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CHRONOLOGY OF ILLUSTRATIVE 1982 DECADE ACTIONS

Each developing country pursues its own strategy, at its own best pace and within its available resources, toward meeting the goals and following the approaches internationally recommended for the Decade. Following are widely ranging examples of what was done, planned and reported worldwide during 1982 -- by developing countries, developed countries, non-governmental organizations, and the United Nations system:

January

* The Solomon Islands reached and exceeded its 1981 goal of installing potable water supplies for 15,000 people under a UNDP/WHO-assisted project; chances are rated good for reaching the goal of 100 per cent coverage by 1990. However, sanitation targets are far from being reached. Work has also advanced on a locally-built shallow well handpump one-third the cost of imported pumps and less subject to breakage -- vital for outlying islands visited rarely by ships and repair services.

* Representatives of 12 Central American and Caribbean countries met to exchange experience and set out "needs and offers" for regional assistance among themselves. For example, Dominican Republic needs advice on water-user education, while El Salvador offers experience in educational television for children and adults; Barbados and Trinidad and Tobago have institutions for regional training in water-related skills, while St. Vincent and Guatemala want help in training professional-technical personnel.

February

Mexico passed a law to penalize industries that violate Government environmental pollution standards. Such conservation is essential when only 60 per cent of urban people, and a much smaller percentage in the rural areas, have access to potable water -- and when water consumption, especially by industries, is expected to more than triple by the year 2000.

March

A new US\$ 438 million water supply facility opened in the Philippines, bringing piped water to 3 million more residents of metropolitan Manila. Access to tap water is now enjoyed by 70 per cent of the city's population.

April

The 10-agency UN system "Steering Committee for Co-operative Action" on the Decade met and agreed on new guidelines and strategies for human resources development, including training ranging from village-level pump caretakers to hydrologists and government planners; investment projects in water and sanitation; improving health benefits from water-sanitation projects; participation by women as the main carriers and managers of water and the main influence on family health and hygiene; and collaboration with non-governmental organizations (NGO's) as water-sanitation donors (estimated US\$ 150 million annually) and as community mobilizers.

May

* New loans this month by the World Bank/International Development Association include:

- US\$ 43 million for water supply in 53 urban areas of Ivory Coast;
- US\$ 46.6 million to extend water supply to 86 per cent and sewerage to 79 per cent of the population of Lima, Peru;
- US\$ 15 million co-financing with the Arab Fund for Economic and Social Development (US\$ 17.5 million) and European Development Fund (US\$ 5.5 million) to double the water supply volume and coverage area in Mogadishu, Somalia, to serve some 640,000 people by 1987;
- US\$ 30.5 million to increase access of low-income families to piped water in 150 rural and semi-urban centres in Tunisia; and,
- US\$ 18 million for improved water production and distribution in three cities of Zaire.

* Eighteen governmental, non-governmental and industrial bodies in Denmark this month established a National Committee for the Decade to ensure active and co-ordinated Danish support for the Decade. Finland, Hungary, Ireland, the United Kingdom and the United States have, or are establishing, similar Decade "consortia".

June

* Government figures released this month

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show that Thailand spent US\$ 20 to US\$ 25 million a year for water/sanitation improvements during 1977-1981, and needs to spend three to four times as much (about US\$ 70 million) per year to reach its 1990 targets. Goals are clean drinking water for 70 per cent of urban and 95 per cent of rural population, and sanitation services for 70 per cent of urban and 50 per cent of rural population. A country-wide Decade master plan was near completion, based on policies established by a national workshop in 1981. It recommended new central oversight of work by 17 national bodies, implementation by district development councils ("tambons"), community action on rainwater-collecting jars and tanks, and a significant role for the private sector.

* In China, 30,000 people are now at work on a mammoth 223-kilometer scheme to transfer water from the Luan River to Tianjin, the third largest city. It involves an 11-kilometer tunnel through a mountain, 100 bridges, a 130-kilometer channel, river dredging, two reservoirs and a 500,000 cubic meter water treatment plant near the city.

* New control programmes are under way in at least five countries affected by Dracunculiasis (Guinea worm disease), as reported at an international meeting this month in Washington, D.C. India's national eradication effort involves health directors from seven States and central organizations, identifying every affected village and its sources of drinking water (the carrier of Guinea worm), developing an operational manual and prototype health education materials, and enumeration of actual cases of the disease in May/June 1982. In West Africa, Benin, Ghana, Nigeria and Togo are among the countries which have initiated Guinea worm monitoring programmes, prior to starting control work spearheaded by providing improved drinking water supplies.

July

* "Within 10 years no town without water". That is the goal of the national Decade plan in Turkey, launched this month with an inaugural address by the Prime Minister. A national action committee was formed in 1980 two weeks after the UN General Assembly proclaimed the Decade. It has since studied all aspects of water and sanitation. Turkey's prospective Decade donors are to meet in early 1983, and Turkey will also host an eastern Mediterranean regional workshop.

* A non-governmental group with 90 million members in 60 countries this month issued a Decade village leaders' guide. Produced by Associated Country Women of the World (ACWW), it covers ground/surface/rain water, wells, pumps, filters, sanitation and personal hygiene. The guide augments ACWW's Decade fund-raising with UNESCO Co-action; members purchase special "cheques" of US\$ 1 to US\$ 1,000 for developing country projects; US\$ 6 buys a shovel to dig latrines; US\$ 20 a water-testing kit, US\$ 40 a pump tool kit, and US\$ 120 a pump.

* The emergency phase of a US\$ 54 million water supply project was announced this month in Costa Rica, to stave off predicted serious urban water shortages in summer 1983. The full project, to be in operation by 1975, will meet demand until the year 2,000 through a new system of tunnels, aqueducts and enlarged treatment plants. Self-financing of the Government's US\$ 22 million expendi-

ture will come from raised water rates, with highest rises for conspicuous consumers. The World Bank and the Commonwealth Development Corporation are providing US\$ 26 million and US\$ 6 million towards the total cost.

August

* UNICEF calculates Lebanon urgently needs more than US\$ 21 million to restore war-devastated water supply and sanitation facilities. During and after the siege of West Beirut, UNICEF became the de facto water supplier and rebuilder of bombed mains. "Only superhuman efforts" by UNICEF and other relief agencies prevented a "disastrous epidemic" of typhoid, cholera and other water-related diseases, according to World Water magazine.

* In India:

- the first courses began at the water sector training centre in Madras, to prepare staff for water services to the city's four million people;

- INALSA, producer of India's "Mark II" handpumps, signed an agreement with an African-German firm to manufacture them in Lome, Togo;

- plans were announced to modify Mark II design to enable village-level extraction and repair of the pumps in line with UNDP/World Bank findings; and

- a programme was launched to eliminate scavenging and carrying of night soil in urban areas, by installing low-cost sanitary latrines, initially in 210 small and medium towns where UNDP/World Bank teams are developing action plans.

* In Nigeria, agreements were signed this month with 54 contractors who will sink boreholes in every State, starting with 760 boreholes in the US\$ 54 million first phase and expanding to 1,500 later. This Federal initiative will augment continuing water supply efforts by State Governments.

* A technical workshop in Burma evaluated three different pilot designs of toilets for dry, hilly areas; wetter and coastal zones; and "in-between" areas. Findings will be used in a 1982-1986 programme to build over 400,000 hygienic toilets to benefit 2.4 million people. Also planned is construction of wells, tubewells, ponds, rainwater storage and other water supply systems centered around community institutions across the country.

September

* The UNDP Administrator and a representative of Misereor, a non-governmental organization in the Federal Republic of Germany, signed an agreement under which a DM 3 million contribution will finance pipes, fittings, accessories and trucks to transport materials for a community water supply programme in Nepal. Construction includes 100 gravity-flow drinking water supply systems, with plastic pipes to village standpipes, benefitting 100,000 people in areas where 60 per cent of all health problems arise from water-borne disease and infant mortality is 159 per 1,000. The UNDP-administered UN Capital Development Fund is financing almost US\$ 2 million of the costs, UNICEF US\$ 209,000, Government US\$ 544,000, and village self-help efforts are valued at US\$ 559,000.

* "Pathetic and chronic water shortages were scaring away potential investors" from Kisumu, third largest city in Kenya, according

NEWS FROM IRC

to the Director of the Kenya Association of Manufacturers. They also led to frequent cholera threats. The water works there were built for a population of 50,000, but the population of 200,000 had recently suffered from dry taps. This month, water works expanded at a cost of US\$ 2 million were inaugurated to supply 14 million litres of water per day and end these problems.

* Elizabeth Mafata, a mother with four children in a mountain village in western Lesotho, was recently freed from long, back-breaking daily treks down the hill and up again to collect water for drinking, cooking and washing. A standpipe has just been installed in her village, with funds raised through a "wishing well" campaign by the Federation of Women's Institutes in the United Kingdom. Now she has time at home to weave handicrafts for sale to a new factory in Maseru. With the time saved, other village women have fenced off communal vegetable plots, produced larger crops, saved on food imports, and sold surplus for cash. This month, British women handed over US\$ 25,000 more they raised for the eight-district project. Now communal latrines can also be built, and women will be trained as rural health workers and use tool kits to keep village pumps working -- and keep themselves more productive and healthy.

October

Drawings by 3,000 children in 25 developing countries were entered in national art competitions on the theme "clean drinking water and personal hygiene", co-sponsored by UNICEF and the OPEC Fund. Winning art will be published in a catalogue and exhibited in several cities.

November

In India, 18 Indian national NGOs were involved in a 9-11 November consultation meeting, together with government and UN System planners. They shared experience in community participation and education in water supply/ sanitation, as a prelude to a December national workshop of State and Federal authorities on the national Decade plan now being finalized. National NGOs in Bangladesh, Nepal and Sri Lanka held similar consultations in November/ December, with UNDP co-operation.

December

National Decade planning workshops were scheduled in eight developing countries this month -- Benin, Botswana, Burundi, India, Niger, Rwanda and Zambia. Representatives of all concerned Government units were to set policies and programmes for water supply and sanitation and recommend methods of implementation. Similar workshops were held in Indonesia in September, Lesotho in October, and Bolivia, Haiti, Kenya, Paraguay, Swaziland and Uganda in November. In addition, right after its workshop, Haiti held a consultative meeting with donors potentially interested in financially assisting work under the national decade plan.

