

IRC NEWSLETTER

OF THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

No. 117

January 1981

NEWS FROM IRC

This issue of IRC's newsletter coincides with three new developments: (a) it is the first issue in the International Drinking Water Supply and Sanitation Decade; (b) IRC has become an independent Foundation effective January 1, 1981; and (c) the Newsletter is published in a new lay-out and format.

The coming of the Decade has obviously influenced IRC's planning programme for 1981 (and later years). Planned activities for the Decade's first year include the organization of national training seminars on slow sand filtration and on other essential related projects such as community education and participation; the development of guidelines for local manufacture of handpumps; the identification of simple design methods for low-cost water distribution systems; the further implementation of manpower development projects in various countries such as Sri Lanka, Tanzania and Indonesia; the initiation of a multi-country project on community education and participation; and the development of guidelines for evaluation of community water supply and sanitation programmes in developing countries.

In the context of IRC's Information Support Programme POETRI, various national and regional planning and training workshops are envisaged. Also an international POETRI planning meeting - involving representatives of a variety of donor agencies and UN organizations - will be held in January 1981.

IRC's new organizational status as a Foundation, as announced in earlier Newsletters, will enable the Centre to carry out activities even more effectively. We will keep you abreast in the Newsletter.

The new "face" of the Newsletter is the first token of a number of planned activities to increase direct information dissemination (apart from those in the context of IRC's other programmes and projects). Also planned is an abstract journal (mainly prepared by national centres cooperating in POETRI).

The circulation of this Newsletter - now estimated at 23,000 copies monthly - is expected to rise to 50/60,000 over the coming year. Many thanks are due here to our colleagues at CEPIS (Casilla postal 4337, Lima, Peru) who prepare and distribute the Spanish version of the Newsletter and who are co-responsible for its success.

The Editor of the IRC Newsletter invites correspondence from readers. If you have anything you would like to see appear in the Newsletter, or if you have any suggestions to improve it, please drop us a line. The IRC Newsletter is free of charge.

We would like to finish this short introduction to IRC 1981 in wishing all colleagues and friends a truly happy New Year and a successful start of the International Drinking Water Supply and Sanitation Decade.

MANPOWER DEVELOPMENT AND TRAINING

Shortage of resources is one of the developing world's biggest problems. One resource is in plentiful supply, and always occurs where the human need is greatest. That is the people themselves. If this resource can be properly used, then human development moves farther and faster than through using any other resource. This resource is renewable, improves with use and never runs in short supply.

Like every other resource, money, plans and facilities are needed to mobilize it. Nowhere is this more true than in the water supply sector. To provide clean water, supply systems have to be built and maintained. That means people as well as pipes, pumps and treatment plants. Most of the money goes to provide the physical facilities. This is of course essential. But it is often forgotten that good plans cannot become a running water supply scheme unless people design, build, operate and maintain it.

Because people are creative, able to "pick things up", responsive to challenge and change, planners sometimes take this resource for granted. People are plentiful: labour has always been cheap. This is beginning to change as we understand that without initial training and support from the specialists, expensive investments will fail because nobody has equipped local people with necessary skills.

It is in nobody's interest to discover the figures, but many billions of dollars must have been allocated but never used, or used on facilities which no longer work properly, just because through no fault of their own, people from planners and managers to labourers were never given the skill to do their jobs. This means the community suffers because the water doesn't flow, and because a chance to develop new skills was missed.



Regularly, the IRC Newsletter will look at a different aspect of manpower development and training for water supply. Reader's comments with particular ideas or experiences are very welcome, and as far as possible will be published.

AIT, ASIAN INSTITUTE OF TECHNOLOGY: A CENTRE OF CENTRES

The well-known and active AIT is an autonomous international post-graduate technological institute in Bangkok, Thailand. Its primary objective is to help serve the technological requirements of the peoples of Asia by providing advanced education in engineering, science and allied fields through academic programmes, research activities and special programmes.

Their activities are in agricultural and food engineering, computer applications, energy technology, environmental engineering, geotechnical and transportation engineering, human settlements development, industrial engineering and management, structural engineering and construction and water resources engineering.

A number of separate Centres serve these purposes: The Environmental Sanitation Information Centre (ENSIX - also a part of the IRC network), The Asian Information Centre for Geotechnical Engineering (AGE), The International Ferrocement Information Centre (IFIC), The Renewable Energy Resources Information Centre (RERIC) and the Library and Regional Documentation Centre with the largest technical library in Southeast Asia. Write to each centre individually under the address:

Asian Institute of Technology
P.O. Box 2754
Bangkok, Thailand.

Readers particularly interested in information and documentation needs for the water supply and sanitation field should ask for the quarterly newsletter ENFO. Though Asian in focus, ENFO's perspective is of use to any developing country. For further information, write ENSIC at the above address.

APPROPRIATE TECHNOLOGY AND COMMUNITY PARTICIPATION --- CLICHÉS?

The key to the success of Decade goals lies in the quality of national ministries and agencies, writes R.G. Feachem of the Ross Institute of Tropical Hygiene. In an article in the Proceedings of the Royal Society of London (B 209 15 - 29 1980), Feachem takes a critical swap at the concepts of appropriate technology and community participation. These "buzz words" or clichés, he insists, are often ill-defined and their popularity "may be partly due to their innate intellectual appeal to (particularly Western) engineers and social scientists". Feachem puts himself, however, in the camp of those who see the value of appropriate technology and some degree of community participation. He emphasizes the role of education in making both concepts a reality. But, he warns, ".... in the absence of well planned national and regional programmes, executed by efficiently run governmental or parastatal bureaucracies, they will count for little. Indeed a strong governmental bureaucracy could achieve considerable progress without them."

NATIONAL WORKSHOP ON RESEARCH AND DEVELOPMENT NEEDS IN INDIA

The National Environmental Engineering Research Institute (NEERI), Nagpur, India has recently publicized the findings of a workshop highlighting the role of R + D support for Decade goals. The working papers focused on objective planning and strategies, methods and technology, manpower development and information systems and planning. The workshop recommended further R + D in specific areas.

Sets and benefits of appropriate technology should be identified and given weightage factors. Social, health, and technological impact studies by researchers aided by villagers can provide a clearer picture to fit technology into an appropriate social, cultural, and economic environment. These studies, mainly at the village level, should lead to simplified field testing methods and water supply systems.

Optimisation techniques and mathematical modelling promote cost reduction in small and large urban systems in urban and semi-urban areas. Studies are needed for: improving existing wastewater treatment plants; techniques for acceleration of biological treatment processes; development of appropriate design criteria; recovery of backwash water; use of substitute material as absorbent in place of activated carbon; control of H₂S formation; development of variable speed pumps; and package treatment units.

In urban fringe and rural areas, emphasis should also be placed on the development of operation and maintenance of individual/community sanitary facilities, integrated waste and wastewater treatment utilisation, and simple low cost systems of wastewater collection and disposal systems.

The system of sewerage in developed countries is too costly for developing countries. Alternatives can be found in underground and surface drains, pit privies and septic tanks with secondary treatment. For these, standardized criteria would reduce costs.

The need for adequate manpower and training facilities to support the Decade programme is keenly felt. Consultancy services in the field of environmental engineering would play a notable role in programme implementation for which measures should be undertaken. Manpower planning depends on the ability of the planners to project the changing pattern of the demand and develop the right type of personnel required. The training of technical personnel in environmental engineering is needed at undergraduate and post-graduate level with specialised curricula giving emphasis on water supply and waste disposal, and rural problems with support from humanities and health sciences. In-service training and continuing education for professionals at all levels (including laboratory) in water supply and waste disposal projects are required. The curricula for such courses should be dynamic and geared to the objectives of the Decade programme.

For more information: NEERI, Nagpur, India.

NATIONAL WORKSHOP IN SOMALIA

A national strategy workshop was recently held in Somalia to promote coordination and identify problems in reaching Decade goals. The workshop, in Mogadishu, 1 - 6 November 1980, was organized by the Ministry of National Planning in cooperation with WHO and

the Federal Republic of Germany.

The participants focused on the Somali situation and in small groups identified problems associated with Decade planning and recommended specific steps for further action. To improve coordination between relevant ministries and agencies, the National Water Committee (NWC) should be two-tiered with a smaller working group/secretariat responsible to the NWC. This smaller group should consist of full-time senior professionals and technicians drawn largely from Somali ministries and agencies, and would follow up workshop recommendations. Such a broadly-based working group would enhance multi-sector planning.

Creating a central data bank would help fill information gaps and could consolidate hydrological, hydrogeological and meteorological information.

Preventive maintenance, an inventory of existing facilities, and an effective monitoring system would help overcome problems of breakdown or under capacity in rural and small urban supplies. Standardization guidelines should be developed for design, construction, operation and maintenance. Alternative energy resources should be studied such as hand, solar, and wind pumps.

A low level of motivation in agencies was viewed as a reflection of an administrative system which gives little freedom of choice to the individuals. A restructured administrative set-up should incorporate career development systems and establish clear training policies.

For further information: The Ministry of National Planning, Mogadishu, Democratic Republic of Somalia.

THE DECADE IN ACTION -- SANITATION

Safe low-cost water and latrines have already figured in a programme to develop low-cost water and sanitation techniques. Under this programme, India is evaluating on-going latrine programmes including investigation of pollution hazards of non-sewered sanitation and the construction of demonstration projects. India is expected to invest \$50 million in this latrine programme which will cover 4.6 million people in 110 small towns. In Tanzania, where studies for waste-disposal projects in Dar-es-Salaam and four major towns have been reoriented to focus on low-cost sanitation and sewerage, a Low-Cost Sanitation Unit has been established within the Government.

In the Philippines, improved techniques for the planning and design of low-cost water distribution networks are being put into effect in some 30 water districts, and they will be used in designing systems for an additional 150 small towns with 2.5 million people. Already the World Bank has financed the expansion in the 30 water districts at a cost of \$17 million.

This project was begun in 1979 as a demonstration programme to design pilot water supply and sanitation schemes to demonstrate the technical, financial and social feasibility of low-cost technologies as an alternative to conventional systems.

In addition to India, Tanzania and the Philippines, 10 other countries are already participating. The proposed 12-month, \$933,250 project would assist governments not only to develop local low-cost technologies and expertise in these areas, but also to

implement the projects. Project activities would also be extended to other interested countries.

The third project will assist an on-going effort; this one to test and demonstrate small-scale solar-powered pumping systems. The UNDP Governing Council, in June 1978, approved the initial \$ 1.2 million project to develop and field test solar-powered irrigation and drinking water systems for developing countries. Four countries - India, Mali, Sudan and the Philippines - agreed to participate on a pilot basis.

CONFERENCES

Congress Wasser Berlin '81 from March 30 to April 3, 1981 in Berlin

The "International Drinking Water Supply and Sanitation Decade" will form the focal point of the first day of the Congress WASSER BERLIN '81, which will open on March 30, 1981 in the International Congress Centre Berlin. Representatives of the UN Centre for Natural Resources, Energy and Transport, the World Health Organization and the Federal Republic of Germany's technical cooperation organization, Gesellschaft für Technische Zusammenarbeit (GTZ) will be reporting on the significance of this UN initiative. An expert from India will be speaking on the complex of questions surrounding this subject, from the point of view of the developing countries.

Research on acute Viral Diarrhoeas

The WHO Diarrhoeal Diseases Control Programme is undertaking a global research programme in Acute Viral Diarrhoeas. Viruses to be studied include primarily rotaviruses, and also the Norwalk and Norwalk-like agents, adenoviruses, coronaviruses, caliciviruses, and other smooth and rough small spherical viruses. Research proposals relating to improvements in diagnostic methods, epidemiology, characterization of pathogens, immunology and vaccine development will be given priority for funding, especially projects having direct relevance to childhood diarrhoea in developing countries. Projects to investigate the pathogenesis and natural history of infection will also be considered. In 1980-81, in principle, contracts of up to US\$ 25 000 per annum and per project will be awarded. Contracts for larger sums will be considered only in exceptional circumstances. Scientists wishing to receive support should submit a letter briefly describing their past experience and the objectives and outline of their proposed project to: The Programme Manager, Diarrhoeal Diseases Control Programmes, World Health Organization, 1211 Geneva 27, Switzerland. Full details and a standard application form will be provided. Similar research programmes in Bacterial Enteric Infections and in Drug Development and Management of Acute Diarrhoeas are being initiated.

NEW PUBLICATIONS

CARIBBEAN BASIN WATER MANAGEMENT PROJECT A Guide for Trainer-Consultants

The Caribbean Basin Water Management Project has recently announced the publication of a unique Guide to be used in conjunction with their Manager/Supervisor development programme. A guide for Trainer-Consultants has been prepared by 12 local water utility managerial personnel and is the basis for workshops that will be presented in 10 countries throughout the Eastern Caribbean. The Guide represents an innovative approach

to middle management training. The six semi-structured experiences in management development outlined in this book were designed by West Indian managers themselves. The manager-writers (who will also be the Trainer-Consultants) had two prime concerns in devising the training material:

1. That the content of each module deal with areas particularly relevant to the Caribbean water utilities; and
2. That the training activities be heavily weighted in favour of participative teaching techniques.

Consequently, users will find that the training activities in this Guide do not suggest that a trainer merely talks about communications, but that he attempts to actually enhance communications practices and skills. Rather than receiving a lecture on information systems, the workshop participants will be structured to actually developing one.

The Guide contains six structured experiences -- designs for management learning suitable to first-line supervisors of water utilities in the Caribbean. These designs have been developed with an eye to limitations of available teaching technology and the learning resources of audiences in lesser developed countries. While the essence of this programme in West Indians helping West Indians, these materials can easily be adapted to fit the situations and purposes of trainers elsewhere. For further information, please contact:

Caribbean Basin Water Management Project
PAHO/WHO, P.O. Box 508, Bridgetown, Barbados,
West Indies.

The IRC Design and Construction manual (Technical Paper 11) on Slow Sand Filtration has been translated by "l'Association Française pour l'Etude des Eaux" and is now being printed.

Copies are expected to be available at IRC in April 1981.

Refer to "la Filtration Lente sur Sable pour l'alimentation en eau de collectivités dans les pays en développement."

Of great interest to our readers is the recent publication of the "World Bank Research in Water Supply and Sanitation, Summary of Selected Publications". This latest pamphlet describes fifteen of the most recent and forthcoming volumes. Of special

note are the three interdisciplinary volumes due in 1981 from the John Hopkins University Press:

Number 1, Appropriate Sanitation Alternatives A Technical and Economic Appraisal, by J.M. Kalbermatten, De Anne S. Julius, and C.G. Gunnerson, April 1981; Number 2, Appropriate Sanitation Alternatives:

A Planning and Design Manual, by the previously mentioned authors and D. Duncan Mara, May, 1981; and Number 3, Sanitation and Disease: Health Aspects of Excreta and Wastewater Management, by R.G. Feachem, D.J. Bradley, H. Garelick, and D.D. Mara, late 1981.

A comprehensive list of World Bank publications in this field can be found in the Bank's Catalogue.

For further information, please write to the following regional distributors: Southeast Asia - Prentice Hall of Southeast Asia, PTY. Ltd., 4 - B, 77 Ayer Rajah Industrial Estate, Ayer Rajah Road, Singapore 5.

Latin America and the Caribbean - Unilibros, 5500 Ridge Oak Drive, Austin, Texas 78731, U.S.A.

Throughout the rest of the world - orders can be sent directly to The John Hopkins University Press, Baltimore, Maryland 21218, U.S.A.

Most of the 12 volume Appropriate Technology for Water Supply and Sanitation report series, and the Bank's Catalogue of publications, are available free of charge from: The World Bank, Publications Unit, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A.

The influence of man on the hydrological regime with special reference to representative and experimental basins, Proceedings of the Helsinki symposium, June 1980.

This book is the proceedings of a symposium of the assessment of quantitative changes in the hydrological regime of river basins due to human activities. The symposium was organized by UNESCO, International Association of Hydrological Societies (IAHS), the Finnish National Committee for the IHP, and the Finnish National Board of Waters.

You can order your copy from the Treasurer, International Association of Hydrological Societies, (IAHS). A catalogue of all IAHS publications is available free of charge from either the Treasurer IAHS, 2000 Florida Avenue NW, Washington, DC 20009, USA or the IAHS Editorial Office, Institute of Hydrology, Wallingford, Oxon OX10 8BB, U.K.

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.

Please note:

Because of increased printing and mailing costs, IRC has changed its Newsletter mailing policy. Individual subscribers will receive the English or the French or the Spanish edition, and not both English and French and/or Spanish editions as before.

Bulk orders are also modified in certain cases. The Editor, IRC Newsletter.

NEWS FROM IRC

IRC proudly announces the forthcoming publication of: Small Community Water Supplies, a comprehensive handbook of technology for small water supply systems. Contributing authors include: L. Huisman, Professor of Sanitary Engineering, Delft University of Technology, The Netherlands; J.M. de Azevedo Netto, previously Professor of Sanitary Engineering, University of Sao Paulo, Brazil; B.B. Sundaresan, Director, National Environmental Engineering Research Institute, India; and J.N. Lanoix, formerly of the Division of Environmental Health, World Health Organization, Geneva. This handbook has been compiled by IRC.

The needs are enormous. Millions of people living in developing countries lack reasonable access to an adequate supply of safe drinking water. The problems are particularly acute for countless small communities in the rural and urban fringe areas, where water supplies often are grossly inadequate. It is a misconception to regard small community water supply systems as 'scaled down' versions of urban installations requiring less engineering skill or ingenuity. The exact opposite may be the case. Simplicity and smallness should not be regarded as backward or second-rate, but rather as appropriate for the purpose. Technologies must be selected that can be integrated with the community involvement and participatory approach which is so essential in small-scale schemes. Misapplication of technologies is likely when the designer does not clearly understand the basic costly over-designs and unrealistic manpower, operation and maintenance requirements.

This handbook has been designed to provide a broad introduction in the technology of small community water supplies. It provides information and guidance that should be most readily used by those having some technical background in fields such as civil engineering, public health or irrigation, but with no formal training or experience in water supply. It should serve engineers and public health inspectors who are called upon to assume responsibility for the design of small

water supply systems. This group also includes provincial and town engineers, who have responsibility for water supply and sanitation, amongst many other tasks.

Contents: Preface, Introduction, Planning and Management, Water Quantity and Quality, Water Sources, Rainwater Harvesting, Springwater Tapping, Groundwater Withdrawal, Surface Water Intake, Artificial Recharge, Pumps, Water Treatment, Aeration, Coagulation and Flocculation, Sedimentation, Slow Sand Filtration, Rapid Filtration, Disinfection, Water Transmission, Water Distribution, and several Annexes. 320 pages; 210 diagrams; 18 tables. Published by the International Reference Centre for Community Water Supply and Sanitation.

A flyer on and order form for Small Community Water Supplies will be mailed to readers of the Newsletter next month.

SLOW SAND FILTRATION PROJECT (1)

For four years IRC has been involved in the integrated research and demonstration project on slow sand filtration. To give the reader more insight in the activities undertaken in this project the next 6 issues of the Newsletter will contain brief articles on this topic. This first article will provide a general introduction to the project while in the following issues the specific features of the country-projects will be highlighted.

Slow sand filtration is a purification process in which the water to be treated is passed through a porous bed of a filter medium. During this passage the water quality improves considerably by reduction of the number of micro-organisms (bacteria, viruses, cysts), by removal of suspended and colloidal material, and by changes in the water's chemical composition. In Europe slow sand filtration is a well-known process for the biological filtration of drinking water. It has been successfully applied for over 150 years, and even nowadays it is used for the water supplies of cities like London, Amsterdam and Antwerp.

Slow sand filtration (SSF) is very well suited for the rural areas of the developing countries because of its simple operation and maintenance. At the same time it can provide a virtually safe drinking water at low recurrent cost. Filter plants can be constructed with locally available material and, with some supervision, construction is usually well within the capacities of local craftsmen.

The primary goal of the SSF Project is the promotion of Slow Sand Filtration for com-



munity water supply in developing countries. The project comprises three phases, focusing on respectively: research, demonstration, and transfer of knowledge and experience.

The applied research programmes for phase 1 of the project were implemented from 1976 to 1978 by research institutes, in close collaboration with operating agencies in five countries: Ghana, India, Kenya, Sudan and Thailand.

Apart from gaining experience with the slow sand filtration process, the specific objective of these programmes was to develop appropriate criteria for the design, construction, operation and maintenance under the local conditions in these countries.

At present the emphasis of the project is placed on the implementation of the demonstration programmes (second phase). Apart from the participating countries mentioned above, Colombia and Jamaica have also joined the core group.

The objective of the programmes for Phase 2 is to test and demonstrate integrated implementation strategies for large scale slow sand filtration programmes under different conditions.

In the project due attention is given to the technical, organizational, social and cultural aspects of the introduction of a water supply system in a rural community. A health education programme was executed to create understanding and awareness of the benefits of safe water. A participatory approach was adopted to ensure the fullest possible involvement of the community in the planning, implementation and finally the management of the water supply system.

The general responsibility for the programme in each country lies with a Programme Managing Committee in which the various disciplines and agencies involved in the programme are represented.

The direct responsibility for each of the demonstration projects lies with local co-ordination committees comprising representatives of the communities as well as representatives of the executing agencies at the local level.

Because of the broad composition of the committees, the various components of the demonstration projects and the organizational requirements can be taken care of in an integrated way.

A major function of the committees is the establishment and/or strengthening of multi-disciplinary collaboration at the national and local levels, in such a way that liaison is maintained with other sectors such as primary health care and integrated rural development.

The development of this collaboration and the related organizational and institutional infrastructure is a prerequisite for large scale follow-up of the present demonstration programmes.

In the course of 1981 a start will be made with phase III. The most direct output of this phase will be national seminars on the SSF-project in the participating countries and the publication of project results by IRC.

POETRI IN MOTION

POETRI is the IRC programme which serves developing country information needs in the water supply and sanitation field. The Programme on Exchange and Transfer of Information provides technical cooperation in this area to help national agencies build up their

information systems. In addition, POETRI helps national agencies absorb information from other countries and assists in its transfer and exchange. These capabilities can ensure the appropriateness and cost-effectiveness of water supply and sanitation supplies.

POETRI is emerging from the ground-breaking stage. Contacts have been made on a global scale, agreements signed, and the real "nuts and bolts" detailed work is underway. National and Regional Focal Points (NFP's and RFP's) have been appointed by national governments to lead POETRI tasks. The following is a summary of recent and planned POETRI activities.

LATIN AMERICA

An agreement has been signed with CEPIS (Pan American Centre for Sanitary Engineering and Environmental Sciences) to act as a RFP. In Latin America, POETRI complements the Pan American Network for Information and Documentation on Sanitary Engineering and Environmental Sciences (REPIDISCA). Working relationships have been established with the NFP's of Colombia, Ecuador, Peru, Argentina and Jamaica.

