-and-Answer-Service had great difficulties in answering the inquiries satisfactory. Also, owing to the large number of on-going projects involving photo-voltaic systems, and the fact that the technology is still relatively new, the material available to date has not been adequately processed. In order to tap this material and make it available the PV-info service was set up in the summer of 1988.

The PV-info service is based on a compilation of all projects in which photo-voltaic systems are used, and a classification of the systems according to fields of application. Technical information provided by manufacturers make differentiated comparisons between individual systems possible. A synopsis of each of the projects is compiled and updated, reflecting the principal findings of the project. Questionnaires are sent to the projects regularly to make sure the synopses are kept up to date. GTZ is now in possession of joint studies and reports, none of which have been gathered and recorded generally before.

The PV-info service is intended as a backup to the GATE Question-and-Answer Service in answering questions on problems relating to the use of photo-voltaic energy in developing countries. The info service is therefore a service which all interested projects and individuals can turn to. To optimize the work of the PV-info service, suggestions and in particular up-to-date material are very welcome.

These can be sent to:
German Appropriate Technology Exchange
(GATE/GTZ)
Postbox 5180,
D-6236 Eschborn,
Federal Republic of Germany

TEST FACILITIES AT AIT

A test facility has been developed at the Division of Energy Technology of the Asian Institute of Technology (AIT) to provide the manufacturers of energy related

equipment with the means to evaluate the performance of their products in the humid tropical climate.

Research, teaching and training activities in the field of renewable energy have already been carried out in the Division for almost ten years. Though many products had passed tests in specialized laboratories using the national and international standard methods in their respective countries, the performances of many of them on-site were found to be quite unsatisfactory mainly due to the adverse effect of the climate. It was strongly felt that facilities should be available in order to bridge the gap between the manufacturers, agents and consumers. Therefore a project was initiated with the sponsorship of the French Agency for Energy Management (AFME) with the objective to help in the transfer of technology from industrialized countries to developing countries by providing technical information such as the actual performance, productivity, efficiency and reliability of energy products in the humid tropical climate and environment.

Products mainly related to solar, thermal and photo-voltaic applications have been extensively tested, such as solar photo-voltaic water pumps and solar thermal collectors for either domestic or industrial applications. It is expected that in the long run this could contribute to the establishment of a regional testing facility at AIT which could deliver a kind of "certificate of performance".

For further details of the testing facilities and the terms and conditions of testing a specific product, please contact:

Mr. P. Bouix
Division of Energy Technology
Asian Institute of Technology
G.P.O. Box 2754
Bangkok 10501
Thailand

IRC PLANS PROGRAMME FOR 1990-1992

With the start of the 1990's IRC has developed a clearly focussed Indicative Medium Term Plan for the period 1990-1992, which was recently approved by its Governing Board. IRC's work will be organized through two closely related components of the information issue: information management and information delivery.

The focus of information management will be on activities concerned with the development of information facilities and services which increase the sector's awareness of available knowledge and information and give it access to this resource. This will

encompass approximately 25% of IRC's work in the coming years.

The information delivery component, consisting of publications, training and demonstration programmes, will be limited to a community-based approach. This approach will be concerned with five interlinked areas: rural and peri-urban water supply and sanitation systems, community participation/hygiene education and environmental management, and will be approximately 50% of IRC's work. In addition to the water and sanitation work already being done, IRC's general approach lends itself particularly well to expanding work in the 1990's to include pursuance of the mounting environmental and peri-urban problems facing developing countries. Furthermore, most of IRC's activities will concentrate in four to six countries, which have yet to be selected by mutual agreement.

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

INFORMATION EXCHANGE PLANS 1990-1992

Establishing effective information exchange for sustainable water supply and sanitation improvements in developing countries was discussed in a series of recent international consultations and endorsed as an essential element for the further development of the sector. Information exchange is at the heart of IRC and the encouraging recommendations received of late have led IRC to devote even more of its time to the further development of this critical subject.