Source: UNDP Division of Information, 1 United Nations Plaza, New York, N.Y. 10017, U.S.A.

In the same retrospective vein of the previous review, we at IRC would like to present a very brief summary of our activities during 1982. A fuller description of these efforts in the last year will be presented in the IRC Annual Report, 1982, available later this year.

I. POETRI - The Programme on Exchange and Transfer of Information

I.a. On programme activities the first half of 1982 was largely spent re-orienting POETRI to match reduced funding levels. The main funder is the Directorate General for International Cooperation (DGIS) Ministry of Foreign Affairs, The Netherlands. However, a number of activities were carried out including regional workshops at CEPIS (Lima, Peru) and CIEH (Ouagadougou, Upper Volta), which culminated in both these organizations being appointed POETRI Regional Focal Points. A two-month consultancy study focused on information support needs in Kenya and the United Republic of Tanzania. Tools brought to finalization in this period were the POETRI Reference Manual, Volume I, the thesaurus, and the Directory of Information Sources in Water and Sanitation. French translations of these will appear in 1983. The first batches of the standard library -- a compilation of basic water and sanitation documents -- has been dispatched to 14 regional and national focal points. WHO has officially confirmed its monitoring role and will further support through technical advisory services. Eleven developing countries are now participating to improve their information handling and processing capabilities for direct support of rural water and sanitation programmes.

I.b. Eleven issues of the IRC Newsletter, 4 Panel of Experts on Environmental Management for Vector Control (PEEM) Newsletters, and the following publications saw the light of day:

Technical Papers:

- * Practical Solutions in Drinking Water Supply and Wastes Disposal for Developing Countries (TP20);
- * Guidelines on Health Aspects of Plumbing (TP19);
- * POETRI Reference Manual, Volume I (TP16).

Occasional Papers:

- * Status Report on Community Education and Participation Activities and Recommendation;
- * Selected and Annotated Bibliography on Planning and Evaluation.
- * A Groundwater Primer, published in co-operation with the National Institute for Water Supply (the Netherlands).

IRC has also prepared an extensive report on the DGIS (The Netherlands)-funded Bubata-Tombali water project in Guinea-Bissau. A total of 3100 IRC publications were distributed in 1982.

The three library staff have spent the larger part of 1982 indexing the IRC library according to international standards. IRC houses one of the largest collections of documentation in the world on water and sanitation in developing countries.

II. Appropriate Technology

II.1 Slow Sand Filtration

Funding for the project was extended by DGIS till the end of 1983; the project is in

the third and last phase, the transfer of information among developing countries. Sharing knowledge and experience on SSF and community participation was the main theme of the IRC co-organized International Seminar 13-16 July in Neiva, Colombia. The SSF Operation and Training Manual was finalized and will be circulated soon.

11.2. Public Standpost Water Supply Systems
Funding was obtained from DGIS. The new project manager will initiate activities in Malawi, Zambia, Indonesia and Sri Lanka.

11.3 Handpumps
Technical and documentary support to the UNDP/World Bank Project for Testing and Technological Development of Handpumps was continued. A four-week consultancy evaluated USAID on-site handpump projects in Asia.

11.4. Water Quality Improvement
IRC is cooperating with the American-based National Sanitation Foundation in a project for promoting the technology of local preparation of disinfectant for small water supplies: on-site hypochlorite generation. Important basic equipment characteristics are: Dependable operation; low capital cost; good efficiency; small capacity (1 to 10 kg of chlorine equivalent/day); use of standard spare parts. Manufacturers of hypochlorite generators and water supply engineers interested in participating in the project should contact IRC directly (for the attention of Mr. T.K. Tjiook), those US- or Canada-based should write to: Mr. Gordon Bellen/ National Sanitation Foundation/P.O. Box 1468/ Ann Arbor/ Michigan 48106/U.S.A.

11.5. Modular designs
Activities in 1982 were mostly related to project development in India, Malaysia, and the Philippines, in which modules will be used for design, construction and for training. For this purpose IRC has developed a "Type Designs Manual".

III. Manpower Development and Training

The main focus of MDT was the consolidation and redefinition of tasks in the Indonesian project designed to improve skills and promote better utilization of all levels of staff in the urban water supply sector. The project staff have produced two manuals this year: Training of Trainers and Guidelines for Piping. The development of sectoral training delivery systems in Sri Lanka was also part of MDT activities.

In October, IRC hosted a Human Resources Development Workshop attended by several HRD specialists from UN agencies and water authorities in several developing countries. Participants underscored the need for more and better training guidelines for HRD planning, and more training seminars, in line with the HRD Basic Strategy Document endorsed by the

Decade Steering Committee in April, 1982.

IV. Community Education and Participation

The first batch of filled-in questionnaires has been received from respondents in the joint IRC-WASH Directory of Sources and Services to be published in 1983. The document will outline who's doing what, where and why in community participation in water and sanitation.

Though the Interregional Project is stalled because of funding problems, the Tanzanian CEP-project proposed as a socio-education project in the community development service in the Prime Minister's Office, is now in the stage of training the key Tanzanians of the project co-lead by Mrs. Mary Kirimba. The other project leader is Mrs. Christine van Wijk-Sijbesma who recently saw her revision of the Literature Review on CEP (IRC Technical Paper 12) printed.

V. Programme Evaluation

Much energy last year went to the preparation of the Draft of a Selected and Annotated Bibliography on Planning and Evaluation, and in incorporating comments made by external reviewers.

As from January 1983 Governing Board members and IRC Staff are as follows:

Governing Board: Mr. P. Santema, chairman, Mr. P.J. Verkerk, secretary, Mr. D.J. de Geer, treasurer, Mr. H. Gajentaan, and Mr. L.P.J. Mazairac (Netherlands Government), Dr. M.G. Beyer (UNICEF), Mr. J. Freedman (World Bank) and Dr. P. Lowes (UNDP); WHO observer: Mr. S. Unakul.

IRC Staff: Drs. Hans van Damme, Director; Programme Officers: Ir. Robert Brasseur, Ir. Enric Hessing, Ir. Ebbo Hofkes, Ir. Kien Tjiook. Project Managers: Mr. Toon Van Dam, Ir. Jan-Teun Visscher, Mr. Michael Seager; Information Section: Mr. Dick de Jong, Information Officer, Information Assistants: Mrs. Hannie Wolsink, Mrs. Lia Wahab; Mr. George Bedard, Editor, Mrs. Lia van der Kruit, Librarian, Library Assistants: Mr. Cor Dietvorst, Mr. Gé Konings; Administration and Finance: Mr. Krijn Peterse, Head Administration and Finance; Mrs. Louise Sackman, Management Assistant; Mr. Hein Bodrij, Staff Assistant; Programme Assistants: Mrs. Anneke Groenendal, Mrs. Ellen Konings, Mrs. Cynthia Raley, Mrs. Hilda de Vries, Mrs. Moniek Zijdemans. Consultants: Dr. A.T. White, Mrs. Drs. Chr. van Wijk-Sijbesma, Mrs. L.F. Hoffman; In Indonesia: Mr. A. Spencer.

**WE AT IRC WISH YOU ALL
CLEAN WATER FOR 1983!**

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

IRC was founded in 1968 by an agreement between the World Health Organization (WHO) and the Netherlands' Government. It is an independent non-profit 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.

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INTERNATIONAL LABOUR ORGANISATION (ILO): HRD FOR THE DECADE

Several branches within the ILO undertake activities in the field of Human Resources Development. While few of the activities are directly related to the water industry, many are indirectly related:

Management Development

The Branch programme has 40 management development projects employing about 150 experts. Over 10% of this work deals directly with the water industry.

An on-going project in the water sector is the management development input to REGIDESO, the National Water Authority of Zaïre, which includes strengthening production management, organization of the personnel department and training in operational management.

The Branch undertakes training in construction project management where the available material is applicable with very little modification to the water industry. General management programmes cover planning, administration, budgeting, accounting, purchasing, store-keeping, and office and industrial management. A general supervisory management package is available and consideration may be given to the production of specialized modules for water supply and sanitation supervisors.

The Branch coordinates an interregional network of management institutes. In terms of Technical Cooperation among Developing Countries (TCDC), the referral system being developed will help disseminate the experiences and skills of management development centres in developing countries in their work related to water supply and sanitation.

A draft proposal has been prepared jointly with the International Reference Centre for Community Water Supply and Sanitation to undertake sector related workshops in several developing countries.

Vocational Training

The programme aims at providing vocational training to skilled and semi-skilled personnel in a variety of basic trades. The Branch assists countries to assess training needs on a sector or national basis, and assists in institutionalizing vocational training activities. It develops training materials such as modules of employable skills (MES) and executes training, using both formal and on-the-job methodologies.

Currently the Branch runs more than 100 projects spread over 70 countries. Several of these projects are directly related to the water industry, and training programmes in carpentry, masonry and mechanical and electrical trades have clear relevance to Decade needs.

Co-operatives

The Branch concerns itself with the role of local self-help institutions in rural areas working for the benefit of local communities. Assistance is given in organization and management, training of co-operative leaders and of Government co-operative organizers and trainers. Education facilities are provided for the co-operative membership.

Many co-operatives assisted by the ILO undertake activities in the water supply/sanitation sector such as using undistributed financial surpluses to dig wells or improve the village water supply system, maintenance and repairs of drinking water supply systems and wells, primary health care, health education and similar community services. Special training programmes may be organized and conducted at the village level using existing co-operative networks to support the IDWSS Decade. A current study on "co-operative organization and services for land settlement" could be expanded to cover the water supply and sanitation sector. The design of simple training packages for co-operative organizers, trainers, managers and leaders could be undertaken. Additional funding would be required to support either activity.

Emergency Employment

The Branch carries out special public work programmes (SPWP) primarily to create rural employment. During the last five years, the water sector component of the programme has been about 25% of the total (US\$ 11 million). Water supply schemes have been installed in rural areas in six developing countries and water sector activities under the future programme are expected to reach several more. The Branch recently prepared Guidelines on the "Planning, design, maintenance and

sanitation aspects of labour-intensive rural water supply schemes".