The first POETRI regional workshop was held at CEPIS, Lima, Peru in November 1980. In addition to director-level regional participants and observers from 6 countries, the workshop made use of the active services of the RFP for West and Central Africa (from the Comité Interafricain d'Etudes Hydrauliques (CIEH), and of the NFP from the National Environmental Engineering Research Institute (NEERI), Nagpur, India. A regional training course for NFP staff at the operational level will take place at CEPIS this February. National workshops are planned for May and June in Peru, Argentina, Colombia, and Ecuador.

ASIA AND THE PACIFIC

NEERI will act as the NFP for India. A national workshop to implement the Indian workplan will be held 2nd part 1981; a regional workshop is also planned. Initial contacts have been made with Pakistan, the Philippines, Thailand and Indonesia.

AFRICA

CIEH is the POETRI RFP for West and Central Africa and contacts have been made with all twelve of its member countries. A regional workshop is planned for mid 1981, in Ouagadougou, Upper Volta. In East and Southern Africa contacts have been made with Kenya, Tanzania, Sudan and Zambia.

COMMUNITY PARTICIPATION AND EDUCATION IN RURAL WATER SUPPLY PROGRAMMES

Colombia

In the rural water supply programme in Colombia, communities can request a piped water supply with yard connections. The allocation depends on the results of studies on technical feasibility, environmental sanitation, and a socio-economic study. For these studies the formal permission of the community is asked. An information campaign precedes them. The project design is presented in a general assembly called by the local development committee. Meanwhile, a number of project promotion and information activities, including health education, are carried out. A formal contract is signed in a public meeting between the community's committee and the water agency. In this

contract are stated duties, local contributions to financing, and the organizational set-up for community participation in supply construction and management. For each community, separate financial arrangements are made, based on the socio-economic study of the community. The households also contribute voluntary labour and materials, for which they get some rate reductions later on. The contributions are organized by the local committee in co-operation with the promotor. The latter is the agency representative who is responsible for the whole community participation and education process. After completion of the supply, a special water committee is elected by the users. This committee is responsible for the operation and management of the system, and has a legal status. Regular contact with the water agency is kept through monthly visits of the promotor. A continued technical support is ensured by the presence of zonal maintenance and repair units of the water agency. Similar programmes exist in Argentina, Peru, the Dominican Republic, Paraguay and Guatemala.

THE ORIGIN OF THE DECADE

From where does the idea of the International Drinking Water Supply and Sanitation Decade come?

On November 10, 1980 the Decade was officially launched in the United Nations General Assembly. This declaration is the result of actions begun by Habitat, the United Nations Conference on Human Settlements, held at Vancouver, Canada from 31 May to 11 June 1976. It was recommended that quantitative targets be established by nations to ensure that all their people have access to safe water supply and hygienic waste disposal by 1990. From this Conference later emerged the slogan "Clean Water and Adequate Sanitation for All by 1990". The subsequent United Nations Water Conference at Mar del Plata, 14-25 March 1977, extended this ground-breaking work and urged that a plan of action "be formulated in a co-ordinated manner at the national and international levels". A Steering Committee for Co-operative Action was set up in August 1978 on the initiative of the Director-General of the World Health Organization and the Administrator of the United Nations Development Programme. Participants in the Committee include now eight organizations of the United Nations system: The United Nations, UNICEF, United Nations Development Programme, International Labour Organization, Food and Agricultural Organization, UNESCO, WHO, and the World Bank. The Committee is chaired by the Deputy Administrator of UNDP, and the WHO Unit for Global Promotion and Co-operation For Water Supply and Sanitation provides the secretariat. To improve co-ordination and delivery at the country level is the main objective of this Steering Committee.

This call for action reflects the grim reality facing over one half of the people in the Third World (outside China) who are denied safe drinking water. Sanitation is even more dismal - three out of four people in developing countries have no kind of sanitation whatsoever! What facilities have been provided have not kept pace with the increase in population. The total number of people in the Third World without safe drinking water and adequate sanitation is increasing. The rural areas of the developing countries, where the majority of the world's population

lives, are relatively much worse off than urban areas. The following figures speak for themselves:

Numbers of people in the developing world (excluding China) without clean water and sanitation in 1980, based on government figures supplied to WHO.

		Population (millions)	Population (millions)
	Population without (millions) clean water	without adequate sanitation	
Urban	703	177 (25%)	331 (47%)
Rural	1612	1143 (71%)	1399 (87%)
TOTAL	2315	1320 (57%)	1730 (75%)

Source: Comprehensive Report on the Decade for the UN General Assembly.

The costs of reaching Decade targets by 1990 will be enormous. In people terms, this means providing half a million additional people with water supply and sanitation facilities every day for the next 10 years. Just how much these targets will cost depends largely on the level of service. Water supply in the form of house connections vary from \$50-100 per head, and sewerage systems from \$80-200 per head.

A lower, but adequate, level of service can be provided with standpipes (\$10-20 per head) and latrines or pit privies (\$5-10 per head). The latest World Bank estimates suggest that the initial total costs of clean water and sanitation for all by 1990 would be in excess of \$600 billion, (1978 U.S. dollars, not including operation and maintenance costs, billion = 1,000 million). These figures assume that everyone has to be reached by 1990; that urban areas have households with water taps and with connections to a sewerage system; and that rural areas are served by standpipes or handpumps and individual latrines. But cheaper and more appropriate technologies could reduce this total cost by one-half, according to the Bank.

Much of this initial capital investment must be raised by the developing countries themselves. WHO estimates that between one-fifth and perhaps one-third of the total expenditure (\$6-10 billion a year) will be external aid from developed countries and international organizations.

\$300-600 billion is a very large amount of money. But this sum pales in comparison when we realize:

- \$500 billion was spent on arms alone in 1980
- \$240 million is spent daily on cigarettes and
- \$10 million worth of non-essential tranquilizers are purchased every day!

(Source: Water and Sanitation for All?

Earthscan Press Briefing Document No. 22).

SANITATION

Malawi - The experiment on the Watergate

Toilet

H.T.K. Dzinjalama, District Health Inspector for Machinga based at the Liwonde Rural Hospital in Malawi, describes the "Watergate" Toilet. The toilet was developed because simple pit latrines were not found satisfactory.

A handout states that "the number of people who die annually from enteritis alone is two-fold the number of those who die from

motor accidents." The Watergate is a water flush toilet fed from a 44-gallon (near 200 litres) drum of water, using about 1 litre for each visit. Ordinary flush toilets use 15 or 20. The slab is made from polyurethane, a plastic product. It has a water-seal, provided with a suction valve. The weight of both the excreta and the water flush helps to tip the pan downwards, emptying the contents into an underlying pit. Mr. Dzinjalama tried out two of these constructions, one at a public market, the other at a rehabilitation centre for mothers. His findings showed that although it is hard to determine whether the users would be attracted to them, these toilets are very useful and are an improvement from the ordinary pit latrine. Advantages: It is cheap (no price indicated) and simple to install. The water-seal cannot be blocked, even when people flush sticks, stones, bottles and maize cobs. Mr. Dzinjalama had a few observations, however:

- The drum of water, if not properly covered, can be a source of malaria.
- The weight of excrement may be inadequate to tip the pan into the pit, until another user comes along to increase the amount of excreta; (in practice, stones and sticks have been used to push the waste matter into the pit).
- Excrement sticks to a dry pan, if the drum is empty of water.
- Sometimes stones and other debris have been thrown into the drum, thus blocking the water suction valve.
- Frequent cleaning of the drum is necessary.

To drink or not to drink is the title of an article on attitudes and beliefs about diarrhoea in the August 1980 issue of Diarrhoea Dialogue, published by AHRTAG (85 Marylebone High Street, London W1M 3DE, England). In this interesting article, Jon Rhode (now with USAID in Haiti) discusses the

importance of mothers' attitudes towards drinking in the setting up of an effective oral rehydration programme.

Mr. Rhode lists the following local beliefs on diarrhoea and its effects, and provides suggestions for "marketing" of educational messages which could be given to the mothers to properly match these beliefs:

Local Belief	Possible Marketing Message
1 Diarrhoea is a cleansing of the body.	Drink to replenish water, the cleansing element of the body.
2 The body dehydrates and loses strength during diarrhoea.	Let the body drink to give strength.
3 Diarrhoea is a normal part of growing up.	It is time to provide a tonic - extra fluid - to strengthen the child's developing body.
4 Diarrhoea is a hot illness.	Respond with a cold drink.
5 Athletes drink extra fluid to replace salt and water loss in sweat.	Diarrhoea also causes loss of body salts and fluid. Let your child re-gain strength through drinking.
6 Diarrhoea is an old and traditionally known condition of imbalance in life forces.	There are many useful traditional remedies for diarrhoea.
7 Diarrhoea is a disease. It kills by dehydration.	Lives can be saved with the newest remedy - oral rehydration.

For further information on AHTRAG, please use the above address. This organization is a WHO Collaborating Centre on Appropriate Health Technology.

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IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

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IRC NEWSLETTER

THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

No. 119

March 1981

INFORMATION SUPPORT FOR THE DEVELOPING WORLD

POETRI is the IRC programme which serves developing country information needs in the water supply and sanitation field. The Programme on Exchange and Transfer of Information provides technical cooperation in this area to help national agencies build up their information systems. In addition, POETRI helps national agencies absorb information from other countries and assists in its transfer and exchange. These capabilities can ensure the appropriateness and cost-effectiveness of water supply and sanitation supplies.

Like all other IRC programmes, POETRI's focus is on the rural and semi-urban areas of developing countries, where the need is greatest. According to the latest WHO statistics, seven out of every ten persons in these areas are deprived of safe water, and almost nine out of every ten have no adequate sanitation. This is the dismal situation facing most of mankind. In recognition of the gigantic scope of the problem the United Nations has declared 1981-1990 the International Drinking Water Supply and Sanitation Decade and is leading a coordinated effort to provide safe water and adequate sanitation for all by 1990.

POETRI is a response to the demand for a new approach to information support. In the rural water supply and sanitation field, five areas require urgent study and new approaches: 1) community organization and health education; 2) the application of appropriate technologies; 3) improving performance records particularly in operation and maintenance; 4) developing monitoring and evaluation systems; and 5) sub-professional manpower development and training. Most of the documentation on these topics is of the non-conventional, elusive kind -- theses, working papers, feasibility or pre-investment studies, research reports, and other material which has a very limited circulation.

Fifteen developing world countries have appointed National Focal Points (NFPs) to lead POETRI tasks on an individual country basis, and an equal number have expressed interest in participating in POETRI/Phase 1. Regional coordination is led by Regional Focal Points (RFPs); RFP functions in Latin America are being led by CEPIS, Lima, Peru (Pan American Centre for Sanitary Engineering and Environmental Sciences) and in West and Central Africa by CIEH, Ouagadougou, Upper Volta (Comité Interafricain d'Études Hydrauliques). CEPIS has its own information network with which POETRI works closely --

REPIDISCA, the Pan American Network for Information and Documentation on Sanitary Engineering and Environmental Sciences. At the national level POETRI is assessing widely varying information needs, surveying (potential) users and sources of information, and promoting workshops on information support for the International Drinking Water Supply and Sanitation Decade programmes. From this ground-breaking work presently underway, practical models for information systems and services will be developed, field tested, and evaluated.

In addition to country-level activities, POETRI, at the regional level, is organizing regional workshops and training courses. POETRI is also developing guidance material such as training modules for regional and national workshops and courses as well as guidelines for specific parts of the national POETRI workplan. Methods, standards, and tools for information handling and exchange are being prepared including a multi-lingual thesaurus, an abstract journal, an international directory of information sources, and a standard library.

For more information please contact IRC.

IRC TO BEGIN COMMUNITY EDUCATION AND PARTICIPATION PROJECT IN TANZANIA

IRC is currently beginning a community education and participation project in Tanzania. The Tanzanian government has recently approved IRC's proposal and the Dutch government has provided initial funding.

The International Drinking Water Supply and Sanitation Decade (1981-1990) is gaining momentum. One of the key elements for realizing its aims - safe water and adequate sanitation for all by 1990 - is the incorporation of a community education and participation component in investment programmes for water and sanitation. Tanzania is showing a growing interest in this area. The project's goal is to provide technical support to operating agencies for community water supply and sanitation in Tanzania for developing and field-testing a community education and participation component - (CEP). The specific objectives are:

- assessment of the need for and the aims of a CEP component
- development of practical models for such a component
- their field testing including the development of organizational structure
- appraisal for implementation in future programmes.

The success of a drinking water supply pro-



gramme not only depends on the timely installation of technical facilities but also on their continued functioning and acceptance by the population. It is precisely in the latter area that major problems occur.

The first problem in this respect is the organization of operation and maintenance. Water supplies frequently break down. This is often a consequence of insufficient finance and lack of trained manpower for operation, maintenance and management.

A second problem is the lack of community acceptance. For a technology to be socially appropriate it has to be in accordance with the perceived needs and preferences of the community; lie within its capacity; avoid problems of user operation; contribute to positive changes in hygiene; and avoid negative effects on the social and physical environment.

These two problems have a negative effect on public health impact. When safe water is not used by all the people all the time, at least for drinking purposes, no optimal public health impact can be expected. Water of a good quality can easily be contaminated by inappropriate practices of collection, storage and consumption. Good programmes for excreta and waste disposal, food hygiene, etc. are also conditions for an optimal public health impact.

Studies of drinking water supply and sanitation programmes in Tanzania, especially those of the Tanzanian Bureau of Resource Assessment and Land Use Planning (BRALUP) show that these two problems exist. In some other countries, such problems have led to the introduction of a community education and participation component. The proposed strategy for Tanzania is based on the experiences gained in these programmes.

The principles underlying this strategy are:

- (1) There must be a perceived need for a socio-educational component by operating agencies.
- (2) The component has to fit into the technical programme.
- (3) It has to be organizationally feasible.
- (4) It has to be flexible in its design.
- (5) Its needs to be adapted to the target communities.
- (6) The testing of a component for its suitability has to fit into a programme approach.
- (7) The component has to be tested on its preventive and curative value.

The most direct result of the project will be a field-tested component for community education and participation in drinking water supply programmes in Tanzania. Another general result will be (in the case where a special promotion team is preferred) the development of a trained manpower unit for CEP tasks within the water department, or (in the case of using technical manpower or other extension workers) the training of existing manpower for CEP tasks in water supply projects. Further, the agencies involved may decide to make the evaluation system developed a regular feature of the water supply programmes. More specific results will be the production of manuals for implementation and evaluation purposes, and the production of field-tested educational and training materials and legal documents for agreements between agencies and communities. Finally the project will produce an analytical report which will be of use to other developing countries, to donor agencies and to consultants.

COMMUNITY EDUCATION AND PARTICIPATION: SELECTED EXAMPLES

Malawi

In Malawi, a shallow wells and handpump programme and a gravity supply programme include a strong community participation element. The water agency does not have a separate promotion section, but its technical assistants are trained on-the-job in community organization and social communication. Projects are allocated in three ways: as a result of a request to the district development committee, or as a result of either a water resources or an area development plan. The communities are involved in the planning and design phase through discussions with traditional and political leaders and through general assemblies. Health education is not included. For the management of voluntary labour for piped supplies, a main (area) committee and section branch and village committees are formed. The authority of these committees is delegated by the chief and the party. For a successful labour participation, the scheme of work is adapted to the agricultural season; workplans are designed with the committees; daily field preparations are made and labour instruction given. After completion of the supplies, the maintenance unit of the water agency remains responsible. A maintenance assistant is stationed at one large or a group of smaller schemes. Some responsibilities are shared with or delegated to the project or branch committees. It is presently proposed that these committees recruit and supervise a local caretaker, who will be employed by the agency on a part-time basis. Discussions are also taking place about charging the villagers a small amount to cover part of the growing operation and maintenance costs.

Guinea-Bissau

In Guinea-Bissau, a shallow well and handpump programme has been started in selected areas of the country. For the organization of community participation and education a promotion unit has been established within the water agency. A major difference from the Latin American programmes is that teams of male and female promoters are used. Approximately 3 - 6 months before the actual construction is to take place, the teams invite the local political leaders to call a regional meeting of all village committees. The committees are informed about the planned project and invited to participate.

The promotion teams then visit the individual communities and carry out a socio-economic and cultural study. Its results are discussed in a general village meeting. The promoters, who now have a clear idea of the existing and perceived problems in water supply and the preferences of the community, discuss the technological alternatives with the technical team that has collected the hydrological and geophysical data. The community is informed about the options and their consequences (e.g. labour, siting).

Additional provisions (for cattle, laundry) are possible upon payment of half the costs. The water itself is free. The decision is then left to the community. Once the project is accepted, the village committee organizes the voluntary labour for site clearance and access road construction, the housing of the technical team and the usual ceremonies. Two caretakers, a man and a woman, are chosen by the villagers to be trained in pump maintenance and improvements in hygiene. After

half a year the promoters visit the community again to evaluate operation, maintenance and general use of the pumps. The results are discussed with the village committee and the caretakers, and joint decisions are taken on follow-up action by the community and/or agency. Presently considered are a mobile maintenance unit for a more regular higher level support, the training of locally-elected health promoters and a payment system to cover (part of) the maintenance and repair costs.

India and Bangladesh

In the handpump programmes of India and Bangladesh a three-tier maintenance system has been developed. At the community level, a caretaker is selected by the block development officer, the assistant engineer of the water agency, and the medical officer of the area. This volunteer is given a two-day training in handpump operation, maintenance and repair and hygiene and is provided with some tools. The maintenance responsibilities are limited to weekly servicing, hygiene, record keeping and reporting breakdowns. For this last purpose the caretaker ticks off the diagnosed problem on 2 pre-printed and pre-stamped postcards which are sent to the block development officer at divisional level and to the district maintenance unit.

At the divisional level, a trained fitter is available for minor repairs. For more complicated jobs, a mobile team for each 1000 handpumps is available at the district level. Repair costs are shared by the government and the local councils. In the planning and construction phase, participation of the community varies from some material contributions, consultation of the local leaders on siting of the facility, to no participation at all. No health education is included in these phases.

MANPOWER DEVELOPMENT AND TRAINING

The need for action

There is consensus that the International Drinking Water Supply and Sanitation Decade will only achieve its objective if an unprecedented supply of skilled manpower becomes speedily available. In 1970 the consolidated view of 86 developing countries identified lack of trained staff as their second greatest constraint in implementing successful water supply programmes. Later studies have indicated limited progress, but estimates of Decade needs indicate a global requirement of between one and three million additional skilled people just to meet development targets. This figure takes no account of the massive shortage of people able to operate and maintain existing installations properly. This reflects the imbalance between physical and human resource provision which has so far characterised sectoral development efforts.

The substantial development funds now becoming available will fail in their aim unless much bigger, but still relatively modest investment is made in relevant and imaginative training schemes.

The effect of Manpower shortages

The absence of competent management manpower means financial inefficiency, wasteful use of limited funds, failure to implement planned development projects, inadequate maintenance, lack of staff through unattractively framed personnel policies, inefficient staff deployment and training, and poor management

organisation and control. All these indicate a management training need. Fellowships overseas, which sometimes result in little useful transfer of skill back to the situation they were designed to improve, tend not to meet this need. The problems persist, and come to be seen as endemic. What is usually required, but infrequently found, is an internal management development programme, dealing with the increasing complexity of the day-to-day problems which managers are actually facing.

In large utilities, it is common for managers to locate these problems at lower levels in the work force. Although the responsibility is ultimately that of managers, there are often grounds to support their feeling. At subprofessional, supervisory, maintenance and operative levels there usually are substantial problems of skill deficiency. Frequency of breakdowns, slowness in repair of installations, poor water quality, inadequate testing of supplies, inefficient attention to complaints, interruption of supplies, irregular and inefficient maintenance of installations can all indicate training needs. Means must be found to attract good staff, and train them adequately for their task. Each level of supervision and management needs to assume a clearer responsibility for the development of the people working under them. The larger utilities and national agencies will start this process when they understand their staff development role, receive technical training support, and have access to funds to make instructors and facilities available.

In rural areas the shortage of skilled manpower has far-reaching consequences. When installation engineers have left, simple deterioration and breakdowns can be irreparable locally. This is not only a question of manual skill, but of a broader educational understanding of the use and abuse of supply sources, avoidance of pollution, motivation to acquire simple technical maintenance skills, use of simple tools, knowledge of procedures for obtaining replacement parts, and ability to undertake simple schemes for further improvement of the facilities. The training needs in the rural areas for maintaining water supply and sanitation facilities are urgent and present the greatest difficulty. This sector is rightly identified as having high priority in the Decade's aims.

NEW MONTHLY BULLETIN ON SOLAR ENERGY TECHNOLOGY

The United Nations University publishes a monthly bulletin called ASSET (Abstract of Selected Solar Energy Technology). The bulletin includes a detailed bibliography on recent works, articles and communications presented during conferences related to solar and wind energies, bio-conversion and the socio-economic aspects of their utilization. Special emphasis is given to information relevant to rural communities in developing countries.

The ASSET bulletin is available upon request from ASSET-UN University, 29th Floor, TOHO Seimei Building, 15-1 Shibuya-2-Chome, Shibuya-Ku, Tokyo 150, Japan.

SHORT COURSE ANNOUNCEMENT

The Department of Civil Engineering at the University of Ottawa will be holding a short

course on "New Approaches in Water Supply and Sanitation for Developing Countries: Preparing for the UN Water Decade" June 22-25, 1981. The course will review the emerging low cost, renewable energy technologies, consider the role of operation and maintenance and will study social, economic and cultural aspects of technology implementation in developing countries. The cost of the basic three day course is \$275 (Canadian) and an optional \$60 (Canadian) for intense sessions on selected topics to be given on the fourth day.

The course is to be given by a team of consultants, professors and government engineers with overseas experience. Three professionals working in this sector from Africa have been invited for lectures. CIDA and IDRC representatives will also be participating. For further information please contact: Dr. Eric Schiller or Dr. Ron Droste, Water and Sanitation Short Course, Department of Civil Engineering, University of Ottawa, Ottawa, Ontario K1N 9B4, Canada. Phone: 613-231-3432

GLOBAL TESTING OF RURAL WATER SUPPLY HAND-PUMPS

The World Bank, as executing agency of this UNDP-financed Handpump Testing Project, in cooperation with IRC, UNICEF, WHO and UNEP, is conducting laboratory and field tests of handpumps to evaluate design, construction and operation of water supply handpumps. The objective is to prepare technical specifications for the manufacture of reliable handpumps suitable for various conditions in developing countries; and guidelines are needed to reduce the existing high failure rate of handpumps caused by defects in design and manufacture, errors in selection for specific conditions and lack of maintenance. Among the principal parameters on which the pumps will be evaluated are appropriateness of design, ease of installation and maintenance, longevity and frequency of breakdowns and cost.