In this international effort IRC benefits from the experiences gained in earlier information exchange activities during the International Drinking Water Supply and Sanitation Decade. For instance, information exchange systems such as WASSDOC (Water Supply and Sanitation Documentation Network) in Sri Lanka and WASIN (Water and Sanitation Network) in Indonesia have been initiated with support from IDRC (International Development Research Centre) and IRC. Support for the formulation of similar ventures has been provided to Tanzania and Thailand.

At a regional level IRC has contributed to the development of information exchange structures through collaboration with such centres as CEHA (Centre for Environmental Health Activities) in Amman, CIEH (Comité Interafricain d'Etudes Hydrauliques) in Ouagadougou, AIT/ENSIC (Asian Institute for Technology/Environmental Sanitation Information Centre) in Bangkok, and AMREF (African Medical & Research Foundation) in Nairobi.

Development has been advanced through the preparation of a trilingual Interwater Thesaurus, a draft glossary of terms, and a listing of publications considered essential to any "water" library.

Most of the activities at country level and for the preparation of the Interwater information management tools have been implemented with funds provided by IDRC, UNDP/WB (United Nations Development Programme/World Bank), DGIS (Directorate General for International Co-operation) and some other donors. The activities under consideration and formulation in 1990 will also require donor support for successful implementation.

Various seminars and meetings on information exchange have been organized by IRC. The most recent meeting, of the Temporary Working Group on Communication of Information in April 1989, brought together representatives from national, regional and international bodies and resulted in a set of recommendations reflecting an increased awareness of the importance of the management and exchange of information.

For a vigorous start in the 1990's IRC has formulated an action plan setting out the activities in information exchange to be undertaken during the coming years. We would like to share our ideas with our readers and will devote special attention to this subject in this issue of the newsletter with a special feature on the plan of activities appearing in each of the next four. The activities foreseen in IRC's action plan for 1990 and beyond fall into three main groups, as follows:

a) country level activities

- » support to the development of information systems and services in developing countries;
- » monitoring of information exchange activities in developing countries;
- » testing of methodologies and materials for the training of information workers and information users;

b) regional and global activities

- » support to the development of information transfer mechanisms at the regional level;
- » monitoring of information exchange activities in regional support centres, and at the international level;
- » participation in regional and international training activities;
- » promotion of information exchange activities in the water supply and sanitation sector worldwide;

(c) support activities

- » development and maintenance of information-handling tools and guidelines;

- » development of methods and materials for training in information;
- » development and marketing of information products and services.

Linkages

The three groups of activities are linked to each other at various levels:

- (a) The effective dissemination of information at the national and local levels can only be achieved through the development of local information systems, and this will be promoted not only through the direct intervention and advice of IRC information specialists, but also through the use of the monitoring system as a source of information on how information systems and services are being developed elsewhere.
- (b) Information products and services, such as those developed by IRC and AIT/ENSIC, among others, can provide valuable inputs to information systems and services in developing countries. National, regional and international systems all need to use the same information-handling tools and follow the same guidelines to ensure their technical compatibility and thus facilitate the exchange of information.
- (c) The monitoring system will also review the use of existing information tools and guidelines and the need for new ones, as well as providing case study material for use in training. Such material will also be derived from diagnostic studies and evaluations of information systems and services in various countries.
- (d) Training needs will be identified in the course of such diagnoses. Training activities will cover not only the immediate needs of developing information systems, but also the application of information-handling tools and guidelines and the use of IRC's own information products and services.

The various activities thus form an integrated package, some elements of which will require action primarily at the international level, such as the development and maintenance of information-handling tools and guidelines. Others, such as support for and involvement in training, will demand different kinds of action at the regional and country levels. And still others, such as support for the development of information systems and services or information transfer mechanisms, may call for basically similar approaches at both the regional and the country levels.

The coherence of these activities will be further enhanced by the application, where feasible, of a common systematic framework for the description, analysis, planning, implementation and evaluation of information activities which has already been applied in

practice in other sectors in developing countries and will be further field tested and improved under IRC's programme. This framework embodies and expands upon the essential features of the Technical Information Exchange (TIE) framework developed by IRC in 1988 as a result of a workshop held in The Hague in September 1987 that brought together representatives from national and regional networks.

In forthcoming issues of this newsletter we plan to report in more detail about the systematic framework, monitoring of technical information exchange activities, developing country proposals, training, and further development of tools.