Technology and Employment

The Branch promotes the use of appropriate technology. On-going research includes studies on low-cost water lifting devices and shallow wells construction.

It provides training for the adoption, implementation and maintenance of works on appropriate technologies.

A project idea has been submitted to the Swedish International Development Authority (SIDA) with a view to developing a methodology to train junior engineers/ senior technicians in the selection of appropriate technologies.

For more information, please contact: Mr. J. Wallace, Management Development Branch, ILO, 1211 Geneva 22, Switzerland.

The following abridged article is from World Water (January '83), the leading monthly magazine on water technology for developing countries. January 1983 inaugurates a new Spanish edition as well as a new circulation policy which will make World Water free to readers in developing countries who are involved in water-related activities. World Water now boasts a 14,000 monthly circulation. The editorial offices are in Liverpool; hte advertising subscription and circulation offices are located at Telford House, P.O. Box 101, 26 Old Street, London EC1B 1DP, United Kingdom.

GOOD NEWS FOR DECADE DONORS AS RURAL COSTS TUMBLE

Malawi's successful groundwater development project in the Livulezi Valley (World Water, November 1982) was the centre of attraction in December 1982, when specialists from 14 countries and a number of UN agencies attended a UNDP/Malawi Government seminar on Low-Cost Groundwater Development for Rural Communities.

Delegates saw for themselves the enthusiasm that has been generated in rural communities by the programme, which is providing new water supplies quickly and cheaply and in a framework which assures prompt attention and repair by local attendants in the case of handpump breakdown.

Not all the visitors thought that the Malawi model of providing free water and building up local maintenance skills was directly replicable in their own countries, but it became clear during the course of the seminar that Malawi is by no means unique in reducing the cost of new rural water supplies dramatically. Speaker after speaker talked of wells and boreholes equipped with handpumps costing only a little more than the US\$ 6 a head carefully computed for the Livulezi project.

Such figures make a nonsense of the global estimates prepared at the beginning of the Water Decade, and should give encouragement to potential donors who have seen the Decade targets as an impossible dream.

Community Participation Key

Community participation is clearly the key to bringing down costs and the variety of simple technologies now being developed to take advantage of the free labour available from

motivated villagers suggests that it is not just countries with bountiful surface water or favourable geology which can run successful rural water programmes.

Seminar participants returning from a field trip to Livulezi, during which they saw 20-year-old cable-tool drilling rigs operated by local crews sinking 15-30 m deep boreholes and fitting them with locally manufactured PVC screen and casing, were immediately able to contrast this with the way that water at depths of 25-60 m is obtained in Upper Volta. A remarkable film showed a well-digging team of 10 men excavate by hand a 2m-diameter well down to 30 m and line it with 100 mm thick in-situ reinforced concrete. Upper Volta has eight such teams, each sinking 30 wells a year (the deepest so far is 68 m). The wells are usually equipped with buckets and a trough for cattle watering. With local villagers providing free labour for fetching and carrying, costs per meter of the hand-dug well and equipment averages US\$ 171. For an average user group of 500, that means just a little over US\$ 10 per capita for a 30 m-deep well.

Boreholes equipped with handpumps are used to reach deeper water in Upper Volta (World Water, November 1982), a fully equipped borehole costing an average of US\$ 7,150 or US\$ 14 per capita.

Similar or lower unit costs were quoted by delegates from Benin (US\$ 10 per capita). The Gambia (US\$ 18 for dug wells up to US\$ 60 for boreholes drilled under contract), Sudan (US\$ 7.50), Bangladesh (US\$ 1-2), and Sri Lanka (US\$ 5 excluding equipment, which has been provided free).

Village-Level Maintenance Vital

Another major impact that the Water Decade has had on rural water supply programmes is the increasing emphasis on village level maintenance.

In Malawi, the delegates were told, the target for maintenance costs for a single handpump installation is now US\$ 50 per year. It has come down from an estimated US\$ 200 or more through the design of handpumps to suit local maintenance, the provision of tools, parts, and workshop facilities, and the involvement of the community in every aspect of water development.

Just as important as the reduced cost of maintenance, the Department of Lands, Valuation and Water (DLWW) hosts stressed, is the fact that pumps will now be repaired promptly, whereas in the past as many as 50% of the handpumps could be out of use at any one time.

Again, Malawi is not unique in its emphasis on bringing pump maintenance to the village. There was virtual unanimity among the delegates about the need to avoid the long-distance travel of mobile maintenance teams which has been the favoured system on past projects.

INDIA: PLAN AGREED TO FACILITATE NGO INVOLVEMENT IN WATER DECADE

A plan to facilitate greater involvement by non-governmental organizations in drinking water and sanitation programmes in India has been agreed by representatives of 17 NGOs, the Indian Government and UN agencies recently in New Delhi.

It was the first consultation of its kind here.

It was facilitated by the UN Development Programme on behalf of the 10 agencies involved in the International Drinking Water Supply and Sanitation Decade goals in India. Bilateral donors to water and sanitation programmes from Denmark, The Netherlands, Sweden, Switzerland and the United States were represented.

The delegates came to a consensus that the consultation must be continued and institutionalized, and a series of recommendations were made in this regard.

It was agreed that, in view of the valuable and significant contribution made by the NGO's, there is a need to associate them more closely and intensely in formulating, implementing and monitoring the Decade programme.

The dialogue between NGOs, the Government, bilateral and UN agencies, which has been initiated in this consultation, needs to be continued and a definite mechanism formulated to institutionalise the dialogue, the delegates agreed.

Plan for Action

They emphasised that this mechanism should ensure that the representation of the NGOs is not merely a token one and includes women's NGOs.

Set up both at the state and central government levels, this mechanism would:

- * Prepare a resource profile of the NGOs to inform the central and state governments of the nature of NGOs working in the country;
- * Periodically review and monitor the implementation of the Decade programme in areas of NGO collaboration;
- * Identify the manner and type of NGO involvement in 1) location/site identification for setting up facilities which are technically and socially sound; 2) maintenance and operation of facilities, and 3) training of staff within NGOs and the government.
- * Identify mechanisms for promoting community participation in the programme;
- * Help in the development and supply of educational material for educating people and project staff in the local areas, and;
- * Identify areas of research and socio-economic assessment of needs in the programme.

A follow-up mechanism that emerged during the consultations is the establishment of a support service to assist NGOs and government agencies involved in Decade programmes in aspects of communications and related technical support.

Support from the United Nations Development Programme for the creation and operation of this service is considered vital, as is bilateral donor support.

Community Participation

Since the NGOs have particular competence in community participation delegates through the government should:

- * consult the NGOs in their areas of work in mobilising community participation, and
- * help the NGOs build a sense of ownership of facilities among communities by involving them in the assessment of needs, site selection, maintenance, nominal payment for facilities, use of local resources and expertise, etc.

They recommended that water and sanitation programmes should be linked to NGO's working in other programme areas, and that

both the NGOs and state governments should enforce the implementation of guidelines related to provision of facilities in areas where the weaker sections of the population live.

Technology and R + D

In the area of technology, research and development, the consensus favours the low-cost pour-flush water-seal latrines (with two leach pits) as most appropriate for individual households.

Organizations like the Sulabh International of Bihar, Safai Vidyalaya of Gujarat, the Maharashtra Ghandi Smarak Nidhi, the Rajasthan Institute for Local Self-Government, and others, which are already involved in research and development of these areas, should be encouraged and the results of their work disseminated and used where appropriate.

UN agencies agreed to undertake feasibility studies in these areas and recommend programmes.

While agreeing that the central government and UN and bilateral agencies should provide financial resources, the delegates said state governments may be asked to augment their financial outlays, where necessary.

In addition, charitable trusts, industrial enterprises and local voluntary groups were considered possible funding sources.

Source: IPS Weekly Drinking Water and Sanitation Bulletin

COURSES/SEMINARS

First World Congress on Desalination and Water Re-use
(8th International Symposium on Fresh Water from the Sea), Florence/Italy, 23-27 May 1983. All persons interested are kindly asked to contact the Secretariat at: DECHEMA, Desalination Congress, P.O. Box 970146, D-6000 Frankfurt 97, Federal Republic of Germany.

International Symposium on Challenges in African Hydrology and Water Resources.
Harare, Zimbabwe, 23-27 July 1984

Objectives:

- To focus on the role of groundwater exploration, data collection, assessment, resource development and management in rural Africa.
 - To discuss problems of soil erosion and sediment transport and their effects.
- Languages will be English and French.

Abstracts of not more than 200 words in English or French should be sent to Dr. J.C. Rodda, Institute of Hydrology, Wallingford, Oxon, United Kingdom, by 1 July 1983. Authors will be informed by 30 September 1983 if their papers have been accepted and how to prepare the final version of their paper to be submitted by 1 January 1984.

Further information about this symposium can be obtained from the Zimbabwe Conference Board, P.O. Box 1898, Harare, Zimbabwe (telex ZW 4242, Tel. 704181).

NEWS FROM IRC

ON-SITE HYPOCHLORITE GENERATION STUDY

IRC is undertaking a project for promoting the technology of local preparation of disinfectant for small water supplies (on-site hypochlorite generation). This study includes a laboratory and field testing programme. A collaborating institute in this study is the US-based National Sanitation Foundation. The objective of this effort is to assist governments in implementing their national plans for achieving the goal of the International Drinking Water Supply and Sanitation Decade -- to bring about substantial improvement in the provision of water of safe quality and basic sanitary facilities by 1990. According to the World Health Organization estimates, over 2,000 million people in the developing countries are in need of improved or new services.

The study starts with an inventory of processes, techniques and equipment available.

Important basic equipment characteristics are:

- * Dependable operation
- * Low capital cost
- * Good efficiency
- * Small capacity (1 to 10 kg of chlorine equivalent/day)
- * Use of standard spare parts.

Manufacturers of hypochlorite generators who are interested in participating in the project should contact the IRC for more information.

Correspondence should be forwarded to:
Mr. T.K. Tjiook, International Reference Centre for Community Water Supply and Sanitation, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands;
or in the USA and Canada to:
Mr. Gordon Bellen, National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48106, U.S.A.

Why On-Site Hypochlorite Generation?