Selection of pumps to be tested will be based on a technical evaluation by an advisory panel, the number of pumps installed, annual production, availability in specific areas, maintenance and operating performance, ease of repairs, availability of spare parts, cost of supply, installation and maintenance. For further information: IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

CONSTRUCTION GUIDELINES IN ENVIRONMENTAL SANITATION

The International Ferrocement Information Centre (IFIC), AIT, has available two booklets that may be useful to those who have the task of construction in environmental sanitation: "Ferrocement Water Tank" and "Ferrocement Biogas Holder", both of which are in the Do-It-Yourself Series published by IFIC.

The "Ferrocement Water Tank" booklet, benefiting from several useful comments from reviewers, presents tanks of various capacities (600 to 10,000 litres) in a convenient tubular form. 600-1,200 litre tanks are suitable for individual dwellings while tanks of larger capacities are recommended for farms, school, public buildings and other community centres.

"Ferrocement Biogas Holder" describes a design to be used with any digester normally having a steel gas holder, and especially suitable for the KVIC digester.

Based on experiments at the Structural Engineering Research Centre (SERC), Roorkee, India, it has been observed that the ferrocement gas holder, besides being far superior in functional aspects, costs only half as much as steel gas holders. Among the advantages of using ferrocement for construction of biogas holders are: a) the technology involved is labour-intensive and calls for moderate skills and is, therefore, ideally suited for application in the rural areas of developing countries; b) The material has low thermal conductivity and as a result, the process is relatively more stable; c) it has a high resistance to corrosion; d) as a consequence of the ease of construction, any accidental damage can be readily repaired; e) constituent materials that are required for ferrocement construction are available in most developing countries.

The two booklets present features on material specifications, material estimations, constructions, and post-construction operations. They are available from IFIC at a cost of US\$2.00 each (inclusive of postage by surface mail), Asian Institute of Technology, P.O. Box 2754, Bangkok, Thailand.

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IRC NEWSLETTER

THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

No. 120

April 1981

The April 1981 Newsletter has as its main theme community education and participation (CEP) in water supply and sanitation. This topic is receiving lots of attention these days not only from national policy makers and agency planners but also from donor agencies and organizations.

There is growing evidence that some form of community education and participation is essential to the long-term success of water supply and sanitation facilities in developing countries.

But neither the theory nor the practice of this concept has proved simple. There can be no universal definition - each country is surely the best judge of what is possible and practicable. But perhaps a common vocabulary will help us to understand more about the successes and failures of these ideas and their applications in developing countries. IRC has for years integrated a community education and participation component in its transfer of technology programmes and projects. In addition, IRC has just begun a 16 month CEP project in Tanzania (see IRC Newsletter No. 119), and is making plans for a similar project in Latin America.

Based on this field work and on the experience and documentation relating to other attempts in community education and participation in water supply and sanitation, IRC has published two studies by Christine van Wijk-Sijbesma:

IRC Technical Paper No. 12 - Participation and Education in Community Water Supply and Sanitation Programmes, A Literature Review (1979) and a companion volume IRC Bulletin 13 - A Selected and Annotated Bibliography (1979) of the above topic. IRC has also published Bulletin 14 - Community Education and Participation in the Slow Sand Filtration Project (1979).

The demand for Technical Paper No. 12 has been so great that van Wijk-Sijbesma has been happily obliged to prepare a revised edition which will be printed in the near future.

In addition to this revised edition, IRC is planning to publish soon new documentation on fresh approaches to community education and participation in water supply and sanitation, including:

- Community Participation and Education in Community Water Supply and Sanitation Programmes; Methods and Strategies, by Dr. Alastair White who is presently leading IRC's Tanzanian CEP project;
- a selected and annotated translation (from Spanish into English) from Colom-

bian manuals on CEP from the Instituto Nacional de Salud, by Dr. Anne Whyte, Institute for Environmental Studies, University of Toronto;

"A Guide for the Design of A National Support Programmes for Community Education and Participation in Water Supply and Sanitation", of which Dr. Anne Whyte is also the principal author. This document was prepared by IRC at the request of the World Health Organization; it has yet to be field tested, but is available from IRC in photocopy format.

All IRC publications are available at no cost to non-commercial organizations in developing countries. To obtain a full list of IRC publications, please write to the Information Section, IRC.

For your information we are printing in this issue adapted versions of two of the above mentioned forthcoming publications: first, a selection from Dr. Anne Whyte's "Guide", and then an abridged version of van Wijk-Sijbesma's revised IRC Technical Paper No. 12.

ADAPTED FROM DR. ANNE WHYTE'S "GUIDE" The Decade Approach

The approach of the Decade crystallises an evolution in water supply and sanitation project thinking that has taken place over the last ten years. In the Decade, multi-sectoral and community participation strategies will be encouraged and supported. Sector projects and programmes will be linked more closely to other sectors, particularly primary health care and health education. Communities will be involved earlier in projects and will play a more active role in programme planning.

The reasoning that has led to this approach for the Decade stems from much experience in the sector that indicates that for projects to be used and continued, their benefits must be perceived by the users, and their costs and equipment must be able to be maintained by them. In addition, the Decade target of adequate water supply and sanitation for all by 1990, from the perspective of the 1975 figures for rural areas of 22% for water and 15% for sanitation (population with reasonable access) seems only possible through the generation of affordable, socially relevant, self-reliant and self-sustaining projects.

Community participation has thus become one of the main planks on which the Decade



strategy has been built. It will be one of the criteria by which national programmes will be evaluated for support by external aid agencies. Beyond the Decade, the rights of communities and individuals to participate in the planning and implementation of their primary health care systems has been embodied in the Declaration of Alma Ata and in WHO's strategy to reach "Health for all" by the year 2000.

Much, therefore, depends on being able to successfully mobilize community participation in sector projects and national programming. But beyond the rhetoric, how is this to be done?

The need for political commitment

Community participation is the most political aspect of the Decade approach because it involves directly, the relations of a national government to its people. It can also change the relative roles of different levels of government. Community participation is thus a political process and as such, needs political commitment at all levels, including the highest.

It is particularly important that senior political personnel participate in the selection of programme objectives and priorities because it is here that the goals of the community participation approach of the Decade most clearly intersect with national political objectives.

A multi-sectoral approach

One of the outcomes of a community participation strategy is that people have an opportunity to express their own 'felt needs' and to order their own development priorities. Not all communities perceive water and sanitation as priorities. Community participation in the Decade thus means a willingness on the part of national planners to have one sector project rejected for another. A community participation approach lends itself to multi-sectoral programmes.

Even where multi-sectoral programmes are not well developed, water and sanitation sector activities can act as entry points for other sectors. What is needed is an effective inter-sectoral communication system through which communities can be referred to the appropriate department or agency. This means that, if a community expresses a strong interest in, for example, a health clinic or dispensary, the Ministry of Health is informed of the potential for a community participation project.

Conversely, other sector programmes may identify communities with strong potential for a water and sanitation project. These need to be referred to the appropriate drinking water supply and sanitation planning unit. To facilitate community referral between sector agencies, national planning committees for the Decade can seek to establish an agreed referral mechanism with other agencies.

At the community level, where initial enthusiasm for water and sanitation is found lacking, the community participation approach can include an educational component to increase awareness of the benefits of a project. Thus, whatever the outcome to the initial contact with a community, there are follow-up steps to be made.

What is community participation?

Community participation is, for some people, an ideology of development. For others, it is a tool for planning and management. In the Decade, it will be a process for implementing large numbers of projects and for

evaluating whether they succeed or fail in satisfying people's (perceived) basic needs. Indeed, it may be the only process widely available.

Community participation is not an absolute measure. It is a concept that involves a sliding scale of how much things are being done for people by others or by people for themselves. In other words, community participation means people are making the decisions and taking the actions that affect them. But in whose view? Participation can also mean that people believe they are influencing their own lives.

There are many lengthy studies on what participation can and cannot include. For sector programming, they can be distilled into the following four criteria: a) involvement in planning programmes; b) involvement in implementing programmes; c) sharing in the benefits of programmes; d) involvement in the evaluation of programmes.

In the past, projects which fulfilled any one of these criteria have been described as participatory. What the Decade Approach emphasises is that to both succeed and be acceptable for external funding, some degree of popular involvement under all four criteria must be demonstrated in future sector programmes and projects.

The degree of community involvement in planning, implementation, evaluation and benefits of projects will vary according to national government styles and community traditions. Planners can decide how far they can reasonable progress in participatory programming, and in what particular aspects of project development.

In the checklists (provided in Dr. Whyte's "Guide"), the alternatives suggested often provide insight into the range of community participation that has been used in sector projects. For example: what will be the responsibilities of the local organization for the planning phase?

Checklist: participation in planning; community information and motivation; collection of local materials; organization of voluntary labour; organization of other services; organization of fund collection; safe storage of materials, equipment, acquisition of land, rights of way; organization of ceremonies during planning phase; signing of contracts; communication of progress; identification of problems; selection of community members for special tasks and training; data collection. Where it is decided to implement "all of the above", obviously a highly participatory programme is planned. On the other hand, a minimal participation might be achieved by asking communities to organize voluntary labour.

In many countries, communities have been most involved in the implementation of projects, particularly through self-help construction labour. Further development of participation will probably occur through an extension of communities' in planning - project allocation, choice of service level, etc.

More rather than less participation is most likely to make projects succeed. At the same time, most so-called "self-help" or "self-reliant" projects are participatory in that the community relies on some outside support services.

Who participates?

A second aspect of participation is who participates? In the Decade Approach, more emphasis is being placed on expanding parti-

cipation within and between communities, especially to reach 'the poorest of the poor' and other groups disadvantaged by their ethnic origin, religion, social or economic status or sex.

In the past, greater involvement in the sector projects has come from the more economically advanced regions and communities and their leaders. Others have remained more passive and tended to receive less projects and have projects more 'delivered' to them. These are the communities which have the least experience of development and where a community participation approach can bring the most benefits. However, it is here that any participation strategy needs to be designed with the most care and where the chance of success has been most risky in the past.

The Decade, therefore, places a major obligation on sector programmes to involve local people in development projects and to make that involvement as genuine and as broad-based as possible. Recognizing the constraints that there inevitably are to progress in expanding participation, it remains important for all sector programme documents to: a) clearly set out national goals for participation, b) discuss the problems and past experiences of participation, c) describe the degree of involvement and who will be involved in the programme, d) propose ways in which the most disadvantaged regions, communities, people will be provided with ways to participate.

The ramifications of a community participation approach spread out from the actions taken within the community itself; to government department criteria set up to allocate sector projects between communities; and ultimately affect the organizational structure for development programming at the national level. Without considering all these levels, a community participation strategy is unlikely to succeed. It is for this reason that community participation has been so difficult to implement. It requires commitment, manpower and changes to be made at all levels from the village level worker to the highest planning and policy committee in the country.

The following is an abridged version of the summary in van Wijk-Sijbesma's revised edition of IRC Technical Paper 12. Please note that this Newsletter version has, for reasons of space, left out the equally important topics of community participation in evaluation, and community education in waste disposal programmes.

Participation in Allocation

Participation in the project allocation phase often takes the form of requests from the community or its leadership to the water agency or to a more general government planning institution, directly to the central level, or through a hierarchical procedure of screening at district, provincial and national levels. These requests are seen as reflecting the perceived need of the communities for improvement in their water supply system. This depends however on who initiated the procedure, and why and how this was done. The request system is also often accompanied by problems of time lags, over-demand and unequal distribution. Outside initiatives rarely offer a real choice between project acceptance or replacement by

another project with a higher locally perceived priority. Involvement in the planning decisions and demonstration of the reasons why the project was deemed necessary will make a difference in the degree of community interest and commitment. In some countries a combination of request and government initiative is used, to ensure the realization of the distribution policy and the optimal use of technical resources.

Participation in Planning and Design

A dialogue between community and agencies during the planning stage is especially important. A community is more likely to cooperate in the implementation and operation and maintenance of new systems if it has had a say in the preparation of the plans. The planning dialogue usually takes the form of contacts with local authorities and formal leaders, supplemented by one or more general assemblies. Sometimes, formal planning committees are set up. Special provisions may however be necessary to ensure that the interests of weaker socio-economic categories are sufficiently represented such as women, the poor, single households, religious and ethnic minorities. The degree of participation varies from community information and acceptance to consultation, joint decisions. Decisions that are exclusively made by the community are rare but do occur, e.g. on the procedure to get the yearly maintenance sum required by the water agency. Generally accepted topics for discussion in water projects with the community are local studies, source selection, siting of various works, facilities and pipe alignments, financing and other community contributions in the various stages. Less usual are geographic scope of the project and the administrative consequences, linkage with other improvements, type and design of technologies, level of service and additional facilities.

In waste disposal projects, the importance of appropriate design is now generally recognized. Siting, financing and labour organization are also subjects for a dialogue. Provisions for the continuity of waste disposal campaigns, including a stimulation of continued use and upkeep, are less usual. This joint planning by the community and agencies is now more frequently based on an investigation of the local situation. Local cultural and socio-economic conditions are of decisive importance. The scope of such studies will depend on the objectives of the programme, the resources available, the complexity of the local situation and previous experience under similar conditions. A standardized approach can facilitate the collection of such information. Care should be taken however that its collection is not an isolated activity. All information collected should in principle be used, for the dialogue with the community, for planning adaptations and evaluation. Large-scale sociological surveys are now often replaced by less formal methods, such as participatory research and oral community consultation.

Participation in Construction

The role of "self-help" activities in the construction phase is an ambiguous one, which calls for further analysis. Some publications mention voluntary labour and contributions in cash or kind as a cost-saving element which increases feelings of local pride and commitment, offers training possibilities and stimulates proper use and

maintenance. But other publications suggest that the use of contractors or agency construction teams is more efficient, by avoiding problems of delays, increased costs, overburdening of the community, poor construction leading to frequent breakdowns and a dislike of further contributions towards operation and maintenance. On the whole, the scales seem to turn in favour of some kind of active involvement in the construction phase, especially when a number of pitfalls can be avoided through proper planning, education and supervision. Cost-effectiveness studies on various forms of local involvement in the construction phase are needed however, if a clearer answer on the value of participation in this phase is to be given. More monitoring of cost-savings and cost-increasing aspects of participatory programmes will therefore be necessary, as well as an evaluation of the later effects on the functioning of the systems.

Participation in Operation, Maintenance and Administration In addition to participation in the planning phase, the participation of the community in the operation and maintenance of the provisions is of the utmost importance. In many countries the operation and maintenance of the new facilities by agency personnel is the weakest link in the programme chain, thereby jeopardizing the work done by all the other sections.

The community can make a real contribution here: by providing volunteers for training as local operators or caretakers, by paying for operation, maintenance, repairs, replacement and extension, by taking responsibilities for the inspection, by problem reporting and through social control as individuals and community. Neither agency nor community can accomplish the satisfactory operation and maintenance of communal facilities on its own: the answer lies in properly arranged teamwork.

There is no unanimity on the degree of flexibility in community level administration. In some publications, a standard administrative system is advocated, with a fixed degree

of authority delegated to the local level. According to others, various types of administrative systems should be offered to the community as a basis for *ad hoc* arrangements. The choice is determined by national policy and by organizational considerations, which will vary from place to place. When for the sake of practicality and costs a standardized approach is chosen, some flexibility should be possible to take into account the differences of leadership, the position of women versus men, the cooperation between and within villages, and other local relationship patterns. The administrative system or systems, the division of responsibilities, the contact with the agency after construction and the procedures for future adaptations should be placed within a formal, legal framework.

IRC would very much like to hear from our readers about their experiences in community education and participation in water supply and sanitation. If you have some ideas on this topic, please write us and we will try to include these in upcoming Newsletters. If you have any other topics which you wish to see appear in a more extended form in the IRC Newsletter, please let us know. We depend on you to make the Newsletter as relevant as possible.

Thanks. The Editor, IRC Newsletter.

Please note:

In the October 1980 issue of the Newsletter Dr. Anne Whyte's name was incorrectly given as Dr. Anne White. This is particularly confusing because Dr. Anne White of Boulder, Colorado, U.S.A. works in the same field of the serial aspects of water supply as Dr. Anne Whyte of Toronto. Our apologies to both these scholars - and please don't confuse either of these with Dr. A. (Alistair) White of Brighton, England whose name also appears above and who also works in a related field!

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For further information, and/or a list of IRC publications, please write to IRC's Information Section.

SLOW-SAND FILTRATION PROJECT (SSF)

For over four years IRC has been involved in the integrated research and demonstration project on slow sand filtration. The main characteristic of this project is its integrated nature, in which the technical aspects are seen within a larger framework which includes problems of financial and administrative organization, and social and cultural dimensions.

The project includes a health education programme to create understanding and awareness of the benefits of safe water. Community participation is also an explicit component, to ensure the fullest possible involvement of the community in the planning, implementation and finally the management of the water supply system. Countries participating in the project are Kenya, Sudan, India, Thailand, Colombia, and Jamaica.

Most of the participating national agencies are now in phase III of the project--the transfer of the knowledge which was generated in the first two phases. This issue of the IRC Newsletter briefly examines the progress of the slow sand filtration projects in India, Kenya, and Cameroon.

India

In September 1980 representatives from Colombia, Jamaica, Kenya, Sudan and Thailand gathered at the National Environmental Engineering Institute (NEERI), Nagpur, India, to review the demonstration phase of the project. They focused on: the design and construction of SSF plants; their operation and maintenance; training of operators; baseline health surveys; health education programmes; impact studies; and community participation. The report of this symposium will be published by IRC in mid-1981.

Follow-up to the report includes a series of seminars for Indian senior engineers and health education officials. NEERI is pursuing a number of SSF research topics including: declining rate filtration; development of inlet control arrangements; minimum filter-bed thickness under tropical conditions; and the development of small pre-fabricated filters.

Kenya

Excavation has been started by the Ministry of Water Development at the site of the Kisekani SSF demonstration

plant. The design of the plant at Giathieko is nearly completed.

Health education is a basic component of the project. The Department of Community Health of the University of Nairobi is processing data from a baseline survey which will be used by the Kenyan Ministry of Health, Department of Health Education, in setting up the health education programme.

Cameroon

The Department of Community Development of the Ministry of Agriculture will organize a SSF conference in the final quarter of 1981. Participants (government, UN agencies and NGO's) will be invited from francophone countries in West Africa.

This conference will focus on various aspects of the SSF project: integrated planning of water supply systems; options in water supply systems; design and construction, operation and maintenance of SSF; health education; community education and participation; and sanitation. For more information: Han Heijnen, IRC.

RAINWATER HARVESTING

Rainwater harvesting is particularly relevant for dry areas with a dispersed population and a suitable pattern of rainfall.

IRC is contributing to the United Nations Environment Programme (UNEP) Project on Rainwater Harvesting. The first phase of this project is being concluded. Its objective was to generate "knowledge synthesis" through documenting selected rainwater harvesting techniques. This information is now scattered and due to the poor access to demonstrated technology, rainwater fails to receive the attention it deserves as a potential useful element in the rural water supply programmes of developing countries.

IRC will be taking part in the second phase of the UNEP project for field demonstration of selected rainwater harvesting techniques. Several countries have been already contacted, and are interested to take part. In co-operation with the West Java Rural Water Supply Project in Indonesia (Netherlands-assisted bilateral project), IRC has contracted a consultant to write a design manual on rainwater harvesting systems which will be available from IRC later this year. For



more information please write to Ebbo Hofkes at IRC.

IRC MANPOWER DEVELOPMENT

PROJECT IN SRI LANKA

IRC is undertaking a Netherlands-funded project to assist development of a national training capability in the water supply sector in Sri Lanka.

We are collaborating closely with WHO who have a technical assistance project to the Water Supply and Drainage Board. (WHO Chief Technical Adviser: Mr. D. Konchady).

The Ministry of Local Government Housing and Construction is taking a close interest. Discussions have taken place with Mr. H. Fernando, Senior Assistant Secretary.

The Chairman of the National Water Supply and Drainage Board, Mr. N.B. Peiris has agreed with the project's aim and design, and it is expected to begin in late February 1981.

A first phase, in which IRC, WHO, the Water Supply Board and the National Institute of Business Management (NBM) will collaborate, will take 3 months (February - May). It consists of preparing a comprehensive sectoral manpower plan, to meet Sri Lankan Decade coverage project needs (recently estimated by USAID at \$ 1 billion).

A second four-week phase in May will lead to preparation of a phased and costed scheme for a national sectoral training plan, indicating the resource requirement for construction, equipment, staffing, operation and technical assistance support to implement the plan.

IRC hopes our involvement will give a clear picture of how such a plan can best be developed, so that the experience may be shared with other countries. For more information: Gareth Howell, IRC.

DECADE MANPOWER ISSUES:

The business of identifying the proper manpower development support in the water supply and sanitation sector is inevitably a matter for national planners.

Geophysical, economic, demographic, technical, social and cultural factors vary substantially from one locality to another. Different systems of national and local sectoral administration mean that different planning issues predominate. Within each country, rural villages, small towns, poor urban-fringe areas and large established cities have different skilled manpower requirements to meet their needs.

Issues to be addressed are:

How can a strong intersectoral effort at the community level be developed and effective community participation in planning and decision making be created? How can communication between various levels of responsibility for manpower be improved, and what institutional reinforcements are needed? How can better support and co-ordination of centralised, decentralised and project-linked manpower development activities be achieved?

What more appropriate approaches to manpower development can be intro-

duced to cope with the needs of rural areas, villages, towns and cities? Where do recurrent problems, or proposed technological change indicate skill needs; at what managerial, technical, maintenance or operative level of staff? What major development schemes will require additional skilled staff for their implementation; how will their training be organized and funded?

How can national data on skilled manpower needs best be collected, analysed and included in the planning process? How can a training infrastructure be created to provide expertise and facilities especially at local levels? How can the recruitment, management and deployment of personnel be improved?

How can working conditions and remuneration be improved, especially for staff working in the countryside? The answers to these types of questions give the basis for a national manpower development plan for water supply and sanitation.

Certain countries, including Brazil, Tunisia and some of the Caribbean islands have initiated systematic training schemes as part of their national sectoral development plans. Many other countries have made no formal provision for sectoral training, or else it is confined to certain types of sectoral requirement.

PROBLEMS AND CONSTRAINTS TO DECADE GOALS AT THE NATIONAL LEVEL

On November 10, 1980 the International Drinking Water Supply and Sanitation Decade (1981-90) was officially launched in the General Assembly of the United Nations. The target of the Decade is "clean water and adequate sanitation for all by 1990." This goal will require massive energy: right now seven out of ten people in developing countries are deprived of safe (uncontaminated) drinking water and nine out of ten have not even the rudiments of sanitation facilities.