IRC'S WORK ON EVALUATION, MONITORING AND ADVICE

In the past few years, IRC has been contracted for advice and evaluation support to projects in developing countries with increasing frequency. These requests from third parties are useful mechanisms for both information generation and dissemination. As an information generating mechanism, the missions have greatly contributed to IRC's knowledge base and to the development of its monitoring and evaluation work, and its potential is increasingly being recognized by ESAs as well as other organizations.

IRC's access to extensive information sources, its wide network of contacts and its experienced staff make it an excellent candidate for monitoring and evaluation work. The following experiences give an indication of the scope of the missions undertaken during the past year.

Contracted by DANIDA, performed a short term consultancy to strengthen monitoring and to review progress of the integrated approach in the DPHE/UNICEF Water Supply and Sanitation Programme in Bangladesh. In May/June a four-week assessment mission took place to identify the scope and content of an improved monitoring system with the UNICEF programme and to prepare terms of reference and methodology for the progress review. In a four-week mission in September indicators, field level methodology and checklists were developed. Local consultants were engaged to do the field work for the programme review. A follow-up mission took place in October/November.

Another Nordic donor, FINNIDA, contracted IRC staff to assist in an appraisal mission to the proposed Rural Water Supply and Sanitation Project in the Western Development Region in Nepal. As a follow-up IRC

assisted in finalizing the report of the appraisal mission, and in debriefing in Finland.

Evaluation, monitoring and advice missions applying information and experience available at IRC were carried out for an increasing number of donor-assisted projects. For the Dutch Government IRC renders advisory support to the water supply and sanitation programmes which are being implemented with support from the Dutch Government in four Indian states (Uttar Pradesh, Andhra Pradesh, Gujarat and Kerala). IRC assistance consists of advice on monitoring and implementation and briefing of outgoing missions. Very recently IRC participated in two missions, one to assist development of the monitoring system at the Dutch Embassy in Delhi, another concerned a three-week India-DANIDA-DGIS evaluation mission to Kerala to review water and sanitation projects there.

Preparatory work and field missions have been carried out in Tanzania to establish a monitoring programme for the DGIS-funded water project implemented by the Netherlands consultant bureau DHV. As part of the ongoing support activities to the Rural Water for Health Project in Zambia implemented by the Netherlands Development Organization (SNV), two IRC staff members carried out a three-week mission in April to support the community participation and health aspects of the project.

In March and August, on request of DGIS, IRC assisted in missions to review draft strategic investment plans for rural water supply and sanitation in Pakistan, and to advise on opportunities which could be supported by DGIS in Baluchistan and North West Province. The World Bank is the co-ordinating agency in this process of studies, strategy development and project preparation.

IRC assisted three water-related projects supported by the Dutch in the Yemen Arab Republic, by participating in three monitoring and review missions. IRC is active in the Netherlands-based multi-disciplinary "Advisory Group Land and Water", which provides advisory services to the Netherlands Government in support of these projects.

IRC support was also given in a seminar on maintenance of handpumps in Guinea Bissau and to SNV-implemented water project in that country. Three project staff members also participated in a week-long briefing programme at IRC to formulate a strategy and workplan for the urban and social activation component in this project.

Similar advice and backstopping support was given to a slum upgrading project in Phnom Penh, Kampuchea, which is implemented by the Dutch Organization for International Development, NOVIB. In March IRC

advised in a two-week mission on institutional arrangements with five municipal departments and on the workplan for the years ahead. The sanitary engineer going to the project followed a briefing programme at IRC.

In the 1990's IRC will continue to offer these services and take part in missions upon request. IRC will however select to participate only when those missions are directly related to its programme focus in countries where it has experience, and for organizations whose approach is in line with current appropriate development for co-operation principles.

CONFERENCE ON WATER SUPPLY BOREHOLES AND IRRIGATIONS TUBEWELLS

The Cranfield Institute of Technology at the Silsoe College in Bedford UK will hold a three-day International Groundwater Engineering Conference on The monitoring, maintenance and rehabilitation of water supply boreholes and irrigation tubewells from 6-8 September 1990.