A recent WHO inter-regional meeting on drinking water quality control for small community supplies (Bangkok, December '82) stressed the prime importance of the bacteriological conditions of such supplies. Among the remedial and preventive measures identified are source and system protection and the use of disinfectants.

In the history of drinking water supply, disinfection with chlorine proved to be a significant process to maintain good microbiological quality and to secure protection from disease. This is still a recognized process which is generally applied in the supply of safe

drinking water, especially in developing countries.

Chlorine and chlorine products are manufactured in specialized chemical industries. Long transport lines to the users especially of very poisonous chlorine raise problems related to possible environmental spills and health hazards and this calls for strict safety regulations.

On-site production of the required disinfectant would make these vulnerable supply lines unnecessary; storage of large quantities would also be very limited for direct use. For remote rural communities a regular supply of chemicals is usually difficult to maintain due to reasons such as lack of funds and foreign currency, complicated import procedures, transport problems, inadequate distribution systems, etc., all problems inherent to many developing countries.

On-site preparation seems to provide a good solution, if operational and maintenance problems can be minimized; many of the problems related to the dependency of out-laying communities from the central government can then be lessened. The use of small-scale units for rural water supply disinfection has been pioneered in the Soviet Union. Development studies have also been sponsored by the U.S. Environmental Protection Agency.

Sodium hypochlorite widely used for disinfection in many countries can be prepared by direct electrolysis of a salt solution. Raw materials for the process are: kitchen salt (generally available for food), water, and electricity which can be generated if necessary by alternative methods including solar and wind energy.

Production of equipment and materials from locally available resources was recommended by the UN Water Conference (1977) as a contribution to self-reliance in the context of the International Drinking Water Supply and Sanitation Decade.

Units for on-site generation of hypochlorite are commercially available, but still have to prove their dependability and usefulness for drinking water supplies in developing countries.

For the on-site hypochlorite generation study, IRC will be seeking the cooperation of funding agencies. Water supply organizations interested in the application of this technique are welcome to contact IRC for further information.

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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.

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

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DECADE TASK FORCE TO REVIEW INFORMATION EXCHANGE

The current status of Decade information exchange will be the subject of a special meeting to be covered by WHO in Geneva, 22-23 March.

The Information Exchange Task Force, composed of United Nations and official agencies most active in the Decade, will also review the progress of POETRI and discuss its future development and potential for donor support. POETRI is designed to maximize developing country access to technological information for water supply and sanitation.

Alternative approaches for information exchange, if any, and their funding prospects are also on the agenda.

WHO has extended invitations to the following agencies and organizations:

- Canadian International Development Agency (CIDA), Canada
- Danish International Development Agency (DANIDA), Denmark
- The Ministry of Cooperation (FAC), France
- German Agency for Technical Cooperation (GTZ), Federal Republic of Germany
- Directorate General for Development Cooperation (DGIS), Ministry of Foreign Affairs, The Netherlands
- Norwegian Agency for International Development (NORAD), Norway
- Swedish International Development Authority (SIDA), Sweden
- United States Agency for International Development (USAID), United States
- European Development Fund/European Economic Commission (EDF/EEC)
- Food and Agriculture Organization of the United Nations (FAO)
- International Labour Organisation (ILO)
- United Nations Development Programme (UNDP)

- United Nations (UN)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- United Nations Children's Fund (UNICEF)
- United Nations Environment Programme (UNEP)
- United Nations Commission for Human Settlements (UNCHS)
- World Bank
- International Development Research Centre (IDRC), Canada
- International Reference Centre for Community Water Supply and Sanitation (IRC)
- Intermediate Technology Development Group (ITDG), United Kingdom
- United Nations International Research and Training Institute for the Advancement of Women (INSTRAW)
- Water Research Centre (WRC), United Kingdom
- American Water Works Association (AWWA), U.S.A.
- International Water Supply Association (IWSA), United Kingdom
- Earthscan, United Kingdom
- World Water, United Kingdom

We'll keep you informed about the results of the March Information Task Force Meeting.

BACKGROUND OF THE TASK FORCE FOR DECADE INFORMATION EXCHANGE

Information exchange for the Decade, as a follow up of a specific recommendation at the UN Water Conference at Mar del Plata in 1977, was first officially discussed in the Second Consultative Meeting for the International Drinking Water Supply and Sanitation Decade. This meeting, held in Geneva on 16 June 1980, was attended by representatives from bilateral, multilateral and non-governmental organizations, as well as member governments of the United Nations Development Programme (UNDP) Governing Council.

The Second Consultative Meeting participants regarded a more systematic exchange of information on experiences and technology of water and sanitation development between countries and internationally as an urgent requirement, and considered information exchange as one of the five major activities in support of the Decade, needing immediate follow up initiatives. They discussed a proposed programme for the exchange and transfer of information (POETRI) and agreed



that priority should be given to activities that would lead to a fast development of user-oriented information services directed at agencies, departments and organizations in developing countries which carry the main responsibility of implementing the Decade.

It was also proposed that a Task Force be established for the purpose of reviewing and promoting the further development of information exchange and transfer to support Decade programmes and projects. The Decade Steering Committee endorsed this proposal (17 June 1980, Geneva), and requested the Secretariat to prepare a first Information Task Force meeting. Participants in the Steering Committee included: The United Nations, UNICEF, UNDP, ILO, FAO, UNESCO, WHO, the World Bank, UNEP and UNCHS.

The Information Task Force first met on 28-29 January 1981 in The Hague with representatives from a small number of donors, UN agencies and interested institutions. Participants in the Information Task Force Meeting focussed mainly on reviewing current and planned information support activities and particularly POETRI which is implemented by IRC.

The positive response of donors to the invitation to the Task Force meeting reflected the priority given by donors and financing agencies to the information gap related to the Decade. The participants also recognized the problems related to the introduction of improved information services, and the main barriers stemming from institutional deficiencies such as lack of coordination and lack of continuity. The lively discussions further touched upon many aspects related to specific and concrete information exchange activities and it was agreed that a project proposal, incorporating suggestions and recommendations, would be submitted to the Steering Committee.

The Committee expressed their approval of the concepts put forward in the project document and have supported the further development of Information Exchange for the Decade.

NEW POETRI BROCHURE

As you have no doubt noticed by now, the March IRC Newsletter is accompanied by a brochure which briefly explains the aims of POETRI, the Programme on Exchange and Transfer of Information. The past and future of this Programme are also on the agenda of the March Task Force meeting for Decade Information Exchange.

POETRI: LOOKING BACK AT 1982

What's POETRI II?

POETRI Phase II (1982-1984) continues and expands upon the work of Phase I, and extends POETRI information support and services to more developing countries. A detailed description of the background, scope and objectives of POETRI II is presented in the Framework Document (POE/82.7, May 1982), available on request.

POETRI II has 5 main components:

1. Support to the development of technological information systems and services in participating countries.
2. Support to the development of technical

information back-up and services by Regional Focal Points (RFPs).

3. Improved exchange and transfer of information between countries and regions.
4. Immediate information delivery services available, in principle, to all countries.
5. Other support activities such as the provision of training services for national and regional staff and preparation of training guides.

The extent to which these components can be developed, will depend on the amount of funding made available for each particular country, region or general programme activity. One of the main funders of POETRI (for central unit services) is the Ministry of Foreign Affairs of The Netherlands, Directorate General for International Cooperation.

POETRI: General Support Activities in 1982

- * Eleven issues of the IRC Newsletter in English and French editions were air-mailed to 4000 water and sanitation people. Excerpts of the Newsletter were incorporated in the Spanish language "Noticias" published by CEPIS, Lima, Peru.
- * The comprehensive POETRI Reference Manual was published as IRC Technical Paper No. 16 and distributed through the Regional and National Focal Point network to 150 relevant institutions, and the demand for it is growing. A French edition is being finalized by the authors of the English edition, ASLIB Consultancy Services of London. Funding and substantive support for the Reference Manual were provided by UNESCO.
- * The POETRI Thesaurus of Selected Terms in Water Supply and Sanitation was brought to completion in collaboration with the Water Research Centre (United Kingdom). CEFIGRE (France) has finalized the French edition which will be issued in the near future.
- * Improvements were made in the Directory of Information Sources in Water Supply and Sanitation which presently lists 220 specialized institutions providing information services on (rural) water supply and sanitation at national, regional and global level.
- * The first batches of the POETRI Standard Library were dispatched to developing countries. It is composed of the 40 most relevant books and manuals on water and sanitation.
- * IRC provided vital support to POETRI in preparing, publishing, and distributing specialized technical publications for use in the POETRI Selective Documentation scheme including Small Community Water Supplies (TP18), Guidelines on Health Aspects of Plumbing (TP19), and Practical Solutions in Drinking Water Supply and Wastes Disposal for Developing Countries (TP20). Because of continued demand, IRC republished Handpumps for Use in Drinking Water Supplies in Developing Countries (TP10) and Slow Sand Filtration for Community Water Supply in Developing Countries (TP11). Two IRC publications on community participation in water and sanitation were also very popular. A total of 3100 IRC publications were distributed in 1982.
- * IRC's Enquiry and Reference Service handled about 300 specialized requests for information and reference.

POETRI: Specific Country Activities During 1982

Below are presented those developing countries now participating to improve their information handling and processing capabilities for direct support of rural water and sanitation programmes.

South-East Asia

POETRI activities in this region were carried out in close cooperation with the WHO Regional Office for South-East Asia (SEARO), in New Delhi.

Regional Focal Point for both South-East Asia and the Pacific is PEPAS, the Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies in Kuala Lumpur, Malaysia.

In India, the National Environmental Engineering Research Institute (NEERI) continued as National Focal Point (NFP) for India. NFP activities are presently focused in six states. In Indonesia consultations for the designation of a NFP and information support services were held with the Ministry of Public Works, Housing and Urban Development (Directorate General of Cipta Karya).

A proposal for POETRI support services in Thailand will soon be finalized by the Provincial Water Authority.

Western Pacific

POETRI activities in this region are coordinated with the WHO Western Regional Offices for the Western Pacific (WPRO) in Manila.

In the Philippines the possibility was discussed that the National Water Resources Council would assume the role of NFP.