A first step in the road to safe water and adequate sanitation is a recognition of the problems and constraints at the national level in dealing with this misery. The following excerpt explains these in detail. It's from the Report of the Secretary-General of the United Nations:

Development and International Cooperation, International Drinking Water Supply and Sanitation Decade, Present

Situation and Prospects:

"Developing countries can be grouped from the point of view of the relationship between levels of economic development, availability of financial resources and absorptive capacity, as follows: (a) Countries with a relatively high absorptive capacity and programme capabilities but faced with a major constraint in funding, e.g., many countries in South-East Asia, the western Pacific and Latin America; (b) Countries with adequate financial resources but with major constraints posed by serious deficiencies in absorptive capacity and programme capabilities, e.g., some of the oil-rich countries;

(c) Countries with a low level of economic development and lacking resources required for programme planning and implementation.

It is clear that water supply and sanitation programmes can be accelerated most rapidly in countries of the first type. In many of these countries, projects could be easily chosen at random if national and international resources are available to implement them. Through a proper system of water tariffs and the well-organized recovery of water charges, services may be extended by the State or by the autonomous water and sanitation agencies to those who cannot afford them. In these countries with high absorptive capacity, it is also easier to promote the proper use of simple, easily manageable and inexpensive technologies utilizing local materials and skills in community participation programmes. This will reduce the need for capital investment and may also help to increase the number of people who can afford to help defray the lower rates for drinking water and sanitation services.

On the other hand, many of the unserved populations in the world are to be found in countries of the third type where the constraints are much more serious obstacles. The increase in investments in the sector over the last few years, has already brought some of these countries to the limits of their absorptive capabilities.

The water and sanitation sector in most developing countries is a weak sector, compared for example to their power supply and transport sectors. To meet the needs of all their people, these countries need to plan the sector on a programme basis, bringing together the various interlinking elements that would enable them to embark on a successful national water supply and sanitation programme.

To achieve this new information will have to be gathered and new approaches developed. Just as in the medical field, where there has been a move from the training of doctors to the training of health workers, a similar move needs to be made towards training of water technicians. While the principles of choice of technology have been widely discussed in recent years and are now somewhat better understood, there is still too little comprehension of the socio-economic and cultural determinants of community participation. Technicians, therefore, need to work more closely with social scientists to understand such processes. The success of the Decade should be measured

not only in terms of the level of national capability attained within the sector, which will in turn ensure self-sustaining progress in the longer term. Use of appropriate technology and involvement of the public in planning and execution of drinking water supply and sanitation programmes will, therefore, constitute crucial assets in the mobilization of internal resources.

The success of the Decade in meeting the needs of the urban and rural poor will depend on the extent to which it can elicit full-scale popular involvement.

There has been some shifting in the attitudes at the international level with regard to these matters in recent years. There now appears to be a trend toward greater flexibility in assistance programmes for this sector.

Several donors have signified in their reports that choice of technology is an important issue in planning programmes for the Decade. They have also shown greater awareness of the need to finance programmes aimed at stimulating community participation, health education, and at building up infrastructure for operation and maintenance.

The problem of tied aid still exists with some donors and in some instances this may distort decisions on choice of technology.

While almost half the countries submitting national reports have established targets for the water and/or sanitation subsectors, very few of them have yet prepared programmes that would make any global estimates and analyses of internal and external financial requirements truly reliable.

Current financial allocations to the sector are reported to vary between 1 and 14 per cent of the various national development budgets, with spending in about three-quarters of the reporting countries falling below the 5 per cent mark and the average being about 3 per cent.

As pointed out earlier, the flow of internal financing will need to be significantly increased if meaningful progress is to take place during the Decade. As previously noted, financially viable water supply and sanitation systems could provide resources for further investment and increases in coverage.

In several developing countries funds raised through a progressive water tariff in the urban areas are now used to subsidize the services provided to the urban poor, and, where possible, to subsidize the construction of rural systems, too. Financially non-viable systems imply a perpetual subsidy to those already receiving a service with the needy not benefiting from these government expenditures.

In those national drinking water supply and sanitation programmes where recipient rural communities have been mobilized, the potential beneficiaries have usually been able to raise part of the investment costs in cash or kind. Communities can provide inputs into the construction of the systems in the form of unskilled labour and contributions of money and materials.

With some back-up support, they can also undertake a substantial part of the recurrent expenditures for operation and maintenance themselves.

It is hardly surprising that many of the same constraints dealt with in detail in the documentation presented to the United Nations Water Conference continue to figure prominently in the national reports. The time lapse since then has been too short to expect any significant reduction in such constraints. It appears, however, from the reports that Governments are much more aware

now than they were then of these problem areas and are searching for ways to deal with them effectively. In the African and Asian countries lack of manpower is the most ubiquitous constraint, followed by lack of investment funds. In Latin America, the two top constraints are the same but in reverse order. Institutional problems constitute the next most frequent constraint in all three regions.

Further constraints include the following:

(a) Lack of education and awareness among the people is also stressed repeatedly as a major problem in reports from African and Asian countries;

(b) Difficulties arising from an inadequate data base including too little knowledge of what water resources are available are cited in reports from all regions;

(c) Problems related to logistics and communication are frequently referred to in reports from African and Asian countries;

(d) The mechanization process results in difficulties in housing and urban planning which in turn have a bearing on the development of the urban water supply and sanitation sector;

(e) Unduly lengthy procedures for obtaining external inputs partly related to the differences in approach by various agencies is still another problem referred to in some reports.

These then are the constraints and problems most commonly encountered by developing countries which will need to be overcome if the prospects for the Decade are to be realized."

INTERNATIONAL SYPOSIUM ON QUALITY OF GROUNDWATER ISQG '81

A symposium to study the quality of groundwater was held in Noordwijkerhout (Amsterdam) The Netherlands, 23 - 27 March, 1981. Nearly 350 participants from many developed and developing countries studied the topics

of:

- . effects of diffuse polluting sources, land use and precipitation
- . effects of local polluting sources
- . subsurface waste disposal and deep-well injection
- . hazardous pollutions in subsoil
- . collection and interpretation of data
- . development of models
- . criteria and methods for protection of groundwater quality

The symposium was organized by the National Institute for Water Supply and The Ministry of Health and Environmental Protection of The Netherlands.

A report of the symposium findings is being prepared. For further information, please write: ISQG '81 c/o KIVI; P.O. Box 30424; 2500GK The Hague, The Netherlands.

COURSES

Refresher Courses in Water Tanks, Nagpur, India

Of special interest to our Indian readers are the refresher courses on water tanks (reservoirs) to be given from June to August 1981 at the Visvesvaraya Regional College of Engineering, Nagpur.

The main objective of these courses is to expose the participants to the modern theories and techniques of analysis and design of water tanks. The aim is to promote economy not only in overall cost but also in consumption of scarce materials like cement and steel.

The courses offered are:

- . analysis, design, and optimisation of water tanks (Intze type), June 29 to July 11.
- . analysis, design and optimisation of water tanks, July 13 to July 25.
- . analysis, design and optimisation of ground service reservoirs, July 27 to August 8.

All enquiries should be addressed to either Dr. M.M. Basole, or Dr. S.S. Kulkarni, Visvesvaraya Regional College of Engineering, Nagpur, India.

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DONORS AND THE DECADE

World Bank - major lender

The World Bank group has emerged as the major lender in the water supply and sanitation sector. It has so far committed about \$3,000 million for projects in water supply and waste disposal. Nearly 75 percent of these commitments have been made in the last five years (fiscal years 1975-1979). A further \$350-400 million have been committed by the World Bank group to water supply and waste disposal components of projects. Total annual lending for water supply and sanitation programmes, including sector components of other projects, has now reached about \$1,000 million.

UNICEF grants

The assistance provided by UNICEF, an agency which is probably the largest donor of grants for rural water supply, has also been rising sharply. It has risen almost five-fold, from nearly \$11 million in 1974 to over \$53 million in 1979. This assistance takes the form mainly of technical co-operation and equipment. The Government of the Federal Republic of Germany also emphasizes projects in rural areas, especially if they are projects in least developed countries.

Shift Towards Poor

Though in terms of the proportion of its total lending the World Bank group's support is still mainly going to cities and small towns, the group has in recent years concentrated much of its attention on the sector needs of the poor, especially the urban poor. The World Bank supports schemes orientated towards the use of low-cost technologies. It also supports projects which have an element of cross-subsidy built in through tariff structures to subsidize the needs of the urban poor or featuring a cross-subsidy between programmes in large cities and smaller towns. Such schemes help to promote social equity and improve income distribution; a World Bank review of loans made in fiscal year 1979 indicates that about 44 percent - 12 million - of the urban beneficiaries of its programmes were in the poverty target group.

Water supply and sanitation

There is now a growing realization that maximum health benefits can be obtained only when water supply programmes are accompanied by programmes aimed at providing sanitary facilities and health education. Although some investments have been made in sewerage in the past they have generally failed to keep up with the growth in the urban population. The rural sanitation

subsector remains rather neglected, and health education even more so.

There has also been a revival of interest in water supply and sanitation programmes in some of the largest bilateral donor agencies during the last half of the 1970s. During 1970-1979, the United States Agency for International Development (USAID) provided \$594 million as United States bilateral assistance, including funding for research and training administered through the Agency. The bulk of this funding assistance was provided after 1975, with over 60 percent of the support during 1970-1979 concentrated on three Near East countries.

Urban vs. rural investment

An important feature of current investments in the sector, including external investments, is the continuing focus on urban rather than rural areas. Before 1971, the World Bank-assisted projects were almost exclusively oriented towards capitals and large cities. Since then, the Bank has supported an increasing number of projects for smaller cities and towns. Lending for projects in small towns - which are sometimes categorized as rural communities by government definition - reached \$100 million in fiscal year 1979. But lending for water supply as part of rural development projects, which averaged about \$100 million during the previous five fiscal years 1974-1978, dropped to \$30 million in fiscal year 1979. This decrease was the result of the realization that much greater efforts are necessary to solve problems of institution building, manpower development and operation and maintenance and to provide at least a minimum level of health services, hygiene education and nutritional components to make these projects fully effective. In 1980 the lending for rural projects is expected to return to its previous levels.

UNICEF is now probably the most active agency in the rural water supply subsector. Among the bilateral donors, the Scandinavian countries, the Netherlands and Canada have also concentrated their support on this subsector. UNICEF spent 6 percent of its funds in this sector in 1979 on environmental sanitation; the remaining 94 percent went on water supply. A little over one third of the World Bank group's commitments to the sector in the fiscal year 1979 were for sewerage and waste disposal.

Low-cost sanitation

The area of low-cost sanitation suffers from a serious lack of well-designed projects deemed to be economically feasible. For this reason, the Bank is executing a global

project for UNDP which aims at assisting a select group of developing countries in designing and implementing low-cost water supply and sanitation projects. The UNDP/World Bank project has concentrated on the sanitation subsector, and it is hoped that large-scale pilot projects will be implemented as a result which would help to generate greater confidence in the technical feasibility and the acceptance of low-cost sanitation systems by poor communities. In India, for instance, where the project is relatively advanced, feasibility studies are being prepared for urban sanitation programmes in 110 small towns with a total target population of 4.6 million. It is no longer felt that the construction of sewers can provide for the sanitation needs of all the urban population in the developing countries in the foreseeable future.

Donor governments

The information made available by donor Governments and organizations indicates that they do not make financial allocations to the drinking water supply and sanitation sector on the basis of any specific targets for the Decade. Almost all of them have stated that the distribution of resources to different sectors is influenced (or determined) by the recipient country concerned, although some of the respondents have at the same time indicated their own preference for supporting population in the rural sector.

Many donor Governments have changed their terms of assistance in recent years and are now providing support on a grant basis to the least developed countries. Some of them, the Scandinavian countries in particular, only provide support to rural water supply and sanitation projects and on a grant basis.

Development banks

Most development banks have some limited resources for supporting technical co-operation on a grant basis and provide soft loans at a 1 or 2 percent interest rate to less developed countries, which amounted to about 30 percent of the total lending of the World Bank and about 15 percent of that of the regional development banks.

The development banks have indicated a preference for expanding activities in the rural areas, but they are experiencing difficulties in project implementation because of the weaknesses of the institutions responsible for rural water supply and sanitation programmes.

The banks have generally relaxed their criteria on financial viability for rural projects but do insist on consumer contributions towards operation and maintenance to avoid failures in the operational phase. Urban projects still have to meet strict financial viability criteria. The World Bank encourages cross-subsidies between the higher level of services provided to the urban rich and the lower level of services provided to the poorer sections of the urban population. Some donor Governments considered in the past that the provision of rural water supply was a social service which should be provided free of charge by Governments, at least in cases where a minimum level of service was provided. There are cases where donor Governments included a stipulation that rural consumers could not be charged more per volume consumed than urban consumers. Since the United Nations Water Conference, however, policies have changed and it now appears that water

pricing policies of donor Governments and development banks are converging.

Constraints

There could be a considerable increase in international support to the sector but for the lack of well prepared programmes and projects and because of the diversity of criteria among donors for approving them. Although the latter problem has been pointed out as a constraint by several countries, no breakthrough has been made as yet in increasing uniformity in project formulation. The majority of external agencies still have a project approach to their participation; only a few provide programme support.

In countries where a multitude of donors are involved in the sector, there are considerable problems arising out of tied aid. For example, maintenance and transport problems increase when a great variety of material and equipment is provided by different countries. Yet the relatively disappointing performance of many industrial economies in recent years has maintained pressures for tied aid.

Donor lending criteria

The experience gained by many of the donor countries and organizations points towards the importance of the following:

- (a) Institution building in programme development and implementation;
- (b) The necessity of planning for the operational phase at the very outset to ensure that the mechanisms and resources for operation and maintenance will be forthcoming later and to promote community participation, particularly in rural programmes;
- (c) The need to give greater attention to the choice of technology and to include sanitation and health education programmes in order to maximize benefits from projects.

Consequently donors are increasingly willing to finance support programmes and development projects in the light of lessons learned from their earlier involvement. Projects for financing local costs, as well as for strengthening maintenance capacity, are now more readily accepted than in the past.

(Verbatim Excerpt from DEVELOPMENT AND INTERNATIONAL CO-OPERATION, International Drinking Water Supply and Sanitation Decade: Present situation and prospects, Report of the UN Secretary-General.)

AFRICAN REGIONAL CENTRE FOR TECHNOLOGY

IRC has recently been informed of the establishment of the African Regional Centre for Technology (ARCT), Dakar, Senegal. ARCT is a new intergovernmental institution established under the auspices of the United Nations, Economic Commission for Africa and the Organization for African Unity. Membership in the Centre is restricted to member states in these African organizations.

The objectives of the Centre are, for their member-states, to: Contribute to the development and use of technology; Stimulate the awareness of technological development; Strengthen the technological capability; Promote the use of such technology as is suitable; Assist within its member States in the formulation of technology policies as an integral part of planned scientific, technological and socio-economic development; Encourage research and training in the methodologies of technology planning; Improve the terms and conditions under which

technology is imported; Promote the diffusion and dissemination of technology and also the collection and encouragement of the use of technological information; Promote co-operation among countries of the African region particularly amongst its member States; and Assess the social implications of the development, transfer, and adaptation of technology and promote the understanding of such implications.

For more information, please write to: The African Regional Centre for Technology, Dakar, Senegal.

WASTE WATER TECHNOLOGY -- SYMPOSIUM RECOMMENDATIONS

An international symposium to study waste water technology for developing countries was held 18-28 November, 1980 in Karlsruhe, Federal Republic of Germany. The participants issued a statement and recommendations which appear unabridged below. The symposium was organized by the United Nations Environment Programme and the Federal Ministry of Research and Technology, Fed. Rep. of Germany.

Statements and Recommendations:

1. The International Symposium has been very useful in transmitting knowledge and information on waste water management for developing countries and permitting an exchange of information in this field. In recognition of this, international organizations and donor countries should continue to support such symposia and related study tours, paying special attention to the participation of both professionals and persons responsible for decision making in the area of waste water management.

In order to gain a high degree of effectiveness, the following additional activities are recommended:

(a) The report and other documents from this Symposium should be widely distributed; (b) Specialized courses on specific aspects of waste water management should be organized; (c) Selected research projects, studies and a pilot demonstration project should be initiated.

2. The Symposium concluded that in the developing countries policy on sanitation has so far appeared to be less effective than that on water supply. In order to achieve balanced development in this field and to promote social benefits, it is recommended:

(a) That Governments should give higher priority to waste water management as part of an over-all policy to improve basic infrastructure; (b) That international and bilateral lending agencies should improve their appraisal and repayment conditions; (c) That quality standards should be reviewed periodically, taking into account advances in technology, scientific knowledge and socio-economic conditions; (d) That the search for affordable low-cost sanitation options should be intensified with a view to attaining the goals of the International Drinking Water Supply and Sanitation Decade, 1981-1990.

3. Major technical bottle-necks in the field of waste water collection and treatment are the lack of technical experience, the shortage of trained manpower and an insufficiency of infrastructure.

It is recommended that UNEP, WHO and the industrialized countries should assist developing countries in:

(a) Training of engineers, technicians and operators; (b) Preparation of guidelines to govern the collection and treatment of waste

water; (c) Devising of incentive schemes to attract and retain staff in the sanitation sector; (d) Ensuring a high level of community participation and self-help; (e) Introduction of sanitation and hygiene in school curricula.

4. Industrial pollution is increasing at a more rapid rate than pollution from domestic sources. Therefore,

(a) Priority should be given to incentive programmes to discourage pollution by industrial establishments; (b) Appropriate land use policies and zoning ordinances should be promulgated as a tool for ensuring control of water pollution; (c) In many cases, combined treatment of municipal and industrial waste water warrants consideration as a measure for pollution control, as it is evident from the experience of industrialized countries; (d) Industrial polluters should be charged in proportion to their discharge of pollutants.

5. An important factor is the high cost of acquiring technical expertise and importing equipment into the developing countries. In order to improve this situation and to facilitate transfer of technical knowledge, it is recommended that:

(a) Applied research and technical development in the developing countries should be increased; (b) Co-operation between manufacturers and researchers in developing and developed countries should be intensified; (c) Internationally unified terminology and information storage and retrieval procedures should be encouraged.

NEW WELL SCREENS

Appreciable progress is being made, in many developing countries, with regard to the drilling of tube wells for small community and rural water supplies. Well screens are amongst the most important components of these tube wells. In fact, well screens, together with the pumps used for draining the water from tube wells, are the water-well components that most frequently cause problems. An improperly designed or poorly installed well screen may severely limit the useful life of a tubewell, and can prevent it from providing the water supply it was intended to give. For the above reasons, the continued improvement of existing types of well screen, and the development of innovative well screen designs, is to be greatly welcomed.

One such newly developed well screen is the 'Hydrotec' screen. It is a non-metallic screen consisting of an outer cover (abrasion-resistant plastic net), a woven filter fabric (polypropylene), and an inner cover (plastic material forming a vast network of water conducting channels); the composite cover is supported by a base pipe which is slotted or perforated. 'Hydrotec' screens are specifically designed for installation in fine sand aquifers as they do not require a gravel

pack. Materials like locally produced steel or plastic tube can be readily incorporated in this type of well screen if cost considerations so dictate.

Water supply agencies and organizations interested to obtain more information on 'Hydrotec' well screens may contact:

Geotextiles Ltd., Manor Way, Borehamwood, Hertfordshire, WD6 1LN, ENGLAND.

IRC PROGRAMME EVALUATION

Why evaluation?

Many developing countries plan to increase considerably the coverage of water supply

and sanitation facilities and services in the context of the International Drinking Water Supply and Sanitation Decade.

This requires sound planning and programme development procedures. However, there is not much information on the effectiveness of such procedures for water supply and sanitation programmes. There is an increasing need for evaluating past and present experiences with a view to learning from them for better planning of future programmes. Evaluation should become a standard practice for feed-back and control in the programme and project planning process.

Recent evaluation activities

In 1980 IRC published Evaluation for Village Water Supply Planning, (Technical Paper 15) by Sandy Cairncross, Ian Carruthers, Donald Curtis, Richard Feachem, David Bradley, and George Baldwin. This co-publication of IRC and The Ross Institute of Tropical Hygiene is the first simple, practical yet comprehensive guide to the evaluation of village water supply projects for engineers and development field workers and for planners or administrators in aid agencies and development funding organizations.

Pending final funding arrangements, IRC will be organizing a series of national planning seminars in the second half of 1981 in several developing countries. For more information please write to Enric Hessing, IRC.

HANDPUMP MAINTENANCE

Although appreciable progress is being made in many developing countries, with regard to well drilling and handpump installation for rural water supplies, the same is unfortunately not true of the maintenance of pumps once they are installed. In fact, handpumps break down frequently at alarming rates - up to 60% within one year is no exception - and remain unrepaired for long periods of time because of lack of adequate provisions for maintenance and repair. Concentrated efforts are required, if the impact of many handpump installation programmes is to continue.

There are, obviously, no fixed rules for determining which balance of involvement of the concerned central government, the district authorities, and the village communities is right for each country. Many factors must be considered, in the selection of the most suitable maintenance strategy which is to be embraced in a maintenance organisation that can carry out its tasks effectively. IRC is intensifying its studies of handpumps maintenance systems. This work draws extensively on information and experience from handpump tubewell programmes in

several countries, in different parts of the world. The aim is to synthesize the available pertinent information, and to provide guidelines for organizing handpump maintenance.

The preliminary findings of this IRC study have been laid down in a 86-page report on handpump maintenance.

Organisations and individuals actively concerned with handpump maintenance, and its organisational provisions are invited to contact E.H.A. Hofkes at IRC.

CONFERENCES:

UNITED NATIONS SYMPOSIUM ON WATER MANAGEMENT IN INDUSTRIALIZED AREAS, 7-11 SEPTEMBER 1981, LISBON, PORTUGAL

Conservation of water has become a matter of world-wide concern, as industry consumes and pollutes this precious resource in ever-increasing amounts.

An "International Symposium on Water Management in Industrial Areas" is being organized by the United Nations in Lisbon, Portugal in September 1981 to examine the problem.

The Symposium will bring together scientists, decision-makers, technical personnel and managers from developed and developing countries to examine institutional approaches (pricing, legislation, taxation and economic incentives) and recent advances in technology to stem pollution and to increase water use efficiency. Related issues, including by-product recovery, effluent standards, water re-use, control of gaseous and solid waste and economic implications of alternative techniques will be on the agenda.

The Symposium will be sponsored by the United Nations Department of Technical Co-operation for Development, in conjunction with the Government of Portugal, the International Water Resources Association, the United Nations Environment Programme and the United Nations Industrial Development Organization. It will be held at the Calouste Gulbenkian Foundation in Lisbon, Portugal from 7 to 11 September 1981.