The conference aims to provide a forum for the exchange of practical experience and scientific knowledge, to the benefit of both industrial and developing nations. Subject areas will include:

- » cause processes (particulate, chemical, microbial, mechanical)
- » monitoring and diagnosis in practice-cure processes (hydrodynamical, chemical, physical, combined)
- » maintenance/rehabilitation in practice
- » economic of improved monitoring, maintenance and rehabilitation

The course is intended for groundwater engineers, hydrogeologists, water supply engineers, irrigation engineers, chemist, microbiologists, borehole/tubewell operators and well drillers.

Further information can be obtained from:

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Silsoe College
Silsoe, Bedford MK45 4DT
UNITED KINGDOM

ERRATUM: DATE BRIEFING PROGRAMMES NL 187

In the IRC Newsletter 187 a mistake slipped into the date of the IRC'S BRIEFING AND TRAINING PROGRAMMES IN THE 1990'S. The seventh course is NOT from 28 May - 8 June but from 28 May - 1 June

SKAT CO-PUBLICATION

SKAT, the Swiss Centre for Appropriate Technology has recently published the fourth completely revised edition of "Residential and Non-Residential Drinking Water Installations and Drainage Requirements in Nepal", jointly with the Mechanical Training Centre (MTC) in Kathmandu, Nepal.

MTC is a vocational training centre run jointly by the governments of Nepal and Switzerland through the Directorate for Technical and Vocational Education and Helvetas.

Rapid urbanization is profoundly changing the face of many developing countries. One of the most vital challenges is the provision of piped water and of efficient sanitation for an ever-growing urban population. In Nepal sanitary engineering represents a new trade. Earlier editions of this book were produced to assist practioners of this trade with useful hints and guidelines.

This new edition is the result of a steady demand for the book in many countries. The entire text has been reviewed and improved and drawings have been redone. The section on drainage has been considerably enlarged. The book is a useful reference work for practicing sanitary engineers and provides good background for developing vocational training courses for pipefitters and other water supply technicians active in urban and peri-urban water supply and waste disposal.

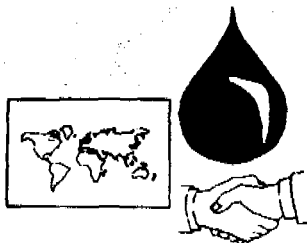
The book costs 20 Swiss Francs, excluding surface mailing and handling.

Distributors:

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Donor Cooperation to Bring Safe Water and Sanitation to All



THE UNDP-WORLD BANK WATER AND SANITATION PROGRAM
SUPPLEMENT TO THE IRC NEWSLETTER No. 190

COLLABORATIVE COUNCIL MEETS IN FRANCE

Sophia Antipolis in France was the site of the meeting of the Collaborative Council hosted by CEFIGRE on November 28 - December 1. The meeting was attended by representatives of more than 85 external support agencies and 14 developing countries. The Council, of course, has the responsibility of carrying the momentum of the International Drinking Water Supply and Sanitation Decade into the 1990s, and is attempting to improve the effectiveness of the country-level activities of the organizations involved. Consideration of strategies for improved coordination within the sector was the main order of business.

The UNDP-World Bank Water and Sanitation Program presented a working paper on "Financing Water and Sanitation Services," which formed the basis for the deliberations of five working groups. Representatives of the Program and the World Health Organization also reviewed "Country-level Collaboration in Sector Support."

The UNDP-World Bank Program, through its Regional Water and Sanitation Groups (RWSGs), has fostered efforts in country-level sectoral collaboration among external support agencies. The Program is currently working toward collaborative ventures with a number of organizations, with examples such as the World Health Organization's Regional and Community Water Supply Sections (to add environmental health skills to the RWSGs and build country-level information systems), CEFIGRE (aiming to broaden human resource development and training capacities within the RWSGs), UNDTCD (to add water resources management skills), and PROWESS (to strengthen the focus on involvement with women and participatory training).