West and Central Africa

CIEH (Comité Inter-Africain d'Etudes Hydrauliques) in Ouagadougou, Upper Volta, continued functioning as POETRI Regional Focal Point for the region. In June a total of 44 participants from 10 countries in the region, 14 African and international organizations and 5 donor agencies took part in a successful POETRI workshop hosted by CIEH. As a result of this activity a joint CIEH/IRC mission in November assisted Mali, Niger, Senegal, Togo and Upper Volta in project formulation. These countries have officially designated a POETRI National Focal Point. The mission was conducted by Mr. Ali Krissiamba of CIEH and the new IRC/POETRI Manager, Mr. Toon van Dam. A second mission to other West African countries took place in January 1983.

East Africa

In Kenya POETRI consultant Mr. Tony Woodward carried out a 2-month assignment to assist the National Action Committee for the Decade in the design of a national information exchange system.

In the United Republic of Tanzania on a ten-week assignment, Mr. Woodward also assisted in the design of a national information system for the Ministry of Water and Energy. A preliminary POETRI workplan was also developed.

Americas

The Pan American Health Organization, WHO Regional Office for the Americas, (Washington D.C., U.S.A.) functions as liaison for the region.

CEPIS (Pan American Center for Sanitary Engineering and Environmental Sciences, Lima, Peru) agreed to continue functioning as the POETRI Regional Focal Point for Latin America. Consultations between CEPIS and IRC were held in May 1982 on the coordination of POETRI Phase II activities in Latin America. An agreement was signed by which CEPIS, with financial support from IRC, would provide technical assistance to the countries already participating in POETRI (Argentina, Colombia, Ecuador, Jamaica and Peru, and possibly to other countries joining the Programme (Costa Rica, Paraguay). CEPIS coordinated the POETRI activities with appropriate link-up to the regional information network on environmental health "REPIDISCA".

The Jamaican government approved in July 1982 the designation of the Ministry of Health as a NFP.

A NOTE ON IRC'S SUPPORT ROLE

The "support role" of IRC can best be described as the transfer of information:

- knowledge and experience
- technology and methodology.

This is pursued by means of a range of methods, of which information dissemination, training, demonstration, and advisory services are the main components. Knowledge and experience are characterized by a wider coverage and technology and methodology by a more in-depth approach.

IRC's activities are directed to rural and urban-fringe water supply and sanitation programmes in developing countries; these activities are carried out in the form of externally-supported projects.

To be able to play this role, IRC also triggers and supports the development of new knowledge and aims at making and keeping existing knowledge and information available and accessible for all aspects of rural and urban-fringe water supply and sanitation. This includes technical, social and organizational information, of which innovative know-how receives emphasis.

IRC works closely together with the UN agencies involved in the Decade, in particular WHO, for which it acts as collaborating centre for community water supply, as well as with UNDP, UNICEF and World Bank.

POETRI'S GROWING NETWORK

The following list contains the addresses of present POETRI National and Regional Focal Points. This list will be updated periodically in the IRC Newsletter, as the network expands. In addition to the 20 National Focal Points and 3 Regional Focal Points presented below, many other developing countries have indicated a strong interest in linking with POETRI, and discussions to that end are underway. Further information about POETRI can be obtained by contacting the NFP or RFP nearest you, or by writing to IRC directly.

POETRI NATIONAL FOCAL POINTS

South-East Asia

India: National Environmental Engineering Research Institute (NEERI), Attention: Mr. S.G. Bhat, Nehru Marg, Nagpur 440 020.

Indonesia: Directorate of Building Research (DPMB, CIPTA KARYA, Attn.: Eng. Karman Somawidjaja, Jalan Tamansari 84, Tromol Pos 15, Bandung.

Western Pacific

Philippines: National Water Resources Council (NWRC), Attn.: Dr. Angel A. Alejandrino, Executive Director, EDSA Ave. 8th Floor NIA Building, P.O. Box 37, Diliman, Quezon City 3004.

Malaysia: Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS), c/o P.O. Box 2550, Kuala Lumpur.

West & Central Africa

Congo: Direction du Génie Rural et du Machinisme Agricole (Ministère de l'Agriculture), B.P. 13, Brazzaville.

Gabon: Direction Générale de l'Energie et des Ressources Hydrauliques, B.P. 1172, Libreville.

Ivory Coast: Direction Centrale de l'Hydraulique (Ministère des TP et Transports), B.P. V6, Abidjan.

Mali: Direction de l'Hydraulique et de l'Energie, Attn.: Mr. Abdoulaye Djire, B.P. 66, Bamako.

Niger: Direction des Ressources en Eau (Ministère de l'Hydraulique et de l'Environnement), Attn.: Mr. Aboubacar Sidikou, B.P. 257, Niamey.

Senegal: Direction des Etudes Hydrauliques (Ministère de l'Hydraulique), Attn.: Mr. Djibril Mbaye, B.P. 4021, Dakar.

Togo: Directeur de l'Hydraulique et de l'Energie, B.P. 335, Lomé.

The United Republic of Cameroon: Direction du Génie Rural et de l'Hydraulique Agricole (Ministère de l'Agriculture), B.P. 326, Yaoundé.

Upper Volta: Direction de l'Hydraulique et de l'Équipement Rural, Attn.: Mr. Djibrilou Tamboura, B.P. 7025, Ouagadougou.

East Africa

Kenya: National Action Committee for the

International Drinking Water Supply and Sanitation Decade, Attn.: Mr. W.J. Odhiambo, Secretary NAC, Water Documentation Centre, MAJI House, P.O. Box 49720, Nairobi.

The United Republic of Tanzania: Ministry of Water and Energy, Water Master Planning Co-ordination Unit, Attn.: Mr. R. Schonborg, Coordinator, MAJI Reference Centre, P.O. Box 35066 Ubungu, Dar-es-Salaam.

The Americas

Argentina: CARIS/INCYTH, Centro Argentino de Referencia en Ingeniería Sanitaria (Argentine Reference Centre in Sanitary Engineering), Attn.: Ing. Carlos E. Schröder, Via Monte 542, Buenos Aires, Ezeize.

Colombia: CERBI/INSFOPAL, Centro de Referencia y Biblioteca (Reference and Library Centre), Attn.: Mr. A. Arango Cotes, Director, Can Bloque 2, Apartado Aero 8638, Bogota D.E.

Ecuador: CENIRISCA/IEOS, Centro de Información y Referencia en Ingeniería Sanitaria y Ciencias del Ambiente (Information and Reference Centre on Sanitary Engineering and Environmental Sciences), Attn.: Ing. Gonzalo Procel, Instituto Ecuatoriano de Obras Sanitarias (IEOS) División Tecnología, Attn.: Edgar Grande Palacios Jefe, P.O. Box 68, Toledo 684 Lérída, Quito.

Jamaica: Ministry of Health and Environmental Control, Attn.: Dr. T.E. Aldridge, Director, Environmental Control Division, 7, Oxford Terrace, Kingston 5.

Peru: DTIAPA, Technological Development of Water Supply and Sanitation Institution, Centro Panamericano de Ingeniería Sanitaria y Ciencias del Ambiente (Pan American Centre for Sanitary Engineering and Environmental Sciences), CEPIS, Attn.: Dr. Carl Bartone, C.. 4337, Lima 100.

POETRI REGIONAL FOCAL POINTS

Latin America

Centro Panamericano de Ingeniería y Ciencias del Ambiente (Pan American Center for Sanitary Engineering and Environmental Sciences) (CEPIS), Attn.: Dr. Carl Bartone, C.P. 4337, Lima 100, Peru.

West Africa

Comité Inter-Africain d'Etudes Hydrauliques (CIEH), Attn.: Mr. Ali Krissiamba, B.P. 369, Ouagadougou, Haute Volta.

South-East Asia and Pacific

Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS), P.O. Box 2550, Kuala Lumpur, Malaysia.

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WHO AND HUMAN RESOURCES DEVELOPMENT FOR THE DECADE

Background

During the last decade (1970-1980) the World Health Organization (WHO) has undertaken about fifty projects relating to manpower development and training in environmental health. These include manpower planning, institutional building, group education activities (seminars, workshops, etc.) and fellowships for academic study, short courses and observation study visits. During 1978/79, 662 fellowships in environmental sanitation (as part of major projects) were granted to participants from countries in WHO's six regions.

WHO will continue to assist Member States to train the staff and volunteers they need to achieve IDWSSD goals. WHO's work in this field goes back to the 1950s and includes training of laboratory technicians and training of sanitary engineers, as well as collaboration in curricula development, sanitary engineering research and field demonstrations, exchange of scientific workers, etc. Training needs related to specific sector organizations and sector project development have been studied by WHO in the context of UNDP/WHO pre-investment projects, WHO/IBRD Cooperative Programme activities, and most recently the GTZ/WHO, SIDA/WHO inter-regional cooperative projects.

As a result of these past and on-going activities, WHO Regions and Headquarters have contacts with many training institutions and specialists, and access to a wealth of technical information on training programmes and projects which can be brought to bear on solving national human resources development problems. The collective expertise, experience and resources in the areas of environmental health and health manpower development will now be consolidated in an intensi-

fied effort to provide water and basic sanitation services at country-level.

WHO's Activities in Relation to Decade Human Resources Development (HRD)

The five major elements of the WHO strategy for participation in the Water Supply and Sanitation Decade are:

- promotion of the Decade
- institutional development in countries
- development of human resources
- technology development and information exchange
- financial resources.

HRD is one of the major themes on which the success of the Decade will depend. The main thrust of WHO activity for Decade HRD is at the country level, and reflects and supports other schemes for promotion of primary health care. The programme addresses priority manpower requirements to fulfill Decade aims.

Reflecting Decade priorities, the main programme areas are: (a) development of community manpower; (b) deployment and utilization of community-based development workers; (c) development of management and planning skills among senior sectoral staff; (d) development of sectoral institutions to support human resources development; (e) national manpower planning for the water supply and sanitation sector; (f) research, evaluation and dissemination of experience. The project areas and activities in the WHO programme to support country-level activities, are:

In 1982

- Prepare a basic strategy document for dissemination as a basic guide to HRD for the Decade.
- Convene a meeting of the Interagency Task Force on HRD for the Decade. (See IRC Newsletter, May 1982 for details).