For further information on the Symposium please contact:

Chairman of the Executive Committee, International Symposium on Water Management in Industrial Areas, Portuguese Water Resources Association, c/o LNEC, Av. do Brasil, 101, 1799 Lisbon, Portugal.

or:

Deputy Director, Water Resource Branch, Department of Technical Co-operation for Development, United Nations, New York, N.Y. 10017 U.S.A.

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.


**WHO – TOTAL COMMIT-
MENT TO WATER DECADE**


The recently-held 34th World Health Assembly has wholeheartedly endorsed the UN-declared International Drinking Water Supply and Sanitation Decade. This action stresses that the provision of safe drinking water and sanitation services is one of the essential elements of primary health care, and one of the essential global targets for Health for All.

Decade goals, according to the Assembly, will contribute to Health for All through:

- * complementarity of sanitation with water supply development;
- * focus on both rural and urban underserved populations in policies and programmes;
- * achievement of full coverage through replicable, self-reliant and self-sustaining programmes;
- * use of socially relevant systems applying an appropriate technology;
- * association of the community with all stages of programmes and projects;
- * close relation of water supply and sanitation programmes with those in other sectors; and
- * association of water supply and sanitation with other health programmes.

The latest WHO Assembly made a number of recommendations to its Member States:

- (1) to accelerate substantially the pace of their programmes for drinking water supply and sanitation through the adoption of relevant policies and their implementation through plans aimed at covering the total population;
- (2) to strengthen or establish suitable mechanisms, such as National Action Committees, to facilitate policy formulation, the elaboration of national Decade plans, the strengthening of relevant programmes of all involved national agencies and their active participation at all levels, and the best use of available external resources, recognizing the UNDP resident representatives as focal points for international action at the country level;
- (3) to focus programmes on their national priority health problems and monitor resulting impact on health, giving particular attention to the reduction of diarrhoeal diseases and in specifically affected countries, to other preventable water- or sanitation-related infections such as schistosomiasis, dracunculiasis, etc.;

(4) to incorporate activities for the improvement of drinking water supply and sanitation services into their national programmes for Primary Health Care, particularly in respect of people's education and involvement, training of community workers, and strengthening the support capacity at all levels of referral; and

(5) to strengthen the ability of national health agencies to take an active role in planning and implementing programmes for the Decade.

Member States should promote Decade goals in international inter-governmental organizations in such a way as to make coordination more effective at the country level. Relevant water supply and sanitation programmes and projects should be framed in accordance with the above principles.

Multi-lateral and bi-lateral agencies are invited to support national plans by giving priority to those consistent with the above principles.

The 34th WHO Assembly requested that the WHO Director-General follow up these recommendations. (Reference: WHA 34.25)

In this double issue of the Newsletter, you'll find:

DECADE NEWS DECADE NEWS DECADE NEWS

- WHO: 34th Assembly Resolution, page 1;
- UN Water Resources Progress Report, page 2;
- UNDP Global Project: GLO/78/006, page 3;
- World Bank TAG Activities, page 3;
- Elimination of Guinea Worm, page 3;
- Earthscan, page 4;
- ENDA Water Supply Proposals, page 4;
- Slow Sand Filtration Project – India, page 4;
- Basic Decade Data, page 4/5;
- Community Participation, page 6;
- Study Courses, page 6;
- New Publications.

**IWSA SUPPORTS DECADE
WITH CONFERENCES AND
EXHIBITIONS**


The International Water Supply Association announces the first three regional conferences which will be organized specifically in support of the International Drinking Water Supply and Sanitation Decade. All three conferences will be accompanied by professional exhibitions:

- * First Asia Regional Conference and Ex-



hibition, 19-23 October 1981, Bombay, India;
* IWSA Asia Pacific Regional Conference and Exhibition, 16-19 November 1981, Manila, Philippines; and
* UADE Africa '82 Conference and Exhibition, 5-9 April 1981, Rabat, Morocco. For further information contact International Water Ltd., 465 Hornsey Road, London N19 4DR, United Kingdom.

UN PROGRESS REPORT: SINCE THE MAR DEL PLATA ACTION PLAN

The Committee on Natural Resources of the United Nations Economic and Social Council has recently issued a report which indicates uneven, but relative progress in global water resources policy since 1977. Lack of central co-ordinating mechanisms still remains a serious constraint to national Decade goals.

At the UN Water Conference in Mar del Plata in March 1977 it was urged that a plan of action "be formulated in a co-ordinated manner at the national and international levels" to develop and implement International Drinking Water Supply and Sanitation Decade (1981-1990) goals. A global inventory was made at the time of these sectors in many developing countries. This latest UN Report focusses on track records since 1977 on water resources policy in planning, legislation, and institutional arrangements.

A. National water resources planning

1. Policy formulation/revision

Of the 64 developing countries and 15 developed countries which responded to questionnaires, over one-third have revised water resources policy in view of the Mar del Plata Action Plan, and many others are studying possible changes. Developing countries rank as highest priority the expansion of water supply and sanitation services; industrialized countries, on the other hand, see the protection of water quality as most important.

The Committee on National Resources urges that all countries formulate a national water policy statement which would provide a consistent base for dialogue and aid and assist in planning. This policy should give a clear definition of the principles, standards and procedures for water resources planning.

2. Water pricing

All responding governments subsidize, to varying extents, water development for domestic, agricultural and industrial uses. Industrialized nations employ pricing more systematically as an instrument of policy. Pricing, if used properly, can have effects on both distribution of income and the allocation of resources. Many countries subsidize water rates to redistribute income, to attract industry, and to provide safe water to poor communities. Pricing policies influence total use of water and will affect the appropriate level of investment; a cost/benefit analysis would help determine investments. Rates can be adjusted once projects become operational; pricing policies should be kept flexible and adjust with time.

B. National water legislation

Many developing countries have made considerable progress since the Water Conference in the formulation and modification of

national water legislation, especially ownership rights.

Much improvement is still needed, however, particularly in terms of allocation, standards of water quality and standards of effluent discharge. Industrialized countries had high marks in this respect.

Besides including the above definitions, water law should also create a means of ranking priorities among uses and/or users, quantifying water-use rights, defining pricing policies and specifying administrative powers for co-ordinating all water interests and enforcing legislation.

C. Institutional arrangements

Co-ordinating water interests at the national level is probably the weakest link in water resources policy. Few governments have established central co-ordinating bodies since the Water Conference; most rely on the Ministry of Planning or its equivalent, inter-ministerial committees or on tentative arrangements.

The UN Natural Resources Committee stresses the advantages of a centralized water resources body, particularly in removing some of the most serious constraints to goal setting and achievement. Three main advantages are:

- * the possibility of formulating goals more clearly;

- * avoiding of a frequent problem - what has been cited as a goal by one government entity may in fact be merely a programme specifically assigned to that entity; and

- * minimizing of unnecessary duplication in pre-investment and other basic studies through co-ordination and priority setting. Such a centralized body could harmonize agency objectives, reduce jurisdictional and legal limitations, promote innovations and consideration for broad, multi-sectoral planning, and eliminate duplication.

D. Co-operation in respect of shared water resources development

A bright spot - since Mar del Plata - in water resources planning has been the increasing co-operation of nations in the sharing of water resources. The Committee notes with approval the increasing number of international mechanisms which are being set up to co-ordinate shared use of rivers or lake basins, and to define legal frameworks. Exchanging information through such international institutions would be another positive trend.

Inter-disciplinary missions: a proposal

The Committee on Natural Resources concluded its report with the recommendation that inter-secretariat inter-disciplinary missions be established with the UNDP in the key role to help developing countries overcome constraints in the water resources area. This assistance could include devising means to create reliable data bases, and to advise on the formulation of water resources policies, plans, legislative frameworks, and the establishment of international mechanisms to co-ordinate all national water interests. (Source: Committee on Natural Resources, United Nations Economic and Social Council, WATER RESOURCES: Progress in the Implementation of the Mar del Plata Action Plan; Progress and Prospects relative to Water Resources Policy, Planning, Legislation and Institutional Arrangements: Proposals for Inter-disciplinary Action, 6 April 1981.)



The United Nations Development Programme (UNDP) is leading a large number of demonstration projects in low-cost water supply and sanitation on a world-wide basis. The World Bank - with Richard Middleton of the Bank's Technical Advisory Group (TAG) as project manager - is the executing agency. TAG has recently released reports on missions to Zimbabwe, Nepal, India and Thailand.

This IRC Newsletter summarizes the report on a country which is now mobilizing its entire population to solve imposing problems:

ZIMBABWE

Duncan Mara of the TAG-group has led the first mission to the Republic of Zimbabwe, April 6-11, 1981. Emerging from the recent War of Independence, Zimbabwe is anxious to rebuild and expand the water supply and sanitation sector which was heavily damaged in the war. Half of the water supply schemes had been knocked out of order. In the rural areas, where 80% of 7.26 million Zimbabweans live, only 10% have an adequate water supply, and 15% are served by pit latrines. Health statistics for rural areas are practically non-existent, but evidence shows that deaths from excreta/water/malnutrition-related diseases are rampant, from diarrhoeal diseases in particular. By contrast, of the urban and peri-urban populations (20% of total population), 60% is served by house-connections, 40% by public standpipes.

The mission reviewed in detail with staff of the Blair Research Laboratory, Salisbury, their recent developments in ventilated improved pit (VIP) latrine design. The principal finding was that a rural VIP latrine, including the vent pipe, can be built almost entirely out of local materials (mud and wattle, or thatch) using traditional local house building skills, at a cost of only \$2 5 (US\$ 8) for cement, paint and the fly screen. This part of the mission's activities will be described in a separate TAG paper. The mission discussed with the Government its development policies for the low-cost water supply and sanitation sector. The Government needs to place its major emphasis on rural development: a large investment, of the order of Z\$ 55 million (US\$ 84 million), will be spent on rural water supply and sanitation. This includes the cost of rehabilitating the large number of rural water supply schemes damaged during the recent war. Additionally, biogas digestors are to be evaluated as an alternative source of energy for rural areas.

SUMMARY OF TAG ACTIVITIES

Current or planned activities of the World Bank Technology Advisory Group in other countries include:

- * India - assisting state agencies in development of latrine programmes in 110 municipalities in 7 states (target population: 4.6 million);
- * Tanzania - assisting government (through a specially established unit) in undertaking sewerage and sanitation studies for Dar es Salaam (population 1.5 million) and other towns (population 305,000);

* Egypt - assisting the sector agency in planning a project for provision of water supply, sanitation and health education in part of one Delta governate, as a model for other areas;

* Botswana - assistance to government in planning and executing sanitation programmes in the principal towns and major villages;

* Bangladesh - assistance to government in developing latrine programmes in 10 municipalities (total population 400,000);

* Philippines - using analytical tools developed through World Bank funded resources, and employing Bank staff, training of local agency staff in design and optimization techniques to be applied to the design of water distribution systems in about 150 towns and several thousand small villages;

* Others - preparatory work in progress in the other countries mentioned previously. Further questions on the project should be addressed to: The World Bank, 1818 H Street N.W., Washington, D.C. 20433, U.S.A., for the attention of John Kalbermatten (Senior Adviser, Water and Wastes Advisory Staff) or Richard N. Middleton, UNDP Project Manager, both of the Transportation, Water and Telecommunications Department.

ELIMINATION OF GUINEA WORM: DECADE SUB-GOAL

The elimination of the parasite Guinea worm which seriously affects millions of the world's rural poor, has been adopted as an objective of the International Drinking Water Supply and Sanitation Decade.

The goal is one of the first practical measures to be taken as part of the Decade since its launching by the UN General Assembly in November 1980. The Decade's Inter-Agency Steering Committee accepted the elimination of the Guinea worm as an important sub-goal of the Decade, April 8, 1981 at its Geneva meeting.

The parasite currently affects some 20 million people across a band of sub-Saharan Africa, parts of the Middle East, India and Pakistan, according to the UNDP Assistant Secretary-General and Decade Co-ordinator Peter Bourne.

The threadlike worm may reach 120 cm. in length before emerging from its victim's lower leg. When the worm breaks through the skin it causes an open sore, a doorway for the parasite's larvae. The larvae spread through the water when those infected stand in open wells or ponds to fill their water containers. In this way the disease passes to others who drink the contaminated water. Once consumed, the larvae mature in humans for a year before re-emerging, and the cycle continues.

Guinea worm seriously affects not only the health of residents but also the village itself.

"One of the reasons we feel that the Guinea worm is of such importance", the Decade Co-ordinator says, "is that you can show an extremely specific correlation between providing clean water, getting rid of the Guinea worm and agricultural productivity." Guinea worm can be eliminated by providing clean water to affected areas or protecting open wells from people standing in them. Because of its effect on residents, Bourne

says in a "village that has Guinea worm, agricultural production goes down 30% across the board. You get rid of the worm and agricultural productivity goes up".

EARTHSCAN: CALL FOR DECADE INFORMATION

Earthscan, a UK-based media information unit on global development and environment issues, is carrying out a public information programme in support of the International Drinking Water Supply and Sanitation Decade. The programme aims at creating a small, but highly motivated network of water and sanitation journalists in both developing and donor countries.

It is Earthscan's policy - just as IRC's - to encourage a two-way flow of information, between developing and donor countries and within third world countries. In this particular programme the interest goes to "the health, development, environmental, sociological, technical and all other aspects of the Decade" as Earthscan put it and journalists from developing countries will be commissioned to prepare documents on those subjects for the network.

Earthscan welcomes any information - discussion documents, research papers, case histories, etc. - which could help them to report on the aims and the progress of the Decade. If you want to help, address yourself to Earthscan, Ms. J.Caulfield, 10 Percy Street, London W1P 0DR, England.

AND WHILE DOING SO....PLEASE SEND A COPY TO IRC

Good use will be made of your material in IRC's general reference work, library and/or Newsletter.

PRACTICAL WATER SUPPLY PROPOSALS

ENDA sponsored a technology transfer workshop earlier this year in Bangkok in which the water supply group made a number of recommendations of interest to Newsletter readers. Here's a list of what was discussed:

* Is it a "must" that the beneficiaries of a water supply system contribute "something" in the form of payment, labour, construction materials or otherwise?

* Maintaining the water supply system after its construction is the major problem. Several cases of failure were cited, very few of success.

* Acceptance of a new water supply is by no means automatically ensured. Sometimes, the water has to have "a certain amount of taste" to make it acceptable to its users. Whether it is contaminated (bacterial pollution), apparently is of less concern to the users (but not to the public health authorities!).

* Slow sand filtration should be advocated as a simple and reliable water treatment process for raw water without high turbidity (say, less than 30 NTU). A pre-treatment can be used to reduce the turbidity load on the slow sand filters. An example was cited of a slow sand filtration plant designed by the Asian Institute of Technology providing 2,000 litres/hour (that is 50 litres/day/person for 1,000 people) and costing as little as Bht. 100,000 (US\$ 5,000).

* For the communal acceptance and use of a hand pump installed in a village, it is of some relevance how the pump is marked (e.g. government seal) or whether the villagers can decide what colour the pump should be painted.

* Several non-technical factors are of crucial importance regarding the use of a newly installed water supply system. People may decide not to apply for a connection to a main laid "right in front of their door" if administrative delay and "red tape" make the application procedure too lengthy and its outcome too uncertain.

* Maintenance of hand pump water supplies or small water treatment plants may involve costs that are very high relative to the initial installation costs. Examples were cited of annual maintenance costs as high as 70% of the initial installation cost of hand pump water supplies. Under such circumstances it is difficult to see how the government could provide the required budget for the maintenance of a rapidly growing number of small community water supply systems (e.g. wells fitted with hand pumps, and small water treatment plants).

* Several existing and innovative hand pump designs were discussed. It appears

that there are no hand pump models that are suitable for application worldwide, since the conditions under which they operate are different from country to country. Some hand pumps that give good service in certain countries cannot be recommended for other areas where the abrasive action of the sand in the water pumped would destroy them quickly.

* One method for financing a rural water supply programme, i.e. a revolving fund, was reported to have considerable potential. As payments on water systems installed earlier are made, they are available to make new installations.

For more information: ENDA, B.P. 3370, Dakar, Senegal.

SLOW SAND FILTRATION PROJECT-INDIA

Since 1975, the National Environmental Engineering Research Institute (NEERI), Nagpur, India has participated - with IRC - in the

slow sand filtration (SSF) project.

First phase

In the first (research) phase the Institute carried out work on the following aspects:

* Literature survey on SSF practice in India;

* Extensive research on the performance and efficiency of slow sand filters, especially: turbidity and bacteriological pollution, filtration rates higher than 0.1 m/hr, shading, intermittent operation, high levels of organic and bacteriological pollution, and builder grad sand as filter medium.

* Field observations on the existing slow

BASIC DEC

WHO's new Decade Water and Sanitation Health' is reviewed: letter (see Publication tables, as printed in deserve specific attention progress made in the sector in the last ten

Estimated Service Coverage for Drinking-Water

1970			
	Population served (in millions)	Percentage of total population	Pos s (in r
Urban	316	67	
Rural	182	14	
Total	498	29	

Estimated Service Coverage for Sanitation

1970			
	Population served (in millions)	Percentage of total population	Pos s (in r
Urban	337	71	
Rural	134	11	
Total	471	27	

* WHO estimates submitted to the General A Secretary-General in his report on the Internat Present situation and prospects (United Nation

Figures do not include the People's Republic

sand filter at Umrer.

Conclusions

A number of important conclusions can be drawn from the observations:

1. Slow sand filters treating surface waters of turbidity up to 30 NTU produce a good filtrate with a turbidity less than 1 NTU at filtration rates of 0.1, 0.2 and 0.3 m/hr.
2. Under varying conditions of raw water quality and filter operation, more than 85 % of the filtrate samples are free from *E.coli*.
3. In tropical conditions, shading of slow sand filters results retards the development and proliferation of algae but does not materially influence the length of run.
4. Intermittent operation of slow sand filters results in a filtrate of unsatisfactory quality. However, the deterioration is insignificant when continuous filtration is ensured even with a falling supernatant (declining rate operation).
5. High levels of organic and bacteriological and bacterial pollution (greater than 20 mg/l as COD) in raw water upset the filter performance leading to deterioration of filtrate quality. However, the filters recover gradually when the pollution load is reduced.
6. Slow sand filters with builder grade

sand produce a filtered water of satisfactory quality.

Village demonstration plants (Phase II)

As a result of the research phase a number of guidelines were compiled for design, construction, operation and maintenance of slow sand filters. To test these recommendations under field conditions, four village demonstration plants have been constructed and commissioned in the states of Andhra Pradesh, Haryana, Maharashtra and Tamil Nadu.

Health Education & Community Extension

An integrated health education and community extension programme forms an essential activity of the demonstration project. The general objective of the programme is to develop and implement a methodology to prepare the community to effectively utilize the improved water supply and to assess the impact on

health education on sanitation. A health education strategy developed by the Central Health Education Bureau (CHEB), New Delhi, with modifications to suit the local needs and requirements, is being implemented in the project villages by the state and local agencies with overall co-ordination by NEERI.

Special features

The underdrains of the plant at Kamayagoundanpatti (Tamil Nadu) consist of a system of PVC pipe manifold and laterals with locally developed permeable capsules which are placed at 1.0 m c/c and topped with a thin layer of pea gravel. This type of under-

drain has been found to be effective and cheaper than conventional ones.

In general hard broken stone, which is more readily available and cheaper than rounded pebbles, has been used as supporting gravel layers.

A meeting of the representatives of countries participating in the project convened in September 1980 at NEERI, Nagpur, reviewed the results and experience gained on the subject and recommended that sufficient expertise has been generated so as to justify increased promotional efforts in the form of workshops/seminars and publications. The meeting in which a number of senior engineers and other professionals participated also identified areas of further research on the subject. (See reference to IRC Bulletin 16 in Publications section).

Phase III: Transfer of knowledge

In the context of Phase III, NEERI will organize two seminars on the application of slow sand filtration and other related aspects of project implementation such as sanitation, health education and community participation. Further research will be undertaken on some of the technical aspects of slow sand filtration such as declining rate filtration, minimum required filter bed thickness under tropical conditions, development of filter inlet control arrangements, development of small pre-fabricated filters, etc. More information on the SSF project in India can be obtained from NEERI, attn. Mr. R. Paramasivam, Water Engineering Division, Nehru Marg, Nagpur-440 020, India or from IRC.

PORTABLE DRINKING WATER CHEMICAL TEST KIT

The Chinese Institute of Health has developed a portable drinking water chemical test kit for use in rural areas, remote regions or places suffering natural calamities. With suitable background, a person can learn the use of the kit in a few hours.

The kit is contained in a 30 cm by 8 cm by 22 cm wooden box and has a gross weight of 2.2 kg. The reagents can be refilled or prepared locally based on instructions provided with the kit. The estimated cost is about US\$ 150.

For technical details and other relevant information, write to: the Institute of Health, 29 Nan Wei Road, Beijing, China.

PLANNING AND EVALUATION

IRC is presently conducting a literature survey on planning and evaluation for Community Water Supply and Sanitation in developing countries. The survey particularly focusses on information dealing with structural and institutional aspects relating to programme, project and sector development. A list of keywords indicating the scope of the literature survey, and a tentative list of references is available upon request.

IRC would be most grateful if Newsletter readers would send publications, reports, etc., or references to material they consider relevant and useful in this context.

Contributors will receive a copy of the resulting listing of references within a few months.

DATA

Publication 'Drinking Water Supply in Developing Countries, 1970-1980' is available in this Newsletter. The following two tables are handy documents, showing the water and sanitation status.

Supply in Developing Countries, 1970-1980*

	1975		1980
in Percentage of total population	Population served (in millions)	Percentage of total population	
77	526	75	
22	469	29	
38	995	43	

Supply in Developing Countries, 1970-1980*

	1975		1980
in Percentage of total population	Population served (in millions)	Percentage of total population	
75	372	53	
15	213	13	
33	585	25	

Supply of the United Nations by the Drinking Water and Sanitation Decade: Document A/35/150).

China.

TURKISH STUDENTS CATALYZE COMMUNITY PARTICIPATION

Mr. P.W.Jolly - WHO Sanitarian assigned to Turkey - has an interesting story from that country which illustrates well how people are able to solve their own problems if information and support are given to them:

A certain project had a large training component linked to the development of basic sanitation in a series of rural and urban pilot zones. Funds for vehicles and teaching supplies were available but not for the purchase of building materials for latrines. The agency responsible for water supply in villages did not cover waste disposal. This has delayed the development of sanitary latrines. However, the population felt the need for latrines and in most instances constructed their own, though often on unhygienic lines because of the lack of information.

Students of an environmental health technician training school were, therefore, encouraged to participate, and transported in mass to a pilot village. They camped on the outskirts, together with their instructors, cooks, etc. This operation caused a surge of appreciation by the villagers in the interest shown in their welfare, and excellent community participation was obtained. The Ministry of Health found funds to purchase some materials and the students divided themselves into work groups digging latrine pits, making slabs, etc., with the villagers. The operation lasted three weeks and at the end of that time every household had a sanitary latrine.