PROGRAM WORK PLANNING MEETINGS HELD IN WASHINGTON

Managers and key staff from the UNDP-World Bank Water and Sanitation Program's RWSGs in Abidjan, Nairobi, New Delhi, and Singapore met at Program headquarters in Washington January 8-19 to review country-level work plans for 1990-91. The work plans, written by the RWSGs in consultation with governments and donor agencies, identify work underway or to be undertaken in each country in which the Program is or will be active, including the allocation of resources and staff time. Background statistics on the sector for each country are accompanied by a brief description of past activities, achievements, and program objectives.

This year, a global work plan was developed by headquarters staff to define the "tools" available for implementing Program strategy. These tools include applied research, sector advisory support, demonstration projects, human resource development, industrial support, operational studies, and information gathering and publications.

During the second week of the work planning sessions, Program representatives met with World Bank operational staff to further refine country-level activities. The Program's expertise in addressing the needs of the poor is increasingly being called upon to help in preparing large-scale loans in the sector. Program inputs into upcoming World Bank loans in the water and sanitation sector in Pakistan, India, and China have been substantial, and continued emphasis will be placed on linking the Program's activities to future lending operations. The Program work plan is currently being finalized, and will be available in published form by April 1, 1990.

NEW RWSG OPENS IN EAST ASIA

The fourth of the UNDP-World Bank Water and Sanitation Program's Regional Water and Sanitation Groups was established in the fall of 1989 in Singapore. The region includes East Asia and the Pacific, and the new group is headed by one of the founding fathers of the Program, Mr. Saul Arlosoroff.

The operations of the new RWSG-East Asia are largely focused on two countries, China and Indonesia. In China, the Program is working with the government in developing a strategy for the provision of groundwater-based, community managed rural water supply systems, coupled with the promotion of improved sanitation and health education. Major demonstration projects in Inner Mongolia and Xinjiang are underway, and support to the World Bank's rural water and waste management projects is ongoing.

In Indonesia, a four-year, large scale UNDP/Dutch Government-backed project is beginning to take off. The Program aims to hasten water supply and sanitation development in Indonesia by assisting the government in improving sector policies, developing guidelines, improving management and institutions, and building the basis for continued development.

Among the other countries of the region, the Program is involved in secondary operations in rural water supply in Thailand, training and human resources development through the new ITN center in the Philippines (see below), and may become involved in rural water supply in Laos and waste management in Malaysia.

NEW ITN CENTER FOR THE PHILIPPINES

The Government of the Philippines has established a new network center with the support of the Government of the Netherlands and the UNDP-World Bank International Training Network (ITN). The project is a collaborative venture, with the primary executing agencies in the Philippines being the Local Water Utilities Administration, the Department of Public Works and Highways, the Department of Health, the University of the Philippines, and Tulungan sa Tubigan (an NGO), with the participation of educational and sectoral institutions from around the country. The

International Institute for Hydraulic and Environmental Engineering (Delft) is providing technical and management support to the new network center.

The objective of the project is to improve the training capacity in low-cost appropriate technologies and community-based approaches of the institutions involved. Activities to fulfill this objective include production of training materials, stimulation of related research activities at universities, instruction of persons working in the sector, and technical information exchange.

TRANSLATION AND ADAPTATION OF TRAINING MATERIALS ADVANCES

The International Training Network has produced an extensive set of audio-visual and printed materials on low-cost water supply and sanitation technologies, community participation, and hygiene education. These training materials were originally released in English in 1986, and French versions soon followed.

New training materials are constantly under development, and dissemination of existing materials has been dramatically expanded through broadened translation and adaptation efforts. New languages include:

- ▼ Spanish: Testing of sets of pilot ITN materials, which were adapted and translated into Spanish by PAHO/CEPIS, occurred in 1989. These materials are now receiving a limited distribution, and support for mass production of the sets is being sought by the Program.
- ▼ Portuguese: Adaptation and translation to Portuguese has been started with ABES. Final versions of these materials are expected by mid-1990, and testing will follow.
- ▼ Bahasa Indonesian: Now completed as part of the Training Network center activities in Indonesia.
- ▼ Arabic: These adaptations and translations are being undertaken by WHO/EMRO/CEHA, and drafts are expected before the end of 1990.

In addition to these broad efforts, selected training modules have been adapted into other languages, such as Swahili and Chinese where they have been particularly needed.