In 1983

- Develop a capability for the collection and dissemination of information on HRD experience, including (e.g.) types of technical and financial agency support, sources of individual expertise, leading institutions, evaluate findings of country programmes and projects, etc.
- Conduct a survey as part of a continuing evaluation of the general experience and effectiveness of specific programmes in selected countries for human resources development in the water supply and sanitation sector.
- As part of the evaluation survey, identify projects which justify and require

extension and projects or programmes capable of adaptation for use elsewhere to promote Decade HRD.

- Initiate immediate in-country human resources development activity where available resources permit.
- Prepare a "state-of-the-art" evaluation report of sectoral HRD experience, making recommendations for specific future action and initiating preparatory activities to implement them.
- Plan country-level HRD requirements, which includes the following activities:
 - (a) identify HRD needs, priorities and problems at country level; (b) prepare national sectoral manpower plans; (c) develop and disseminate guidelines for institutional development at country level to address recurring HRD needs and problems; (d) develop approaches to country-level project design and funding; (e) alert donor sources to HRD needs at country level; (f) participate in the preparation and review of project proposals.
- Participate in joint cooperative action through projects developed with UN and other external support agencies and non-governmental organizations.
- Participate in the Cooperative Programme with the World Bank to identify and prepare projects for Decade HRD, and health education components of water and sanitation projects in countries of common membership (e.g. see: Report on Water Sector HRD in Ten West African Countries: EGC/WHO/IBRD Report on Human Resources Development in the Water Sector in Ten West African Countries, for the Second Congress of the Union of African Water Suppliers, Rabat, Morocco April 5-9, 1982).
- Prepare and field test guidelines to assist the implementation of priority Decade HRD activities including (e.g.):
 - (a) methods of estimating Decade HRD requirements in the short- and long-term;
 - (b) techniques of work study including their purposes, applications and limitations for the water supply and sanitation sector;
 - (c) crash training programmes;
 - (d) non-formal/continuing education and training.
- Assemble and develop training materials related to Decade HRD requirements.
- Organize two interregional seminars to facilitate exchange of HRD experience and its relationship to an effective managerial process.
- Convene an initial technical workshop for selected country-level sectoral planners and managers to test HRD approaches and generate practical case material to support further managerial development activities.
- Implement recommendations of the evaluation survey and other activities related to emerging priorities.

For more information, please contact Mr. S. Unakul Manager ETS/EHE, World Health Organization, 1211 Geneva 27, Switzerland.

THAILAND: RAINWATER COLLECTION AND STORAGE

Introduction

The Population and Community Development

Association (PDA) is committed to bringing safe drinking water supplies to the people of rural Thailand as its contribution to the Water and Sanitation Decade. The current focus of these efforts is the Rain Water Collection and Storage Project, commonly referred to as the "Tungnam" project, a direct translation of the Thai word for "water tank".

Under the Tungnam project, PDA provides technical and financial assistance to enable villagers in Thailand's arid Northeast to build bamboo-reinforced concrete rain water catchment tanks. The tanks measure 3.6 meters in height and 2.0 meters in diameter. The storage capacity is 11,300 liters, enough to provide a family with year round access to clean water for drinking and cooking purposes. In only one and a half years, over 2,000 of the Tungnam water tanks have been built. Demand for the tanks is extremely high, and PDA hopes to secure funds to build as many as 100,000 tanks in the years to come. Repayments by recipients of these tanks should finance up to 600,000 additional tanks.

The following gives background details and describe the implementation strategy for PDA's Tungnam project.

Further information can be obtained by writing directly to: Tungnam Project, The Population and Community Development Association, 8 Sukhumvit Soi 12, Bangkok 11, Thailand.

Background

The Tungnam project is located in Khon Kaen, Mahasarakham and Buriram provinces of Northeastern Thailand, the poorest, and driest, region of the country. Over 90% of the region's average annual rainfall of 1.25 meters falls between May and September. Small creeks abound, but only have water in them for at most eight months each year. During the other four months, villagers must find other sources for their daily water needs. Most are forced to push handcarts up to 5 kilometers each way to the nearest water source - water which even then is generally contaminated with bacteria and parasitic larvae. Few villagers can afford the US\$ 2 per cubic meter cost of purchasing water from other sources.

In 1980, PDA sensing the critical need to develop alternative drinking water sources for the villagers of Northeastern Thailand, undertook a pilot project in rain water collection and storage tank construction in Khon Kaen and Mahasarakham. A total of fifty-one tanks were built of varying sizes and using different construction materials.

The pilot project was extremely successful.

First, it showed that villagers were highly receptive to the concept of rain water storage, and were willing to invest their own labor and financial resources. Second, PDA was able to determine that the most appropriate tank model for Northeastern Thailand is the 11.3 m³ bamboo-reinforced concrete tank in terms of cost, construction efficiency, villagers aesthetic preferences and capacity to meet an average family's drinking water needs throughout the dry season. Finally, the expertise PDA acquired enabled it to seek additional funding to expand the scope of its rain water catchment tank programme. With the support of German Agro Action, the Tungnam project officially began in April of

1981.

The PDA approach to development, as exemplified by the Tunngam project, stresses self-help and attempts to maximize local participation at all levels of project design and implementation. In this way, villagers become aware of their innate ability to provide for their own betterment. PDA does not believe in making "gifts" of water tanks as is the case in certain government and private agency programs in the developing world. Instead, the project is designed so that villagers work together building their tanks in groups of 10-15 families, with one worker contributed by each family. Recipients are required to pay back only the raw materials cost of the tanks, with repayments spread over two years at no interest.

Payments do not begin until after construction is completed, another way in which PDA creates trust among the local villagers. These funds are being collected by local village committees which will continually roll-over the funds to finance additional tanks in the village in the years to come --- capital formation at the village level. PDA believes that its philosophy of implementation teaches villagers to recognize their direct role in the development process, increases their self-esteem, and thus creates conditions for development to be self-sustaining in the long run --- spillover effects that no "gift" could produce.

Implementation of the Tunngam project in a new area begins with PDA staff holding orientation meetings for provincial and district-level government officials to acquaint them with the project and ensure their cooperation. Similar meetings are then held with groups of village headmen and PDA family planning volunteers, at which time PDA schedules its implementation timetable for entry into each individual village. These people then return to their villages to inform residents of the existence of the Tunngam project and announce the time and date for PDA's upcoming village orientation meeting.

Orientation meetings for residents of each participating village are held 1-2 weeks prior to the beginning of construction in the village. Topics covered at each meeting are as follows: (a) project overview; (b) water and health; (c) tank construction technique; (d) PDA's responsibilities (materials supply, construction supervision, maintenance and follow-up); (e) villager's responsibilities (provision of labor, materials cost repayment, role of village committees).

The meetings conclude with villagers willing and able to participate in the program being assigned to construction groups.

Construction and Follow-up

Approximately four days prior to construction, villagers collect and dry bamboo to be used to reinforce the tanks structure. PDA then brings materials and equipment into the village (such as metal forms, cement, stone, sand, etc.) all of which have been purchased previously in bulk and stored at one of the project's field offices. One or two staff technicians remain on site in each village at all times to ensure adherence to the construction technique. (For example, the villagers tend to add too much water when making the concrete mixture - that makes the work easier but the quality of the concrete suffers). Construction rotates from house to house, with 2-3 tanks generally being worked on at any given time.

PDA places strong emphasis on training and education activities for local villagers in all of its development programs so that knowledge remains in the village once PDA has gone. Under the Tunngam project, over 100 villagers to date have been given special training on tank construction, maintenance and repair plus the relationship between water and health. The trainees chosen are those members of the tank construction crews that show particular potential and enthusiasm for tank construction. In the years to come, these volunteers will assist PDA in its follow-up and maintenance of previously constructed tanks in addition to supervising the construction of new tanks financed by repayments into the Tunngam revolving fund.

Upon completion of construction, an official contract-signing ceremony is held in each village with project staff and each household head in attendance. The ceremony is a unique combination of formality and celebration. It begins with the PDA leader congratulating the villagers on the success of their cooperation and then reviewing the terms of the contract. Each household head then signs his contract and makes the initial down payment of 500 Baht (US\$ 22). The villager is required to make additional monthly payments of 150-200 Baht to the village committee until the raw materials cost has been repaid. The contract signing ceremony typically ends with the household heads preparing a traditional Northeastern feast to be shared together with the Tunngam project staff.

PDA's responsibilities do not end with the completion of construction in the village.

Technicians periodically return to the villages to inspect all previously constructed tanks. Strict adherence to the construction technique developed by PDA has resulted in less than ten tanks having even minor defects to date. Staff technicians repaired those tanks at no cost to the tank owners. On return visits to the villages, the staff also reviews the repayment collection and record-keeping of the village committees.

One strong measure of the success of the Tunngam project has been the exceptional repayment record established by tank recipients. Repayments are near or above 100% of target in all operational districts, due to the fact that many families have made accelerated repayments. Approximately 5.4% of families are one or two months behind in their payments at any given time; however there has not been one bad debt to date. This performance proves that villagers are willing to change their traditional spending patterns away from current consumption goods toward capital investments in water for a better life.

* * * * *

UPCOMING CONSULTATIVE MEETINGS AND IDWSSD PLANNING WORKSHOPS FOR 1983

Somalia: Second National IDWSSD Workshop, April 1983

Honduras: Community Participation Workshop, April 1983

Morocco: IDWSSD Consultative Meeting, 19-20 April 1983

Guinea: UNDP Round Table, March/April '83

Lesotho: UNDP Round Table, May 1983

Botswana: UNDP Round Table, May 1983

Ethiopia: UNDP Round Table, May 1983

Mali: Second National IDWSSD Workshop, May 1983

Thailand: Second National IDWSSD Workshop, June 1983

Ethiopia: Second National IDWSSD Workshop, pending

China: Workshop on IDWSSD, MOPA (Patriotic Health Committee), WHO, GTZ, IBRD, June 1983.

Other Events:

Geneva: European Conference on Health and the Environment, Sept./Oct. 1983

Netherlands: International Seminar on Evaluation of Drinking Water and Sanitation Projects - Tropical Institute, Amsterdam, June 20 - July 8, 1983.

For more information, please contact WHO, GWS (Global Promotion and Cooperation for Water Supply and Sanitation), 1211 Geneva 27, Switzerland.