The programme succeeded due to the size of the input and due to a solid educational approach. The villagers were given talks and organized discussion groups in the large mess tent of the camp in the evenings. The lone sanitary engineer responsible for the district had made no progress in the past in latrine improvement, whilst an impact on this scale on the life of a small village had succeeded. The team spirit of the students, under what were almost holiday conditions, was high and they identified well with the villagers as many came from a similar background.

The neighbouring villages did not follow the example and the project was not repeated due to administrative and other problems. For a chain reaction to be triggered amongst other communities throughout the provinces it was felt that the project would have to be repeated in at least four other localities.

AWARDS FOR DECADE FILM

Three major awards went to Dick Young Productions for the Water Decade film, "Journey for Survival". The film was acclaimed for its impressive presentation of the current world water crisis and man's responsibility to man and his environment.

The film is available for purchase from the Division of Information, UN Development Programme, 1 UN Plaza, New York, N.Y. 10017, USA.

STUDY COURSES

* CEPIS - the Pan American Center for Sanitary Engineering and Environmental Sciences - is holding a number of water treatment courses from July to November this

year. Average length of each course is three weeks.

Locations: Guatemala, Nicaragua, Paraguay, Costa Rica.

For more information: CEPIS, Casilla Postal 4337, Lima-100, Peru.

* WEDC announces a one-week course: Community Aid for the Water Decade, 2-7 August, 1981. This quick introductory course is aimed especially at "non-experts" on water and sanitation from developing countries.

Information: WEDC, Loughborough University of Technology, Leics. LE11 3TU, England.

* Water Resources Technology in Developing Countries is the name of a 6-month post-experience course to be held 11 January to 9 July 1982. If you are interested, contact the Department of Engineering, University of Birmingham, Birmingham B15 2TT, England.

* Water Training in Nigeria. The newly inaugurated Department of Water Resources and Environmental Health Engineering at Ahmadu Bello University in Zaria (Nigeria) will be running a 4-year course leading to the degree of Bachelor in Water Resources and Environmental Health Engineering.

The conventional training of environmental health engineers requires a full training in civil engineering (or chemical engineering), followed by a post-graduate course in environmental health engineering. In view of the severe shortage in environmental health engineers in Nigeria, as well as in developing nations in general, the University has decided to speed up this important training at B.Sc. level. Further details can be obtained from: The Head, Water Resources and Environmental Health Engineering Department, Ahmadu Bello University, Zaria, Nigeria.

NEW VOLUNTARY AGENCY IN UK

WaterAid is a new voluntary agency being formed by the British water industry to support the work of the Water Decade.



WaterAid will seek to raise money and provide volunteers with skills in water supply and sanitation to developing country communities.

WaterAid officially started its work in June 1981, beginning selective projects in about 4 to 5 developing countries. WaterAid activities are to include designing small projects, assessing and planning workshops, and providing group or individual education and training.

For more information, write: National Water Council, 1 Queen Anne's Gate, London SW1H 9BT, England.

NEW PUBLICATIONS

(Many thanks to UNICEF's Waterfront for several of these reviews)

Festive display on the occasion of the inauguration of the Kamayagoundanpatti Demonstration Plant, India; see our article on slow sand filtration on pages 4 and 5 of this Newsletter (photograph: NEERI)



Is your well well?

Are pipes and screens in your well well protected? The corrosion and encrustation of pipes, screens and pumps in water wells is a problem causing losses of hundreds of millions of dollars for hundreds of millions of people who run out of water, which they desperately need. Adverse chemical composition of the groundwaters and bacteria literally eat up or clog well installations. A new publication deals with this subject: Frank E. Clarke, Corrosion and encrustation in water wells, FAO Irrigation and Drainage Paper 34, FAO, Rome, 1980, Via delle di Caracalla, 00100 Rome, Italy, a field guide for assessment, prediction and control (1980). The guide shows how to predict the risk for such adverse conditions and how you can specify accordingly what should go into your well.

John HEBO-NIELSEN and Jes CLAUSON-KAAS have written a DANIDA-sponsored report on Appropriate Sanitation for Urban Areas (1980). This study of project areas in Kenya, Tanzania and Zambia shows the problems of sanitation in rapidly growing urban communities. It also shows how to make appraisals of technical and financial factors, using the Average Incremental Cost (AIC) Approach, balancing or combining different types of systems with each other. This seemingly simple study really requires much thought and is a good illustrative supplement to the recent (and partly yet to be published in book form) thorough manuals of the World Bank on low-cost sanitation. Information: Cowiconsult, Consulting Engineers and Planners A/S, 45 Teknikerbyen, DK-2830 Virum, Denmark. Telex: 37 280 dk.

Uno WINBLAD and Wen KILAMA have prepared a revised edition of Sanitation without Water. Although much smaller in format, this is a most appropriate part successor of another classic WHO-monograph "Excreta Disposal for Rural Areas and Small Communities" by WAGNER and LANOIX. The new edition has been expanded and provided with some of the latest findings, especially on the theme of composting. It brings expectations onto the right level and provides much more practical guidance for construction, manage-

ment, maintenance and use. The illustrations are congenial and easy to digest. All those who build latrines or others to do so, should know this book.

An Arabic edition is to be published by the WHO Regional Office for the Eastern Mediterranean (P.O.Box 1517, Alexandria, Egypt). Editions in French, Spanish and Portuguese are in preparation.

A simplified version of this book - called How to build a compost latrine - is to be published in Swahili, Amharic and English in 1981. Requests for copies should be addressed to SIDA, S-105 25, Stockholm, Sweden (attn.: Health Division).

Wastewater Treatment and Resource Recovery reports on a workshop on high-rate algae ponds and is published by the International Development Research Centre (IDRC) (Box 8500, Ottawa, Canada K1G 3H9). IDRC sponsored the preceding research together with the government of Singapore.

The document reports, among other things, on the efforts of this government to solve a water shortage problem by designing 60% of the island as a catchment area for rainwater. This resulted in the relocation of pig and poultry farms, which account for an important part of the protein supply of this city-state. However, the 14 million litres of pig wastewater and 1,000 tons of poultry excreta produced each day are a serious public health and environmental concern. In order to both tackle this problem and recycle these water usefully, long-term, full-scale pilot projects for the treatment of these waters have been going since some years back. The method used is one of high-rate algae ponds. In this method, different species of algae digest the waste matter, while multiplying fast and fertile enough to be harvested as biomass to feed to pigs, broiler chicks and fish. Much work still remains to be done, including the problem of preventing a predatory zooplankton, Moina sp., to get at the algae, before the pigs have a chance.

Evaluation of rural water supply projects in Thailand, final report, Rural Water Supply Planning Sub-committee, National Economic and Social Development Board, in

co-operation with UNICEF. Prepared by the National Institute of Development Administration, Bangkok, Thailand (1978). Mimeographed.

An unusually comprehensive evaluation, covering the whole of Thailand and involving a number of government and other agencies. By 1978 a total of 11 million people had benefitted from government-sponsored water supply projects.

Water Treatment Technology up-to-date Reference Book

Recently published, Development in Water Treatment is a two-volume up-to-date reference work whereby water engineers and other professionals can pursue the significant scientific advances in water treatment technology. The book has been compiled from contributions by experts drawn from the water industry thus mobilizing a range of experience to each subject dealt with. Editor: W.M. Lewis. Applied Science Publishers, Ripple Road, Barkins, Essex, England.

Last, but not least:

As mentioned earlier, WHO just published Drinking Water and Sanitation, 1981-1990, A Way to Health. It informs all concerned at the national and international levels about WHO's Decade approach. WHO is the UN Systems Monitor of the Decade's implementation and for reporting on other Decade developments. If you'd like to know what criteria WHO uses, then order this 56-page booklet. Special terms for developing countries are obtainable on application to the WHO Programme Coordinators or WHO Regional Offices or to the World Health Organi-

zation, Distribution and Sales Service, 1211 Geneva 27, Switzerland. Orders from countries where sales agents have not yet been appointed may also be sent to the Geneva address, but must be paid for in pounds sterling, US dollars, or Swiss francs. Price: Sw.fr. 9.-

The World Bank - the major lender in water supply and sanitation - has produced a 46-page booklet which describes in detail its approach to water supply, sanitation and the Decade. It's called Water Supply and Waste Disposal, and is part of the Poverty and Basic Needs Series, September 1980. World Bank Publications Department, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A.



And, as announced in previous IRC Newsletters, two new IRC Bulletins are now being distributed. They're free upon request:

* Slow Sand Filtration for Community Water Supply in Developing Countries (Appraisal Meeting Report, Nagpur, India), Bulletin 16;

* Modular Approach in Small Water Supply Systems Design (Regional Seminar Report, Jakarta, Indonesia), Bulletin 17.

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.

TECHNICAL COOPERATION WITH THE FEDERAL REPUBLIC OF GERMANY

The German Agency for Technical Cooperation (GTZ) has published a very informative brochure, entitled Technical Cooperation Programmes of the Federal Republic of Germany (FRG); Principles, Methods, Procedures.

This brochure explains comprehensively how developing countries can apply for support to their development project and which criteria have to be met to obtain such support. Generally speaking, support requests are to be submitted to the Embassy of the FRG in the country concerned. The embassy assesses the proposals and channels accepted ones to the appropriate bodies back home.

The FRG distinguishes four forms of cooperation:

- (a) Technical cooperation comprises measures aimed at imparting technical, economic and organizational skills and know-how and the improvement of the prerequisites for their application. They can include the assignment and payment of advisors, instructors, experts, appraisors and other specialists to the developing country; the supply of equipment and material, industrial and agricultural inputs, the provision of services, financial contributions to project and programme of viable local executing agencies. Technical cooperation contributions of the FRG are, as a rule, granted on a non-repayable basis.
- (b) Financial cooperation is concentrated in the sector of economic and social infrastructure. It comprises long-term loans at a very low rate of interest.
- (c) Technical cooperation against payment, in which the partner country pays for the German contribution. This form of contribution is practised only with wealthy developing countries.
- (d) Tripartite cooperation, in which a wealthy oil country finances a development project in a poor developing country which is implemented with German know-how.

Further information: German Agency for

Technical Cooperation (GTZ), Dag-Hammarskjöld Weg 1, Postfach 5180, D-6236 Eschborn, Federal Republic of Germany.

ALTERNATIVE WATER TARIFF POLICIES

As mentioned elsewhere in this Newsletter, the journal 'Water World' of April 1981, includes an article on financing for rural water supply; the author's name is K.R. Qureshi. From this article we quote a specific part, dealing with alternative tariff policies:

"A major policy decision is whether to regard water supplies as public utility or social service. There is a strong case for regarding rural supplies as a social service, like schools and hospitals. If this new status of public service is accepted, the obligation of the Government will be fully recognized and understood.

The possibility of free rural water supply should be seriously considered. This policy can be justified on social and economic grounds. In this way the Government would be subsidizing the poorer section of the community, the income distribution effect of which would be socially desirable.

If provision of free water is not possible, then low water rates should be charged. Efforts should be made to recover only the operation and maintenance expenses.

In fact, the villagers should participate with the concerned authorities in planning, construction, operation and maintenance of water systems. For this purpose water committees can be established where water supply system is in existence or is to be constructed. An agreement may be laid down specifying the duties and responsibilities of the Government and the Water Committee. The basis of this agreement could be:

- (a) The water system is to be constructed by the Government in cooperation with the Water Committee. A system of categorization has to be established based on the economic status of the region and sub-region on the report

of the local administration. Then the capital cost is determined, and recovered over a period of time from the community. Depending on the economic status of the area where the system is to be installed, it has to be decided whether full cost be charged, or the cost be subsidized, or the system be installed.

Only the local cost of construction should be charged, and people should not be asked to pay for the assistance received under foreign grants. Similarly, the cost of administration of construction, training, etc. should not be recovered from the people, and these expenses may be put under the general development budget.

(b) The operation should be arranged by the community. Once the system is established it should be handed over to the community. All expenses operation, thus, would have to be arranged by the Water Committee and recovered from the members.

(c) Maintenance should be organized by the Government. It should be realised that a large number of these schemes would be in communities possessing limited mechanical skill. Therefore, Government should be responsible for all maintenance, and charge for it. The whole charging has to be reviewed periodically and adjustments made from time to time in the light of the prevailing economic situation. As the income and productivity increase in various regions and sub-regions, where water is subsidized or provided free, the community should be asked to pay for it.

PREVENTION OF GUINEA WORM

The previous Newsletter featured an item on elimination of the Guinea worm having been adopted as an objective of the International Drinking Water Supply and Sanitation Decade.

The UNDP Decade news bulletin of May 1981 also discusses the serious problems caused by Guinea worm infections. Should you want more information on the UNDP bulletin, write to: Hilda Paqui, UNDP Division of Information, Room DC-1936, 1 UN Plaza, New York, U.S.A.

We now quote from this bulletin three recommended measures, and documented examples of their effectiveness, to prevent Guinea worm disease, viz.:

* filling in 'step wells' (so called because people have to step into them to draw water). When a step well is enclosed by a cement-brick wall, people are forced to use a rope to draw water (thus the term 'draw wells'), and this breaks the transmission cycle. This method has lowered the prevalence of the disease in areas of Andhra Pradesh

and Rajasthan in India, and achieved complete elimination 40 years ago in Tashkent and Samarkand in the U.S.S.R.

* provision of piped water systems, or other new, safe water supplies. When this was done in a town of 30,000 population in Nigeria, it reduced the incidence of Guinea worm from 60 per cent to zero. In East African countries, it is estimated that 100 per cent control of Guinea worm could be achieved -- as well as reduction of other diseases by 50 per cent (e.g. diarrhea of the new born, and dysentery) -- to as much as 80 per cent (e.g. typhoid and scabies).

* filtering drinking water through a double-thickness cotton cloth. Success with this simple method in West Africa has led the Central Organization Against Endemic Diseases (OCCGE) to conclude it seems "inexcusable" that every year thousands of workers and students in certain regions are incapacitated simply because they were not informed about filtering.

Public education is a vital ingredient in a prevention campaign. OCCGE maintains that there tends to be low interest in eliminating Guinea worm because it rarely causes death and this "diminishes awareness of the true impact it may have on health and the economy in villages with endemic disease". In many countries, therefore, it is necessary to develop even basic information about the incidence of infection, geographically and numerically, and to institute continuous surveillance.

PHILIPPINE WATER RESOURCES INFORMATION SERVICES

The information services of the National Water Resources Council of the Philippines are becoming more and more comprehensive. IRC just received volume 22 of Philippines Water Resources Abstracts which again provides data on hundreds of documents (from all over the world) on the water related aspects of the life, physical and social sciences, as well as related engineering and legal aspects of the characteristics, conservation, control, use or management of water.

The format of the abstracts included allows for division into handy cards which can be used directly in a private filing system.

For further information, write to: National Water Resources Council, Diliman, Quezon City, Philippines.

Should you have a relevant publication to spare, do send it to the Philippines and many potential users will be notified of its existence.

WATER WORLD, WORTH READING

We recently came across a (quarterly)

journal which would seem of relevance to many Newsletter readers: Water World. The first issue received at IRC -- April 1981 -- features quite a number of Decade related articles, including several ones on 'India and the Decade' and a comprehensive article on 'Financing for Rural Water Supply and Tariff Policy'.

Subscription enquiries, etc., should be sent to Water World, B-1 LSC, Second Floor, J. Block, Saket, New Delhi-110017, India.

GUIDELINES FOR DRINKING WATER QUALITY

Engineer T.K.Tjiook of IRC recently participated in a WHO Working Group on Application of Guidelines for Drinking Water Quality.

This meeting which took place in Alexandria, was one of a series aiming at revising and combining the "International Standards for Drinking-Water" (1971) and the "European Standards for Drinking-Water" (1970).

In addition to previously proposed limit values and background information concerned, material was discussed on the nature of limit values, monitoring, correction measures, and general applications.

A follow-up meeting in Kuala Lumpur (tentatively planned November 1981) will discuss a practical manual for drinking water quality control in developing countries; in a final session (planned for Geneva, end 1981) a final document will be presented for approval.

It should be noted that all guidelines will still have to be translated into 'national standards' for each individual country, in accordance with that country's socio-economic conditions and implementation possibilities.

PROJECT PLANNING COURSE

The University of Bradford also reacted to our call for information. They sent brochures describing their three-month post-experience Course on the Planning and Appraisal of Infrastructure Projects in Developing Countries.

This course which is run annually, pays ample attention to water supply and sanitation (amongst other subjects, such as public works, and irrigation and water resources). It aims at developing in participants a practical knowledge of the relevant approaches and issues in the planning and appraisal of infrastructure projects. And, as the course announcement says, these projects could be in both rural and urban areas at the local, regional and national levels and in the public and private sectors.

For many Newsletter readers, this short introduction to the course may well be a

reason to ask for more information from: University of Bradford, Project Planning Centre for Developing Countries, Mr. A.J. Plumbe (Course Director), Bradford, West Yorkshire BD7 1DP, United Kingdom.

CALL FOR NEWS IN FRENCH

Although the Newsletter has been produced and distributed in both English and French for some ten years now, 99 per cent of news volunteered to its editor is in English and concerns developments in anglophone areas, courses given and publications produced in the English language.

We trust that Newsletter (or *Faits Nouveaux*, as the French name goes) readers in Francophone areas or those who have access to new, relevant publications in French, will start to give us help in spreading the word about water supply and sanitation more and more. This does by no means imply, though, that we no longer welcome contributions from other sources. On the contrary

SALUBRITAS — Health Information Exchange Quarterly

Readers interested in innovative health care in developing countries can receive a free subscription of the quarterly newsletter *Salubritas*. It's published by the American Public Health Association and distributed in English, Spanish and French.

Salubritas offers its 13,500 readers new ideas concerning every aspect of health care from traditional medicine, nutrition, and appropriate technology to techniques for managing such programmes.

Salubritas welcomes reports from people involved in the above-mentioned programmes and, if your report is published as an article, you receive a U.S. \$25 honorarium; suggestions on appropriate technology or other material used in the Readers' Exchange section entitle you to a U.S. \$10 honorarium.

Readers interested in contributing articles to *Salubritas* are requested by its editors to observe the following guidelines: "What problems is the programme trying to solve? Where is your programme, how many people does it serve, and what services does it offer? What methods and techniques do you use; what is new about the techniques? How and when was the activity introduced? Who funds the service? Is it part of a wider programme? For example, is it part of a national health programme? Have you or anyone else evaluated the project? If so, could you send us copies of the reports, and any before and after statistics you may have? How and why

have you changed your project since you began ?"

"Please make your story as personal as possible. To do this, refer by name to community workers and others involved. Where possible, quote those involved in the project. Include information about yourself -- your nationality, job title, and a description of your current work. Please give the names and address of people to contact for further information if necessary. Please explain any local terms. Try to do all this in 1,500 words or less ! If possible, type your article double spaced. If you send photos, we prefer black and white. We also welcome drawings, and other materials that can be used for illustrations". For further information and/or a subscription please write to: Salubritas, 1015 Fifteenth Street, N.W., Washington, D.C. 2005, U.S.A.

COURSES

In response to the Newsletter's call for information regarding participation in water supply and sanitation, Middlesex Polytechnic sent us a brochure on their Short Courses in Water, Waste and Sanitation 1981.

The brochure describes four courses, viz.:

- * Training in Water Supply and Sanitation for Developing Countries;
- * Diploma in Water Supply and Public Health Engineering;
- * Postgraduate Diploma in Water Quality Control and Monitoring;
- * Postgraduate Diploma in Water Resources.

These courses have a large intake from developing countries, sponsored by such organizations as the World Health Organization, the British Council Technical and Educational Training Organization for Overseas Countries, the National Water Council, the European Economic Communities, other governments than that of the United Kingdom and consulting engineering firms.

Further information and application forms can be obtained from Dr. S.K. Dutta, Middlesex Polytechnic, Queensway, Enfield, Middlesex EN3 4SF, United Kingdom. The telex number is 8954762.

A symposium on 'Design and Operation of Small Sewage Works' will be the subject of a one day Symposium to be held at High Melton Training College, Doncaster, United Kingdom, on 4 November, 1981.

Organized by the North Eastern Branch of the Institute of Water Pollution Control, the Symposium will relate to sewage treatment works serving populations up to 5,000. It will highlight the renewed interest in the operation, maintenance and uprating of this significant category of works and innovations directed to reducing capital and operating costs.

An exhibition will be held in conjunction with the Symposium for the display of publicity and related material relevant to the Symposium.

Fee for the Symposium is £30 to include advance copies of papers, proceedings, morning coffee, lunch, tea and tax. Full details of the Symposium are available from Dr. J.A. Hudson, c/o Yorkshire Water Authority, Claro House, Harlow Moor Road, Harrogate, United Kingdom.

NEWS FROM IRC — Slow Sand Filtration Seminar

The Slow Sand Filtration Seminar scheduled for Cameroon has now been fixed for 7-11 December, 1981 (see announcement in Newsletter No. 118 - February 1981).

For further information: Mr. Andrew W. Ndonyi, Director, Department of Community Development, Ministry of Agriculture, Yaoundé, United Republic of Cameroon; or IRC.

CALL FOR DECADE NEWS

We draw your attention to the enclosed 'special issue' of the Newsletter. It calls for information on Decade developments for inclusion in the regular Newsletter.

Should you need some more copies, for example for circulation within your institute or organization, please write to IRC.

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.

WHO PROJECT AND PROGRAMME INFORMATION SYSTEM

WHO has published a handy little booklet which tackles a big problem. It shows how to provide, speedily and in a concise style, information and data on projects/programmes for which external support is required. This 25-page guideline is of special interest to officials within governments dealing with water supply and sanitation matters and particularly to the external staff involved in different capacities of the International Drinking Water Supply and Sanitation Decade. "Project and Programme Information System" has been prepared by people who should know what they're writing about: the Unit for Global Promotion and Cooperation for Water Supply and Sanitation (GWS) of the World Health Organization, Geneva, Switzerland. GWS acts as the Secretariat for the Steering Committee for the Decade.

The booklet describes briefly the problem facing Decade planners, the methodology of setting up the system and the involvement of the National Action Committees. It also states the objectives of the system, as well as agencies and individuals responsible at different stages, and suggested procedures. A sample data sheet is included with clear guidelines which structure information into meaningful categories such as scope of project, background, government inputs, external inputs, and outputs (to name a few).

Planners in the community water supply and sanitation fields in developing countries will find the data sheet format very worthwhile. It functions as a summary on an identified project or programme in a standardized reference document form. And it helps to communicate for normal bilateral contacts with embassies, representatives of financing agencies, nongovernmental organizations and voluntary organizations in the countries. At the global level, this information is fed into the WHO/GWS system to ensure widest distribution. The data sheets also enable countries to develop additional contacts with potential sources of financing. For the data sheets, WHO/GWS provides the link between countries, United Nations organizations, bilateral agencies, nongovernmental organizations, and de-

velopment banks.

To obtain your copy of "Project and Programme Information System" and for further information contact the United Nations Development Programme Resident Representative or the WHO Programme Coordinator in your country. You can also write to: The Manager, Global Promotion and Cooperation for Water Supply and Sanitation, Division of Environmental Health, World Health Organization, CH-1211 Geneva 27, Switzerland.

WASH: PROGRESS REPORT

Water and Sanitation for Health (WASH) is a project carried out for the U.S. Agency for International Development (AID) as a major contribution of the U.S. Government to the International Drinking Water Supply and Sanitation Decade. WASH has now published a very interesting progress report which summarizes completed and ongoing projects between 1 November, 1979 and 30 June, 1981.

The areas of support available from WASH are primarily focussed on rural and urban-fringe water supply and sanitation improvement and include: general technical assistance, technology transfer, human resource development and training, and technical and development information.

AID Missions and Regional Bureaus may request WASH assistance on behalf of:

- mission programmes;
- host government organizations;
- other host country organizations;
- Peace Corps;
- international/multilateral programmes;
- private voluntary organizations.

The progress report mentioned earlier gives a good impression of the potential of WASH, which until now has provided assistance to some 38 countries.

For more information on WASH, contact the AID mission in your country (the U.S. Embassy will tell you where to find it), or write directly to the WASH Information Director, 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, U.S.A.

TREATING DIARRHOEA - WITH WATER OF DOUBTFUL QUALITY?

Cholera and other forms of acute diar-

rhoea cause severe dehydration, which often kills. Children are the main victims -- every year about 6 million infants under the age of five die from diarrhoea. Until recently, the only accepted treatment was an intravenous drip of sugar and water, which can only be done in hospital. Treatment at home with an oral rehydration solution is a new technique that has already saved many thousands of lives. The proven benefits of rapid oral rehydration of a victim of acute diarrhoea far outweigh the possible risks of using water of doubtful quality, according to Dr. R.G. Feachem of the Ross Institute of Tropical Hygiene. He says that a sound strategy "is to advise mothers to use the cleanest water available, to boil it where possible, and not to keep the oral rehydration drink more than 24 hours".

In many rural areas of developing countries, the only available water is heavily contaminated with faecal material. Boiling water for oral rehydration drinks, and allowing it to cool before the solution is prepared, is often impracticable. It requires the use of expensive fuel, and it can delay the start of treatment.

If oral rehydration therapy is therefore to become commonplace in villages, it is certain that the rehydration fluid will often be made up with water containing pathogens of faecal origin. Although it is not yet known if this matters, Feachem says that on current evidence it probably doesn't. (Source: Oral rehydration with dirty water? by R.G. Feachem, Diarrhoea Dialogue, Issue 4, February 1981, AHRTAG, London.)

TAPS AND TOILETS COULD MEAN MORE DISEASE

Far from reducing disease, household water and toilets may actually increase it. If new flush toilets are installed in cities with already inadequate sewage disposal systems, waterborne excreta may be discharged into open stagnant ditches. If a household installs a tap, domestic waste water may be released into a sump in the back yard, or into open drains in the street that become blocked with overuse. These pools of stagnant waste water and sewage can provide new breeding grounds for the mosquito which spreads elephantiasis. Bancroftian filariasis -- a painful and disfiguring disease more commonly known, in its advanced stages, as elephantiasis -- is carried by the Culex pipiens mosquito, which breeds in sewage and stagnant, polluted water.

The Culex pipiens mosquito is found mainly in tropical cities. It breeds in open drains blocked with sewage and dirty waste water or in pit latrines. If new water and sanitation systems are introduced without adequate drainage, then this disease-carrying mosquito will be provided with more of its favourite breeding places. This will mean an increased risk of elephantiasis. Another danger is that a proliferation of pit lat-

rines in rural villages could spread the disease beyond the urban areas, if the new latrines are not properly sealed.

Villages are also at risk now because the Culex pipiens mosquito will also breed in poorly maintained wells and stagnant pools of spilled water from public taps and handpumps.

A further risk of disease comes from other species of mosquito that normally only breed in clean water. There is some evidence that these mosquitoes are now adapting to take advantage of the breeding opportunities provided by the increasing amount of contaminated surface water in rapidly expanding Third World cities.

Although there are methods of controlling the population of filaria-infected mosquitoes, they are not foolproof. These mosquitoes are now almost universally resistant to organochlorine insecticide, such as DDT. Organophosphate insecticides are still lethal to the larvae, but they are expensive and there are reports that the Culex pipiens mosquito is becoming resistant to them as well. In addition, organophosphate insecticides may adversely affect the microbial activity of waste stabilisation ponds. A cheaper, more common method is to spread used lubricating oil on pit latrines and septic tanks. But the transport and labour costs for an effective oiling programme are high. Control methods are, therefore, not sufficient in themselves. In order to minimise the danger of an increase in elephantiasis, these methods must be combined with providing well-designed disposal systems for new water and sanitation programmes. Should the types of mosquito that traditionally breed in clean water adapt to utilise polluted water as breeding sites, then these precautions become even more crucial. (Source: Sanitation and culex pipiens mosquitoes: a brief review, by C.F. Curtis and R.G. Feachem, Journal of Tropical Medicine and Hygiene, London, 1981, 84, pp. 17-25. Many thanks to Waterlog (see Earthscan reference below) for the above two articles.

AWWA CELEBRATES CENTENARY

The American Water Works Association held its annual conference and exhibition in St. Louis on 7-11 June, 1981, and at the same time celebrated its first hundred years of existence. Some 6,700 people attended the event at the Cervantes Convention Center.

A century ago, 22 men met, at the Engineers Hall, Washington University, which was then on the St. Louis waterfront, and launched the AWWA -- an association which has become the world's largest organization of water supply professionals -- now almost 34,000 strong.

Their purpose, stated in the preamble of the AWWA's first constitution was: "for the exchange of information pertaining to the management of water works, for the mutual advancement of consumers and water companies, and for

the purpose of securing economy and uniformity in the operation of water works".

In 1881, less than 1,000 water systems existed and typhoid was the yardstick of water pollution. Only a few of the plants followed even rudimentary treatment practices. Nearly 30,000 people died annually of the disease.

The success of the Association might best be measured by the same typhoid yardstick. It shrank from 36 deaths per 100,000 population in 1900 to 20 in 1910 to only 3 in 100,000 in 1935. By then disinfection of water supplies had become common in virtually every major city. Today the disease is almost unknown in the U.S.A.

In the U.S.A. today, more than 60,000 public water supplies provide more than 30 billion gallons of drinking water to some 200 million citizens every day. There are almost 200,000 employees in the water industry helping to collect, treat, test and deliver fresh water. Cost of the water system is about U.S. \$155 billion.

HABITAT NEEDS WATER AND SANITATION INFO

The United Nations Centre for Human Settlements (HABITAT), located in Nairobi, Kenya, is presently undertaking a work programme to assist developing countries in the delivery of infrastructure to low-income communities. Water supply and sanitation are two priority components of this programme. The first step being taken by the Centre in its research work related to the work programme is to collect data to provide a basis for its evaluation activities. It will then disseminate the relevant information and implement demonstration projects. It is therefore particularly interested in receiving information on projects in which water supply and sanitation are an integral part of community upgrading and where documentation available encompasses the entire project from the carrying out of feasibility studies through implementation to evaluation. UNCHS (HABITAT) would welcome any assistance that can be provided to this endeavour.

Correspondence should be addressed to: Building and Infrastructure Technology Section, Research and Development Branch, UNCHS (HABITAT), P.O. Box 30030, Nairobi, Kenya.

BOOKS WORTH ATTENTION

PACEY, Arnold: Rural Sanitation Planning and Appraisal. An OXFAM Document. Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN, United Kingdom. 68 p. ISBN 0-90 30 31-72-8. 1980. Written for hospital and other sanitation people concerned with environmental sanitation, it is an effective guideline from an effective organization, OXFAM. Their experience from both regular development and emergency work has led to useful developments e.g. excreta disposal with

transportable pre-fabricated units. UNICEF and OXFAM work closely together in some of the most difficult project areas, such as Kampuchea.

Proceedings of the 6th WEDC Conference on WATER AND WASTE ENGINEERING IN AFRICA held in Nigeria, 1980, is now available from Mrs. Rowena Steele, WEDC Group, Department of Civil Engineering, University of Technology, Loughborough, Leicester, Leics. LE11 3TU, United Kingdom. The price is £15.00 per copy including surface mail postage. Airmail for overseas destination is £3.00 extra per copy.

Water, Sanitation, Health - For All ? Prospects for the International Drinking Water Supply and Sanitation Decade, 1981-1990, by Anil Agarwal, James Kimondo, Gloria Moreno and Jon Tinker. An Earthscan publication, International Institute for Environment and Development, London, 1981 (106 pages). This book, due to be published in Autumn, was originally published by Earthscan as briefing documents for journalists. It contains chapters on the reasons for a water decade; the health and social costs; the problems of water supply and of sanitation; the health effects of water and sanitation; country reports from Colombia, India and Kenya; the expectations for the Decade; and the prospects. Please write to: Earthscan, 10 Percy Street, London W1P 0DR, United Kingdom. Development journalists will be interested in Waterlog, Earthscan's new Newsletter on water and sanitation. Waterlog, in the July first issue, does what Earthscan has a well-deserved reputation for: presenting well-researched material in an easy-to-read format, with a balanced, intelligent, critical view.

Manual for Rural Water Supplies, Helvetas/Swiss Association for Technical Assistance. 175 pp. with diagrams, bibliography and scale drawings. Publication No. 8. SKAT, Swiss Centre for Appropriate Technology, Varnbülstr. 14, CH-9000 St. Gallen, Switzerland, 1980, price SwFr. 34.00. Since 1964 the Swiss Association for Technical Assistance (SATA) has been collaborating with the Department of Community Development (CD) of the United Republic of Cameroon. One of the fields in which SATA has been providing technical input has been the water supply sector. One of the many fruits of the SATA activities in Cameroon is a manual on rural water supplies. The manual gives a very good example of a reference book for water technicians in a developing country. Though specifically written for use in Cameroon, it contains a wealth of practical information which is just as valid in many other countries. Also, the set-up of the manual is such that with a little adaptation, it can be transformed into a sourcebook or training manual fit for use in another developing country. The manual provides a step-by-step

procedure for planning and implementation of rural water supplies, and contains chapters on hydrology, water quality, basic data required, design and construction, administration and maintenance.

Avoiding lengthy theoretical explanations, it deals with all the very practical problems which a field engineer may encounter. Very useful are sections about aggressiveness of tropical water and soils towards building materials, dug well construction, spring catchment, and pipe laying. Many diagrams and worked-out examples help to explain the various subjects. A number of standard designs developed by SATA in Cameroon are included. The manual is very well suited for use by training institutes and water supply agencies.

NEWS FROM IRC

Upcoming manual on on-site sanitation

IRC is presently preparing a comprehensive paper dealing with "on-site sanitation options". The purpose of the manual is two-fold: firstly, to stress the need for an integrated approach when implementing community water supply and sanitation programmes which should entail the simultaneous provision of safe water and waste disposal facilities as well as a participatory health education programme in order to realize an optimum health impact. The second objective of the manual is to provide information about practical alternative low-cost sanitation techniques to be used by extension workers working in water supply, primary health care or community development programmes. Included are several excreta disposal and treatment/re-use options which are applicable at the rural level for individual households. These include the (VIP) Ventilated Improved Single and Double Pit Latrines, the Single and Double Pour-Flush Latrines, as well as the (DVC) Double-batch Composting Latrine, and several versions of family-size Biogas Digestors. In addition, the possibility of fertilizing fish and algae ponds with treated excreta is discussed.

Each sanitation technology in the manual includes practical construction and operation instructions as well as checklists of the relevant technical, economic and social/cultural constraints (or aspects), costs, advantages and disadvantages, as well as the potential benefits such as

the economic and agricultural gains from re-use or energy conservation.

The publication on "on-site sanitation options" will be available in December in both English and French. Free copies can be obtained from IRC: please specify language preferred.

Staff changes at IRC

Recently three new staff members have joined the IRC team:

* Alastair T. WHITE (British, 40 years old) will manage IRC's Community Education and Participation Project. Mr. White -- who has a Ph.D. in sociology from the University of Cambridge -- previously worked as a Lecturer in sociology (University of Stirling), as Research Officer of the Institute of Development Studies (University of Sussex), and as Consultant Sociologist, particularly in the field of community participation in water supply;

* Robert E. BRASSEUR (Belgian, 43 years old) has been appointed Manager of IRC's Manpower Development Programme. Mr. Brasseur graduated in 1960 as engineer-architect at the University of Ghent. His previous professional activities include urban and regional planning in Indonesia and Uganda, and various aspects of human resources development. He takes the place of Gareth HOWELL who has chosen to go into private consultancy work.

* M. Krijn PETERSE (Dutch, 50 years old) has become IRC's Administrator, an essential post now that IRC is an independent foundation. Previously he was director of a Netherlands-based private company, operating in the international commodity markets.

By the time you receive this Newsletter, two staff members who have competently served IRC many years will have left, namely:

* Jan HAIJKENS, Deputy Director of IRC, becomes Chief, Planning Division of the Netherlands' Ministry of Public Health and Environment, Directorate Drinking and Industrial Water Supply;

* W.-Karel HOOGENDOORN, Head Information Services, has accepted a post at the Netherlands' Ministry of Foreign Affairs. His mission will be Environmental Policy at the Directorate for Economic Cooperation.

IRC is grateful for their valuable contribution and thanks them also on behalf of the many they have worked with.

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.

MISUSE OF PUBLIC WATER SUPPLIES: DIAGNOSIS AND PREVENTION

by C. van Wijk-Sijbesma, IRC Consultant

Drinking water supplies in low-income rural and urban areas usually have public water points for all or a part of the users. The misuse of these facilities is a common feature. Nor are other parts of a public system (pipelines, reservoirs) secure from damage by users. This article summarizes various types of misuse, analyses possible reasons and indicates strategies for prevention.

Types of Misuse

Many forms of misuse are unintentional, without people realizing the serious consequences. Most usual are water wastage and pollution. The way in which people collect water can cause considerable wastage, especially when taps are left open. Wastage in turn can lead to pollution around the source, sometimes worsened by the presence of cattle. This dirty water may then be used for the priming of handpumps. Seepage is also possible as the soil around the supply gets saturated. In Ismani, Tanzania, children took the dirty water from the overflow rather than waiting in line for water from the tap (1).

Accidental damage to equipment is also common. Equipment breaks down or wears out faster than necessary because of overburdening, wrong operation and injudicious repair. In the Sudan, for instance, women prefer a short stroke for pumping, to keep time with their singing (2).

In other cases, willful misuse occurs. Nearby households or certain interest groups such as large cattle owners monopolise the use of a public supply point. Some people even get an illegal financial profit from the supply. In Dongoro, Ethiopia, for example, the households near a government well monopolized the supply and sold this at eight times the official price to people unable to wait or to those who failed to get any water (3).

Sometimes, certain users or user categories are excluded from using a public supply point. Problems of social access for the "untouchables" in India are well-known. Some categories of female users (Moslem women, young girls) can be restrained from using certain facilities because of the presence or behaviour of males.

Willful damage to material and equipment is also a problem in most projects. Well-covers are broken up, pipes cut up and valuable parts are stolen. Even cases of well-poison-

ing have occurred. A special problem of willful damage is vandalism.

Underlying Reasons for Misuse

From a users' point of view such misbehaviour can be quite understandable. An analysis of the various types of misuse from this perspective can therefore be a first step to improvement or prevention.

Human characteristics, such as knowledge, experience, cultural and motoric patterns, play an important role. The users may not see a relationship between water, sanitation and health, or fail to apply such a knowledge to their own behaviour. Lack of insight into the serious consequences of closing valves in pumping mains has caused serious bursts during pumping. Damage to equipment can also be caused by a lack of experience in operating even simple mechanisms like a tap. Earlier experiences will also play a role. Why is a leaking tap objectionable when a continuously trickling spring is a blessing? Motoric patterns are important for the operation of mechanical pumps. For children and young people, public supply points and other parts of the works offer a great opportunity for amusement and experimentation.

Self-serving interests are a strong factor in misuse of facilities. Those who have a position of power in the community can use this to get advantageous siting or financial gains, e.g. from selling the land at a high price, getting a free service, or obtaining illegal payment or services. In Botswana, the committees that took over the management of a water reservoir changed the rate system to flat rates which benefited larger stock owners to the detriment of others (4). In areas where animal watering gives problems (drought, salinity, excessive fluoride), large cattle owners can monopolise public supply points.

The supply system will also create opportunities for undue advantages for people who have no economic or political power, but who exploit their proximity to the point. Households nearby supply points can monopolise the service or get illegal payment. Operators can also misuse their position in various ways (extra payment, replacement by cheap parts, illegal connections etc). Theft in general is a problem where parts can be used for other purposes, from bicycle repair to decoration. The presence of a self-help project in the vicinity is a particularly risk-increasing factor.

Other interest groups such as nomads, water



vendors and farmers who rely on the source for irrigation, fear the negative impact of the supply on their livelihood. When no attention was paid to their traditional rights, willful damage has frequently occurred. Frustrated expectations can also lead to willful damage. Sometimes, services which people thought would be included are not covered by the project. An irregular or insufficient supply with long waiting times, frequent breakdowns and slow repairs, a ban on irrigation or cattle watering which people think unfair, annoyance of nearby households, are all explanatory factors found when cases of serious damage to water supplies were investigated. An irregular service can cause people to leave the tap open so that they will know when the water starts to flow again.

Strategies for Prevention

To preserve or keep down misuse, one must take its possible causes into account in the various phases of a supply project. In the planning phase, it is important to determine the required quantity in relationship with local water use patterns and future developments, such as livestock projects and migration. Local interest groups must be identified to limit negative socio-economic impacts of the project. The number, siting and design of public supply points can be determined in consultation with the community or its representatives, paying special attention to the needs of lower income groups and women. When a design is tested on user acceptability (e.g. by a visit to a completed project or through a demonstration model), women and children must be involved.

Early information about the scope of the project is important for the people of the project area but also for those just outside it, to prevent future problems. When a project is designed for, rather than with the people, they must be well-informed about those aspects which will concern them directly, and be given ample opportunity for feedback. Such feedback can then result in local adaptations.

The arrangements for local operation, maintenance and administration should be made in the planning phase. Outside support remains nearly always necessary. But the community must also have some responsibilities, ranging from simple caretaking and reporting tasks to daily operation, maintenance and administration. The division of responsibilities between agency, community functionaries and community members must be very clear. The clear division of responsibilities in the construction phase is also important, such as storage of materials, protection of the sites etc. It will sometimes be necessary to start construction in the poorest areas. This will not only allay suspicions but also make it easier to spend some time on discussions with the people about their care for the supply. Towards the end, when deadlines have to be met this will be more difficult. At the completion of the supply, a traditional public ceremony can assist in emphasising the joint ownership and responsibility for the facilities. In some cultures, this can even be imperative. In Duguna, and other villages of Uttar Pradesh those households that gave a donation (dakshina) to perform a ceremony (puja) near a public standpost secured unofficial control over this standpost.

For the post-construction phase, arrange-

ments for local management must be supplemented by training selected community members for the necessary technical and socio-educational tasks. Together with the community or its representatives, regulations for use can be formulated. Social control, e.g. by nearby households, can be stimulated. Health education and user education are very important. Health education will usually start earlier, as a form of project motivation. But later on it can be related to the new supply e.g. with regard to the health risks of an insufficient drainage. With user education the more technical knowledge and skills necessary are: how to operate the facilities, to prime a pump, replace a washer, recognise and report problems, prevent pipeline erosion etc.

Special target groups can be identified for such education, such as women groups, school children and farmers and woodcutters near the pipeline. The opening of a supply can be a useful occasion for public demonstrations in which the future users are involved.

Direct Feedback

Finally there is the prevention of any extreme user dissatisfaction because of a poor service. This can be monitored by the creation of direct feedback between the users and the water supply management at various levels. Good two-way communication will be important. In Joharapuram, Andhra Pradesh, for instance, the people in the poorest hamlet of the community were paying water taxes to the local council without getting water. After a year they complained to the district water office. An extension was designed but not constructed as the local council refused to pay its obligatory share. The people did not know about the agency's reaction, however, and damaged the supply.

Another feedback mechanism is regular evaluation visits by the supervising agency. Preferably such visits should include informal contacts with selected users and discussions of evaluation results with the community if necessary.

References

- (1) Kreysler, J. "Total coli counts: Method to determine biological contamination of rural water supplies, the Ismani example", in D. Warner (ed.) Rural Water Supply in East Africa, Proceedings of the Workshop on Rural Water Supply, University college of Dar-es-Salaam, BRALUP Research Paper No. 11, 17-19 December 1969, p. 82-87.
 - (2) Scotney, N., Developing a Health Education Component for the UNICEF Water and Sanitation Programme in Sudan, Consultancy Report, May 17 - June 1, 1980, African Medical and Research Foundation, June 1980.
 - (3) Browne, D.G., Dongore Water Supply, a Study of a NWRC Rural Well, Executive Organ, National Water Resources Commission, Planning and Programming Office, Addis Ababa, August 1974.
 - (4) Chambers, R.; D. Belshaw, Managing Rural Development: Lessons and Methods from Eastern Africa, Institute for Development Studies, University of Sussex, Brighton, 1973.
- The author thanks Mr. Leif Rosenhall for his communication on SIDA (Swedish International Development Authority) experiences

in this field.

"BAMBOOCRETE" WATER TANKS

Bamboo-reinforced water tanks show as high tensile strength as those of ferro-cement are easier to construct.

That's the conclusion of a study by WHO Engineer, J.A. Hazbun, Project Manager, Rural Water Supply and Sanitation Project, Solomon Islands. Hazbun's "How to Do It" manual outlines the technology where the panels of the tank are precast in moulds and are light enough to be transported and manhandled to the site for assembly.

The 2,150 liter tank is ideally suited for rain water catchment: one tank serves the needs of a family of six for twenty days (20 liters daily per capita consumption). Several tanks connected by a washout pipe could easily supply an entire village. Hazbun says bamboocrete tanks are cheaper and longer lasting than galvanized steel tanks, and are easier and cheaper to construct than chicken-wire reinforced or galvanized sheet tanks.

This technologically appropriate building material has the additional advantages of being relatively light - cheaper to transport, easier to handle.

For more information, write to WHO, P.O. Box 22, SOL/BSM/001 Project, Honiara, Solomon Islands.