PUBLICATIONS

Minimum Evaluation Procedures (MEP) for Water Supply and Sanitation Projects

This 51-page WHO document (ETS/83.1; CDD/OPR/83.1) describes a relatively cheap, simple and quick method of evaluating water supply and sanitation projects. The guidelines are directed primarily towards managers of water supply and sanitation programmes in WHO Member countries. In Chapter 1 the purpose of evaluation and the purpose of the MEP are discussed and a step-by-step procedure for evaluation is outlined. Indicators for the functioning and utilization of facilities are discussed in Chapters 2 and 3. Documented experience from impact evaluation studies is summarized in Chapter 4. Information on data gathering techniques is presented in Annex 1. A glossary of terms used in the document is given in Annex 2.

MEP has been prepared by the Diarrhoeal Diseases Control Programme and the Environmental Health Division of WHO in cooperation with the Ross Institute of Tropical Hygiene, London.

At the end of 1983 the ongoing field applications of MEP will be incorporated to make the document as practical as possible.

For more information please contact:
WHO/ETS/EHE, 1211 Geneva 27, Switzerland

NEWS FROM IRC

SLOW SAND FILTRATION: CHEAPER IN THE LONG RUN

After six to eight years of operation slow sand filters become cheaper than rapid ones. The initial higher costs of the slow sand

filter are balanced by at least 25 percent cheaper maintenance costs compared to rapid filter systems. A more extensive use of local materials may even result in a better cost performance.

"Being cheaper in the long run it is considered worthwhile to invest in the construction of the slow sand filter". This is the conclusion of a first performance evaluation study on demonstration plants in two Thai villages after two years of operation. This interim report was produced by the SSF-Project management team in Thailand.

The project forms part of IRC's research and demonstration effort on slow sand filtration. Together with experience with slow sand filtration demonstration projects in India, Colombia, Sudan, Kenya and Jamaica, these findings will be useful in a publication on SSF performance, which IRC is planning for late 1983.

In the meantime we think it worthwhile to share some more interesting conclusions from the Thai experience with our readers:

- after installation (of the piped system) water consumption in the dry season is 58 liters per person per day decreasing to 26 liters in the rainy season, when the traditional rain and well water is also used;
- in the construction phase many women enjoyed digging the ground and laying the pipes from the main pipeline to their houses;
- the full-time operator is paid by the community;
- success and failure of the operation and maintenance of the simple slow sand filter system do not so much depend on the operator's level of education but far more on his interest.
- the role of the village headman is absolutely vital; his active interest and motivation for community participation greatly enhances the success of a project.
- young health workers, often from outside the villages, were less effective in motivating local people than fellow, more mature villagers.

For more information, please contact the SSF-Project Manager at IRC.

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

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

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

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

Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

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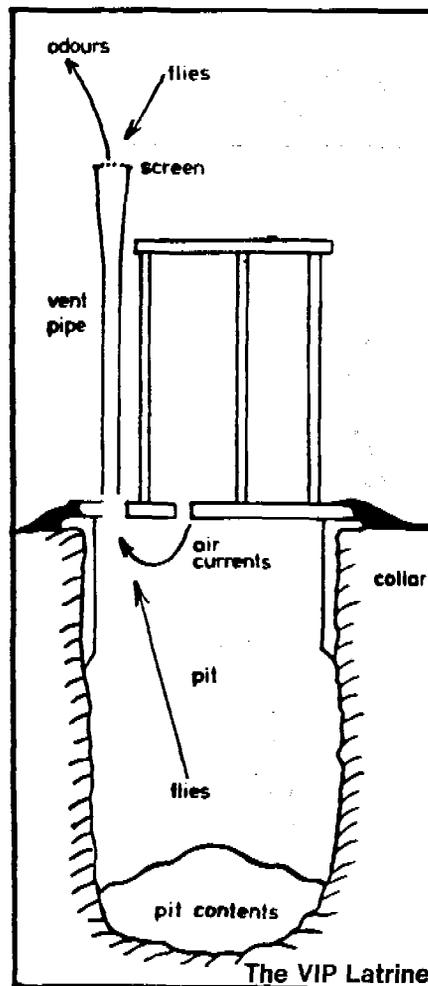
VIP LATRINES IN ZIMBABWE

The two problems with pit latrines are flies, which carry disease, and odour. The ventilated pit latrine, better known as the VIP latrine, is an improved version which overcomes the chief disadvantages of the conventional design. The VIP latrine was developed and field tested between 1973 and 1976 by the Blair Research Laboratories at Harare, Zimbabwe, to provide a safe and acceptable sanitation system which does not require water. By 1981 30,000 latrines had been built.

A slab with two openings covers a sealed pit. A ventilation pipe is fitted on one of the openings. The other opening is the squatting hole. Fresh air is drawn through the hole and up the pipe. The latrine itself remains odourless. The top of the pipe is fitted with a corrosion resistant flyscreen. Flies from the surroundings are attracted to the screen by the escaping odours but cannot reach the pit. If flies do enter the pit, they are attracted by the light from the top of the pipe and are trapped within it. The latrine is kept partially dark inside by building the wall in the shape of a spiral with a recessed entrance. The darkness helps to keep flies away. The spiral shape is one of the few modifications which have been made to the original design.

Because it is simple and reliable, the VIP latrine has been widely accepted in rural Zimbabwe, the researchers say. Blair staff visit villages to demonstrate how the latrine is built and train local craftsmen and health assistants to maintain it. Latrines are then built by the villagers themselves. The latrines have been most successful when local missions, village headmen or teachers give their support. Latrines are also being promoted for schools. Blair try to maintain contact with one local person in case of future maintenance problems, but the staff do not usually return to the villages to see how effective the impact of the demonstration has been.

The original VIP latrine had a concrete slab, a plastered cement structure, a cement roof and an asbestos pipe. However, a variety of other materials has also been used. The slab may be made of cement, brick or wood. The structure can be of grass, reed, poles, sun-dried or burnt brick or a combination of wire, hessian and cement. Grass and asbestos are alternative roofing materials. The pipe too can be made of several different materials such as reed and plaster, brick, PVC or wire, hessian and cement. The cost of the pit varies according to the materials used and the size. Larger pits last longer. If the slabs are frequently washed, the pit will remain wet. A little, but not too much, water hastens the process of bacterial decomposition and increases the life of the pit, researchers say. A pit lasts about 10 years. Once the pit is full it is sealed off and a new one is built. The slab and the vent can be re-used.



Family-size latrines are being promoted to make maintenance easier, as the responsibility for maintaining community latrines tends to get diffused. For family latrines the pit is dug to a depth of three metres (10 feet); the diameter is at least 1.2 metres (four feet). The vent is the single most important element of the VIP latrine. Large diameter pipes are most efficient. The standard mass produced asbestos pipes are 150 millimetres (six inches). Fibre-glass screens have been found to be the best fly trap as, unlike metal, they do not corrode. Tests on aluminium screens are continuing. The vent should normally stand 2.4 metres (eight feet from the ground.

Further information from: Blair Research Laboratories, North Avenue, Harare, Zimbabwe.

NATIONAL AND GLOBAL MONITORING OF WATER SUPPLY AND SANITATION

A booklet on monitoring has been published in English in October 1982 by the World Health Organization for the use of government officials dealing with the planning and management of water supply and sanitation programmes. It is divided into two parts: Part I gives definitions, objectives and main concepts; Part II consists of the guidelines currently in use for global monitoring together with the forms employed to record the information. The three major objectives of monitoring are seen as:

- establishing or strengthening monitoring systems at national and agency levels;
- measuring the global progress of water supply and sanitation in countries towards the objectives of the International Drinking Water Supply and Sanitation Decade;
- helping promote the mobilization of resources for the sector.

As concerns national monitoring, it is noted that the majority of countries have no adequate ways to monitor water supply and sanitation. Routine measuring of progress would give a better foundation for planning purposes, could influence the allocation of resources and would help in identifying problem areas and high-cost investments and operations. The practical output of routine monitoring could be executive reports issued at regular intervals on the status, past performance and perspectives of the sector. WHO proposes to draft guiding principles to assist countries in establishing or strengthening national monitoring systems. It is envisaged that the draft principles will be published in early 1984 after an expert review and testing in the field to be conducted during 1983.

As concerns global monitoring, the measure of the situation at end December 1980/beginning January 1981, that is the Decade baseline situation, has already taken place in the majority of developing countries and the information will be analyzed and published during 1983. Global monitoring is based on the preparation of country sector digests which are concise reports accompanied by standard reply forms. Country sector digests can be considered to satisfy the minimum information requirements for national

executive reports, but should be expanded in information content and detail in order to satisfy the managerial requirements of different countries.

The measure of the baseline situation will be followed by up-dates at approximately two-year intervals. More specifically, the first up-date will be for the situation at end 1983; there will be a mid-Decade review at end 1985, other up-dates in 1987 and 1988, and an end-Decade review in December 1990.

Country sector digests consist of a narrative part which in three/four pages gives basic data on general information, Decade planning, present satisfaction of water supply and sanitation needs, institutional aspects including the availability of manpower, financial and economic aspects, rating of the major constraints affecting the progress of water supply and sanitation, examples of progress in Decade approaches and the number and size of water supply and sanitation projects having been identified, prepared and approved. The forms are meant to present the water supply and sanitation data in a uniform manner so as to enable comparisons and aggregations. Every form contains several questions but it is known that some questions cannot be answered with precision in all countries at the present time. Countries which will establish monitoring systems in the course of the Decade will be able to provide, in time, more accurate replies to these questions.

From May 1983 the booklet will be available also in French. Copies may be obtained from: Global Promotion and Cooperation for Water Supply and Sanitation, Division of Environmental Health, World Health Organization, 1211 Geneva 27, Switzerland.

GLOBAL WATER TO PUBLISH WELL DRILLING CATALOGUE

GLOBAL WATER, the U.S. based, non-profit organisation headed by Dr. Peter Bourne, former Co-Ordinator of the UN Water Decade, have announced that they will publish in July 1983, the 'All World Catalogue of Water Well Drilling Equipment'.

Supported by major manufacturers and the International Water Supply Association, the project aims to list every model of drilling rig currently being built and describe it in standard format in English, French and Spanish, accompanied by a photograph. In addition there will be an extensive classified advertising section for manufacturers of products related to water works in general; plus a section for consulting engineers and contractors.