INTERNATIONAL SYMPOSIUM ON ENVIRONMENTAL TECHNOLOGY FOR DEVELOPING COUNTRIES

The 1st International Symposium on Environmental Technology for Developing Countries will take place in Istanbul, Turkey, between 7-13 July, 1982.

The theme of the present symposium will be "Appropriate Waste Management and Low Waste Technology for Developing Countries". Under this general title the following subjects will be included:

- management (treatment, recycling, etc.) of liquid and solid domestic and industrial wastes;
- management of agricultural residues;
- energy production from wastes;
- low waste technologies;
- low cost waste management;
- case studies of pollution monitoring and waste management;
- environmental impact of waste management techniques.

Engineers and scientists of any nationality are welcome to submit papers or participate in the symposium. Authors are invited to submit three copies of an approximately 500 word abstract by 30 January, 1982. For further information, contact: Kriton Curi, Bogaziçi University, Faculty of Engineering, P.K. 2, Bebek, Istanbul, Turkey.

LATIN AMERICA: CURRENT NATIONAL PROGRAMME ACTIVITIES AND NEEDS IN COMMUNITY EDUCATION AND PARTICIPATION (CEP)

Dr. Alastair White of IRC summarizes below community participation activities in the community water supply and sanitation field in Latin America. In December's Newsletter, Dr. White will focus on Africa and Asia.

1. Existing programmes

Latin America has the longest experience

with CEP programmes for rural water supply and sewerage systems. Most countries have a national rural programme with a standardized strategy. For some countries this programme is already well-known. For other countries, such as Panama and Honduras we have no detailed information of CEP procedures. For others again, such as Venezuela, we have no information at all. For comparative studies it would be useful to get all existing information.

There are however also large non-governmental programmes with different CEP procedures or with little or no CEP on which little information exists. Examples are the Agrarian Reform Programme of the Cauca Valley Regional Autonomous Corporation and the Coffee Federation Programme, both in Colombia.

2. Programme evaluation

Some participatory government programmes monitor construction cost savings, promotion costs, system breakdowns, rate payments and other important information for CEP programme evaluation. Agency evaluations are however rare, have a low accessibility and may not always be completely objective. Outside evaluators could make good use of the existing statistical material in an evaluation of the success of a particular CEP programme. In countries where large-scale Decade water supply and sanitation programmes exist with a varying degree of CEP the evaluation could be a comparative one. Colombia has expressed an interest in such an evaluation.

A comparative evaluation has already been carried out in Mexico. Here very little detail has however been given on the actual CEP procedures of the different programmes. It would be useful if an appraisal of these procedures could be carried out to complement the existing study.

3. Gaps in evaluation

A. Health impact

An aspect which has been insufficiently evaluated in Latin America is the health impact. An evaluation on water use patterns after the introduction of piped supplies in Colombia led to the addition of a health education component to the promotion programme of the national rural water supply and sewerage programme. Other evaluations were carried out in Argentina and Peru, but the interest in such studies appears to be limited, especially in comparison with Africa.

B. Social system effects

Programme evaluations will concentrate on aspects that are a concern of the agency. Some of these will also be of interest to the community. But there are also consequences for the community which are relevant in a wider socio-economic development context. An example of such an aspect is the decision of the agency to organize participation exclusively through the local body that formally represents the population.

The consequences of such a decision will be obvious in countries with a repressive government system. But local relationships can also affect the degree in which the views of various interest groups (women, landless labourers, squatters making use of land reform legislation, etc.) will be represented.

Other obvious aspects are the system for the division of local contributions to construction and the rate system, which may affect various community categories differently (equal contributions are a bigger burden upon poorer sections).

Evaluations of CEP programmes should therefore also look at the possible consequences of the water provision, and the procedures used, for the local social system.

4. Changing needs as programmes develop

The progress of rural water supply and sewerage programmes seems to have slowed down in the last few years. Maybe this is because under the selection criteria used (easy access, availability of suitable sources, high level of organization, etc.) the communities easiest to serve are served first. Also, with the growing number of communities served the promoters have to supervise more and more committees. This means that recurrent agency costs (supervision manpower, transport) go up, even though the committees pay the direct costs themselves. An alternative which is presently tried out in Colombia is an improved (formal) training for the committees. The agency is also studying a more flexible administrative set-up to improve the technical-administrative success of community participation in some areas.

5. Health education

Present health education approaches in rural water supply and sewerage programmes in Latin America tend to emphasize health information and are based mainly on short term mass communication activities. Colombia has expressed an interest in evaluating the cost-effectiveness of another health education approach in a demonstration project. This will consist of the linkage of the national rural drinking water programme and the primary health worker programme. Under the latter, the female village health promoters will realize an environmental health education programme that is

(a) ongoing; (b) locally specific; (c) oriented towards self-improvement of other environmental health conditions (e.g. excreta disposal, drainage, food hygiene, nutrition); (d) lets various target groups and especially the women participate in all phases of the health programme, including planning and evaluation; and (e) includes special health impact studies by the district health service in selected communities.

NEWS FROM IRC

IRC presents its latest publication in its series on Community Participation: COMMUNITY PARTICIPATION AND EDUCATION IN COMMUNITY WATER SUPPLY AND SANITATION PROGRAMMES: METHODS AND STRATEGIES.

This monograph by Dr. Alastair White, an anthropologist with years of practical experience in problems of development in Latin America and Africa, spells out the theory and practice of Community Participation in 180 pages.

Dr. White examines the factors of socio-cultural and political nature which must be

taken into account by an agency or government which is considering the use of community participation methods in the planning and implementation of community water supply and sanitation schemes in developing countries.

It draws on the literature concerning community participation and education in water supply, summarized in Christine van Wijk-Sijbesma's Community Participation and Education in Community Water Supply and Sanitation Programmes, A Literature Review (IRC Technical Paper 12, revised edition, 1981) and on the experience of community participation in other fields, especially that of health.

Dr. White includes the varying grades of experiences of both socialist and mixed economies and discusses in an objective, analytical way the complex concept of community participation which more often than not is misunderstood or oversimplified. He pays particular attention to differences of interests, especially within villages, which are often overlooked in the literature. A chapter on community health education draws from the general findings of social psychology to recommend an approach emphasising collective commitment to change.

Options for community participation, the circumstances appropriate to promote them, and possible difficulties to be encountered, are laid out clearly in this scholarly, yet practical monograph.

Topics dealt with by Dr. White include:

- (1) the forms of community participation;
- (2) the pros and cons of community participation;
- (3) consultation with the community -- formal and informal;
- (4) community contributions;
- (5) community action and the campaign approach;
- (6) community education and behaviour change;
- (7) self-reliance;
- (8) types of community;
- (9) the choice of strategy.

IRC Technical Paper 17 also features convenient appendices, checklists, and diagrams which help the reader to gain a quick overview of the many aspects of community participation.

Price: U.S. \$15.--, payable in advance by cheque or international money order made out to: International Reference Centre for Community Water Supply and Sanitation, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands. Please quote our bank account: ABN 51 421 8 428.

Non-commercial agencies in the developing world may apply for a free copy.

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.

IN THE DECEMBER IRC NEWSLETTER YOU WILL FIND:

- * UN VECTOR CONTROL PANEL SWINGS INTO ACTION, page 1
- * POSSIBLE NEGATIVE CONSEQUENCES OF DECADE PROJECTS, page 2
- * SCREENED LATRINE VENT PIPES: EFFECTIVE AGAINST FLIES, page 3
- * SAFE WATER TIPS, page 3
- * COMMUNITY PARTICIPATION: AFRICA, page 3
- * UNDP DECADE BIBLIOGRAPHY, page 4
- * NEWS FROM IRC, page 4

UN VECTOR CONTROL PANEL SWINGS INTO ACTION

Several United Nations Agencies met in Geneva recently to discuss the creation of a network to combat the all-too-common negative health consequences of water and sanitation projects. Their particular target is vector control, to eliminate disease-transmitting organisms.

In 1980 a 60-member strong Panel of Experts on Environmental Management for Vector Control was formed by the World Health Organization, the Food and Agriculture Organization, and the United Nations Environmental Programme.

The multi-disciplinary Panel found that water resources projects in areas of prevalent endemic diseases have almost all experienced serious health problems. (Endemic: peculiar to a locality or region). Due to inadequate consideration of health and environmental safeguards, major endemic diseases like malaria, schistosomiasis, diarrhoeal diseases, etc., intensified with the projects' development.

But efficient vector control can eliminate these problems. To spur this on, the most recent Panel discussion (22 to 29 September 1981) focused on creating a network to link projects at national level with national water resources boards, regional collaborating centres, and a global reference centre.

- * National coordination boards will be established, including agencies responsible and involved in development of water resources. National boards will be linked to regional collaborating centres selected from amongst existing national in-

stitutions. The latter will be linked to the global information/ reference centre which will collect, compile and disseminate information.

- * The Panel recommended several training projects and activities, including introducing subjects on health and environmental implications at engineering schools.
- * Other recommendations included development of an inventory on water resources projects, a bibliography, newsletters and a number of research and field studies.
- * The Panel also discussed rice, its culture and its health and environmental implications, especially in the light of projects being developed in Africa for its extension.

The next meeting of the Panel is scheduled for 14 to 20 September 1982, to take place in Nairobi at the headquarters of the United Nations Environment Programme.

For more information: H.A. Rafatjah, Secretary, WHO/FAO/UNEP Panel of Experts on Environmental Management for Vector Control. World Health Organization, 1211 Geneva, 27, Switzerland.

The health problems of development projects can be prevented and controlled should the health and environmental considerations be considered at the earliest stages of the project's development. Many of the health safeguard measures are good engineering and agricultural practices and therefore their incorporation in the projects' design and operation should not represent additional costs. Conversely, prevention and control of endemic diseases, once established in the project area, will be very complex and costly, if not unfeasible.

Vector-related health problems are not the only possible negative consequences of water supply and sanitation projects. There are many other health problems in areas where endemic diseases are not rampant, but where water- and faecal-related diseases are fostered particularly by the lack of harmony between water supply and sanitation facilities. There can be also many economic and social negative consequences. The following checklist illustrates some of these health, economic and social backlashes.

POSSIBLE NEGATIVE CONSEQUENCES OF DRINKING WATER SUPPLY AND SANITATION PROGRAMMES: A CHECKLIST

A. Health Conditions

- 1 Increase in public health risk when several traditional supplies each serving a limited number of people are replaced by a collective supply insufficiently protected against pollution.
- 2 Creation of unsanitary conditions through inadequate drainage of waste water (mud leading to faecal-oral disease; pools of water leading to vector-borne disease, especially malaria).
- 3 Creation of unsanitary conditions at the water source through failure to provide separately for livestock (animal excreta).
- 4 Children may play in and drink from unsafe water around the supply.
- 5 Construction work may involve contacts with outsiders who may introduce new infective organisms.
- 6 Introduction of water supply for domestic and productive use may lead to a deterioration in nutrition, because food crops are replaced by cash crops; milk is sold to milk industry.
- 7 Deterioration of nutrition due to disturbances in the water ecology affecting fish production.
- 8 Increased health risks when improperly designed, constructed, used, cleaned or maintained excreta disposal facilities become a source of infection for the users.
- 9 Increased risk of transmission of vector-related diseases when improperly constructed, used or maintained waste disposal facilities intensify rodent and insect problems.
- 10 Creation of new health risks by disposing untreated sewage into surface water simultaneously used for other purposes such as drinking, bathing, fishing and crop irrigation.
- 11 Unintentional contamination of domestic water sources by excreta disposal facilities and systems, e.g. when incorrectly sited latrines or leaky sewage systems pollute groundwater.
- 12 Creation of unnecessary health risks as a result of unsafe or unhygienically-operated nightsoil collection and re-use systems.

B. Economic Conditions

- 1 Replacement of paid labour by voluntary labour in areas with great unemployment, without using the savings for expanding the programme to other unserved areas.
- 2 Unemployment and loss of income for people engaged in water selling and waste collection.
- 3 Failure to plan for a temporarily higher population growth through a decrease in mortality, leading (especially in low-potential areas) to increased un- and underemployment, land shortage and migration.
- 4 The removal of existing water constraints to cattle-raising (shortage, taste, high fluoride content) leading to overgrazing and erosion, when people keep more cattle, or neighbouring nomads bring in their cattle for watering.
- 5 Allocation to growth-point areas leading to a growing gap between low and high

potential areas through the mechanisms of:

- a) a still higher productivity;
- b) an increase in population from a decrease in mortality;
- c) allocation of additional services.
- d) further stimulation of organizational and leadership capacities (but see also point 3).

- 6 Change from dispersed settlements to concentrated settlements around water supply points leading to increased travel time to fields.
- 7 Increase in value of land (farm-connections) and property (site-and-service projects in slum areas) leading to forced departure of lowest income groups.
- 8 Lack of coordination between water supply and spontaneous/planned settlement leading to water shortages and a decreased willingness to pay for supply.

C. Social Conditions

1 Relative weakening of the position of the poor through:

- a) forced resettlement of population groups (e.g. squatters, to provide space, avoid source pollution etc.), often accompanied by a destruction of property;
- b) subsidized service to dominant groups;
- c) monopolization of, or restriction of access, including cases where publicly provided water is privately sold;
- d) use of this monopoly for getting money or services e.g. when traditional supplies fall dry;
- e) project-causing changes in land and property value or land tenure system benefitting the rich;
- f) equal contribution by each household pressing relatively heavier upon the poor;
- g) voluntary labour affecting agricultural (food) crops;
- h) loss of jobs for water/waste carriers employment affecting poorest sections;
- i) status, travel, jobs and other amenities going to the most powerful or their allies and relatives;
- j) increase in labour productivity benefitting employer rather than employee;
- k) lowering of groundwater table for service to the most affluent affecting water reliability in shallow wells used by the poor;
- l) payment for labour in food facilitating the avoidance of minimum wages in cash and making substantial profits to contractors possible;
- m) relatively less health benefits for people who need these most as a result of:
 - a lower level of service,
 - inability to afford additional provisions for optimal benefits such as good water storage,
 - lower coverage by health education services;
- n. demand of construction labour from all, while opening opportunities for speculation and profits from construction for a few.

2. Relative worsening of the position of women through:

- a) limitation of social contacts, especially for culturally-isolated women.
- b) heavier labour burden for women:
 - voluntary labour for construction mainly from women,
 - more time/effort for collection because number of trips to closer source increases or old, distant source remains to be partly used,
 - no more assistance in water collection from men/children,
 - water and time gains leading to increased physical labour for other purposes.
- c) making a productive use of water and time/energy gains without sharing in the resulting profits;
- d) the automatic allocation of (prestigious) jobs and functions to men;
- e) reduction of women's sphere of influence by transferring water supply matters from women to men;
- f) a chaotic daily timetable as a result of a poor or unadapted service (queueing, inconvenient collection hours).

3. Increased conflicts between and within villages, especially when competition between water for household and productive purposes is possible.

4. Increased dependence upon outside agencies and decreased possibility to solve problems independently.

(From: Christine van Wijk-Sijbesma's Participation and Education in Community Water Supply and Sanitation Programmes, A Literature Review. Second, revised edition. Forthcoming from IRC).

SCREENED LATRINE VENT PIPES: EFFECTIVE AGAINST FLIES

A screened vent pipe reduces substantially insect breeding and emergence in pit latrines, according to a recent study in Botswana and Tanzania by the Ross Institute of Tropical Hygiene of London. The screens proved more effective against flies, however, than mosquitoes.

The study concludes that mosquitoes raise additional problems because of pit odours which attract females, and the attraction of the light in the vents to emergent adult mosquitoes.

The small number (but, from a vector control perspective, highly significant) of pits heavily infected with mosquitoes may require additional measures such as the permanent use of drop hole traps. The ecology of such pits (which appear to give consistently high production year after year) needs further investigation. Mass trials of drop hole traps on unventilated pits are already under way and will be reported in late 1981.

The full report of this study by Chris Curtis and Peter Hawkins will appear in the Transactions of the Royal Society of Tropical Medicine and Hygiene (Vol. 76, no. 1) in February, 1982. Persons requiring copies of this report, or further information, should write to:

International Reference Centre for Waste Disposal
c/o EAWAG, Ueberlandstrasse 133
CH-8600 Dübendorf/Switzerland.

SAFE WATER TIPS

Mr. Ade Adetona, a consultant for traditional medicine in Lagos, Nigeria, suggests a number of ways to ensure that safe water stays safe. In a letter to the IRC Newsletter Editor he writes:

- people should clean their hands before touching water taps, buckets, etc.
- people should be educated to report damaged water points immediately to the authorities.
- everyone should be taught to take only their fair share of the water.

Mr. Adetona adds that "Many countries including Nigeria are trying to let all the people have potable water before 1990..... UNICEF and WHO are cooperating effectively".

COMMUNITY PARTICIPATION: AFRIKA

(December's Newsletter briefly surveys community participation programmes in Africa. Last month's Newsletter focused on Latin America; January's Newsletter will sketch programmes in Asia.

Existing programmes

The situation in Africa is much more complex than in Latin America. Whereas in the latter piped supplies with paid yard connections are provided, in Africa one finds mostly communal wells, water catchments and piped supplies with public standposts, with or without user payment. Where further community participation exists, it may be limited to one phase, usually construction. There is a much greater variety in participation and education procedures and standardization within one country are rare.

Manpower arrangements also vary greatly; as in Latin America CEP (Community Education and Participation) tasks may be allotted to a special promotion service within the water agency (e.g. in north Ghana, east Ethiopia and south Guinea-Bissau) but also to technical personnel, with or without special training (e.g. in Malawi and Ghana), to an independent government service for community development (e.g. Niger), or to a para-statal organization (Ivory Coast).

To bring some perspective into a rather kaleidoscopic picture, four different types of programmes are discussed in the following sections. For each of them possible needs and opportunities for CEP programmes will be identified. Thereafter the more general issue of programme coordination is discussed.

Programmes without CEP

For many countries in Africa, especially for many of the northern and central equatorial countries, IRC has no information on CEP components built in or linked to drinking water supply and sanitation programmes. Other countries, such as Chad, have abandoned earlier CEP programmes because they gave too many problems. It is possible however that different procedures will have the desired results.

Participatory well-construction programmes in Francophone Africa and Guinea-Bissau

Participatory well-construction programmes have long been established in some countries, such as Upper Volta (since 1964) and Niger (since 1967). In other countries, such

as the Ivory Coast and Guinea-Bissau, new programmes have been established. The type of participation varies from voluntary labour for construction in hand dug wells to consultation of local authorities and traditional leaders, the establishment of water committees and the training of local paid or unpaid caretakers. It would be useful to evaluate such programmes with regard to the effect of the existing CEP procedures on functioning, costs, health and coverage. Also there may be special needs for additions to the existing programme, such as a health education programme, waste disposal programme or financing system for operation and maintenance. This could for example be the case in Guinea-Bissau. Niger has expressed a need for a different procedure.

Self-help projects in eastern and southern Africa

In east and southern Africa (Ethiopia to Lesotho) rural water supply programmes appeal to the tradition of self-help mass action. Not everywhere are such programmes successful however. In Kenya and Tanzania there have been negative experiences with self-help construction and with subsequent maintenance, clearly due in part to poor communication with the community. Different CEP procedures, with more emphasis on participation in planning and maintenance and a realistic division of responsibilities between agency and community may lead to better results.

The experiences of Malawi, where standardized programmes for participation in planning and construction of wells and gravity supplies are used, are more positive. Here, however, there may be a need for some additional activities, such as a health education and sanitation programme and a financing system for maintenance that takes into account the low capacity for recurrent payments in rural areas.

Another situation where coordination and comparison of progress can be necessary is in countries where different regions have been allocated to different donor organizations for technical assistance projects in water supply and sanitation. (For more information, write to IRC).

UNDP DECADE BIBLIOGRAPHY NOW AVAILABLE

- * The United Nations Development Programme is now distributing a 28-page Bibliography as a reference service, and it lists books, newsletters, reports, etc. on World Water and Sanitation Decade topics.
- * The Bibliography is divided into 17 sub-topics such as general information about problems, issues, and approaches, as well as about health, water related diseases,

sanitation, and regional reports, to name a few.

- * The publications mentioned are not available from UNDP but most of their publishers' addresses are.

Copies of the Bibliography are available from: UNDP, Division of Information, Room DC-1900 (Mr. W. Hailemekot), One UN Plaza 1st Avenue New York, N.Y. 10017, U.S.A.

NEWS FROM IRC

Martin Beyer, Senior Adviser to UNICEF for Water Supply and Sanitation says this about IRC's recently published Small Community Water Supplies:

"It will save some of us in UNICEF and possibly other organizations from duplicating efforts, as this is an excellent introduction and technical guideline, even for the non-technical reader."

"It covers all aspects of water supply from planning and management to water quantity and quality, water sources, rainwater harvesting, spring water tapping, groundwater withdrawal, surface water intake, artificial recharge, pumps, water treatment, aeration, coagulation and flocculation, sedimentation, slow sand filtration, rapid filtration, disinfection, water transmission to water distribution, etc."

"The book is a must for anybody dealing with low-cost water supplies for small communities".

Source: UNICEF WATERFRONT, June 1981).

Small Community Water Supplies

Technology of Small Water Supply Systems in Developing Countries. IRC Technical Paper Series No. 18. 362 pages, + 5 annexes. Cost: US\$ 20,--.

When ordering this or any other IRC publication for which there is a charge, please transfer the sum directly to our bank account.

The account number is: ABN, 51.421.8.428

The Bank's address is:

Algemene Bank Nederland

In de Boogaard j. 32

Rijswijk (Z.H.), The Netherlands.

If this is not possible, please send a cheque or international money order with your order, quoting the above ABN account number.

NON-COMMERCIAL AGENCIES IN THE DEVELOPING COUNTRIES MAY APPLY FOR A FREE COPY

(An updated IRC Publications list will be available soon).

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent foundation. IRC's main purpose is to promote and support the creation of safe drinking water and sanitation facilities in the developing world. IRC works through national institutions, agencies and regional centres in the rural and semi-urban areas of Africa, Asia and Latin America. The Centre cooperates closely with United Nations organizations, such as WHO, the World Bank, UNDP and UNICEF and with other participants in the UN Decade Steering Committee. In addition, IRC acts as WHO Collaborating Centre for community water supply. It is assisted in its work by these organizations and by bilateral donors and institutions in the industrialized countries.

IRC concentrates its efforts on: (1.) Information Support and Services; (2.) Technology Development and Transfer; (3.) Manpower Development and Training; (4.) Community Education and Participation; and (5.) Programme Evaluation. Support is provided by means of guidance and training material, seminars and courses, research and demonstration projects, as well as by general support to the development of national facilities.

For further information, and/or a list of IRC publications, please write to IRC's Information Section.