The catalogue will be widely publicised in the trade press and sold as cheaply as possible to ensure maximum circulation - especially in developing countries. With an exhaustive coverage of drilling equipment and tooling, plus a directory of water supply products and services, GLOBAL WATER hopes to fill the present information gap in this field. Manufacturers, consultants and contractors interested in being listed should write to: AWC GLOBAL WATER, Suite 300, 2033 M St NW, Washington DC 20036, USA.

PUBLICATIONS

AVAILABLE FROM WHO NATIONAL DECADE PLANS: EIGHT QUESTIONS THEY ANSWER

WHO has recently (1982) published an 18-page guideline to assist national planners and decision makers in formulating Decade plans. The information that a Decade plan should present can be summarized by answering eight major questions:

1. What are the needs?
2. Which of the needs shall we be able to meet and when?
3. How shall we meet them?
4. Who is to do what?
5. How can we strengthen the health impact?
6. What resources must be developed?
7. When will the steps be taken?
8. How do we ensure progress?

This handy booklet provides, with a minimum of technical jargon, essential criteria to help

- focus attention on substance, rather than form;
- adapt plans to national situations;
- enhance the feasibility of discussion among the many people involved in the planning/decision process.

Price Sw.Fr. 3-; special terms for developing countries are obtainable on application to the WHO Programme Coordinators or WHO Regional Offices, or to WHO Distribution and Sales Service, 1211 Geneva 27, Switzerland.

VILLAGE HANDPUMP TECHNOLOGY RESEARCH AND EVALUATION IN ASIA

This 72-page publication summarizes the findings of 6 years of work by Canada's International Development Research Centre (IDRC) on more effective pumping systems for rural water supplies, particularly through the use of PVC piping. The PVC pump (the "Waterloo") was tested in Sri Lanka, Thailand, Philippines and Malaysia, and has been applied successfully for use in wells up to a maximum water head of 10 m. The results of the field tests indicate that a) a concrete pedestal; b) timber handles, bearings and bushings; and c) PVC pump rods and cylinders are practical alternatives to the traditional cast or welded metal designs of hand-pumps used for water heads of up to 10 m, beyond which depth there is insufficient monitoring data to further validate these conclusions. Edited by Donald Sharp and Michael Graham. Price \$ (Can.) 4.00; available in English, French and Spanish. ISBN: 0-88936-360-9

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

Community participation: current issues and lessons learned

FROM UNICEF, ASSIGNMENT CHILDREN 59/60, 1982. In this volume: Dossier, Part I: Current issues: Why community participation? The participatory imperative in PHC, Popular participation in Africa, Participation in economic development, Community participation in family planning; Part II: Lessons learned, A checklist for participatory components in projects, Lessons from grass-root experiences in Latin America;

Research notes: UNRISD's Popular Participation Programme; Experiences to be shared: Meeting of interest, Selective bibliography, Book reviews.

Price back issue: Third World/Students \$1.80 /FF 6; Europe FF 8.50; USA, Canada, Australia, New Zealand \$2.50 or equivalent in other currencies. Assignment Children, UNICEF, Villa le Bocage, Palais de Nations, 1211 Genève 10, Suisse.

COURSES

MSc. Course

A twelve-month master's programme for engineers and scientists in developing countries who are involved in the provision of water supplies, water pollution control and sanitation. For a copy of a leaflet explaining this course please write: John Pickford, WEDC, University of Technology, Loughborough, Leics, LE11 3TU, England.

Groundwater Hydrology Short Course

Presented by the Departments of Civil, Environmental and Architectural Engineering and Geological Sciences, University of Colorado, Boulder. July 11-15, 1983, on the University of Colorado campus at Boulder. Fee: \$300, includes text and notes. Housing and meals are not included. For additional information call or write: Professor J. Ernest Flack, Groundwater Hydrology, Campus Box 428, University of Colorado, Boulder, CO, 80309, USA. Phone: (303) 492-7111 or-7315

CONFERENCES AND EXHIBITIONS

12-15 July, 1983, London, UK, World Water '83. Review of UN Water Decade. First of three. Will repeat in 1986 and 1989. Conference: Institution of Civil Engineers, 1 Great George Street, London SW1P 3AA, England. Exhibition: Westrade Fairs Ltd, P.O. Box 53, Rickmansworth, Herts WD3 2AG, England.

18-23 September, 1983, New Delhi, India. 12th. Congress of the World Energy Conference, Theme: Energy development and the quality of life. Conference: E. Ruttley, Secretary General, World Energy Conference, 34 St. James Street, London SW1 1HD, UK.

14-23 October, 1983, Moscow, USSR, Melioracia '83. 2nd. International exhibition for land and water management. Exhibition: Directorate International Exhibitions, Sokolnicheskival 1-a, Moscow 107113, USSR. November 1983, Jakarta, Indonesia, Asia Pacific Water Supply Conference & Exhibition.

4th. organised by ASPAC group in accord with IWSA principles. Conference: Organising Committee, Jalan Proklamasi 43, P.O. Box 221 KBY, Jakarta, Indonesia. Exhibition: See Conference.

9-13 April, 1984, Nairobi, Kenya, 2nd. African Water Technology Exhibition. International exhibition + 2nd. African Water Technology Conference. Conference: International Conferences & Exhibitions Ltd, 7 Porter Street, London W1M 1HZ, England. Exhibition: See Conference.

NEWS FROM IRC PUBLIC STANDPOST WORKSHOP, JAKARTA

In relation to the IRC project on Public Standpost Water Supplies, Cipta Karya/Directorate of Building Research, organized a workshop on "safe water supply with public

taps" 22-24 March, in Jakarta. The purpose of the workshop was to evaluate the past and present experience in Indonesia on water supplies in which public standposts play a major role. Indonesian organizers included representatives from the three Ministries collaborating in the Decade National Action Committee: Public Works, Health, and Interior. Papers presented covered major multidisciplinary aspects of public standposts. Participants from the Ministry of Public Health concentrated on health and sanitation education, those from the Ministry of Public Works outlined technical and socio-economic aspects, and involving the local community was the focus of the Ministry of the Interior. Options for the decentralization of operation and maintenance were also discussed. An important output expected from the workshop will be a multi-disciplinary methodology for the planning of public standpost supplies. Representatives from all three Ministries stressed the need to promote active community participation in all stages of the programme and a serious effort is underway to hammer out a policy for this purpose. On the last day of the workshop the project management committee for the public standposts demonstration project reviewed the work plan and agreed to steps for initial implementation. All papers were presented in Bahasa Indonesian, but a translation into English is in preparation. For more information please contact: Mr. Djauhari, Directorate of Building Research, Tromelpos 15, Bandung, Indonesia.

A French-language publication from IRC
Procedures Simplifiées pour l'Examination de
l'Eau

IRC, in cooperation with the American Water Works Association and the World Health Organization, is pleased to announce the publication of the French language edition of the AWWA Simplified Procedures for Water Examination, a laboratory manual.

This French-language edition is a beginner's primer of common methods that rely on inexpensive, readily available apparatus and that depend on simple, easy-to-follow techniques. The methods described are suitable for many drinking waters. However, the very simplicity of the methods limits their use to high-quality waters of relatively known and constant composition. Considerable prominence is given in each method to the section entitled "Warning" which tries to mark off the areas of applicability. This simplified manual should be seen as supplementary to the comprehensive AWWA Standard Methods.

Procedures Simplifiées pour l'Examination de l'Eau, available in French only from IRC. 239 pages with a 32-page supplement on instrumental methods. Translation from the English by L'Institut du Génie de l'Environnement de L'Ecole Polytechnique Fédérale de

Lausanne, Switzerland. Price \$15 (US), available now directly from IRC. Please make cheques or international money orders payable to IRC. Orders originating from developing countries may apply for a free copy. Inquiries about the English editions of both Simplified Procedures and Standard Methods should be addressed to: Mr. Joseph Zullo, American Water Works Association, 6666 W. Quincy Ave, Denver, Colorado 80235, USA.

A Groundwater Primer, now an IRC Technical Paper.

The demand for the IRC Occasional paper A Groundwater Primer (first announced in last October's Newsletter) has been so strong that we've run out of copies! In view of its continued popularity (judging by your orders) we've decided to republish it as IRC Technical Paper No. 21. This IRC "Blue Book" is written by G.J. Heij and C.R. Meinardi of the National Institute for Water Supply of the Netherlands. In their introduction the authors state the aim of the Primer: "We do not aim to make a geohydrological expert of you; merely you should be able to understand such a specialist. If ever you work in a team with a geohydrologist, you will need some knowledge of what he or she is doing and why, or else the team will not function optimally".

The first chapter deals with the place of groundwater in the hydrological cycle. Groundwater is a renewable resource and should be managed with care. The second chapter treats some of the properties of ground and of water and introduces the appropriate terminology. In the third chapter the theory of groundwater is explained; some simple cases illustrate the possibilities of calculation. The quality of groundwater is the subject of the fourth chapter, also including fresh/brackish relations. This aspect derives its importance not only from the user's point of view but also plays a crucial role in geophysical investigations.

In the fifth chapter Heij and Meinardi review various tests to be used in field and laboratory investigation and how to combine them. The sixth and final chapter gives the reader an idea about the ultimate result of most geohydrological studies, that is development of groundwater resources.

Groundwater is mainly seen in the context of unconsolidated sediments, excluding the hydrogeology of limestone areas.

This Technical Paper of 119 pages, is available in English only. The price is \$US 10. Payment by cheque or international money order should be sent directly to IRC.

Non-commercial organizations based in or from developing countries may apply for a complimentary copy.

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MALAYSIAN HANDPUMP TECHNOLOGY RESEARCH MOVES FROM PROJECT STAGE TOWARD COMMERCIALIZATION

In 1978 the International Development Research Centre (IDRC) sponsored a network of four projects in Asia (Malaysia, Philippines, Sri Lanka, and Thailand) which dealt with the development and testing of a low-cost handpump to be operated and maintained at the village level. The Malaysian project demonstrated that a handpump with components made of PVC plastic can function adequately under field conditions for a period of two years or more.

A second phase of the Malaysian project, in the amount of CAD\$ 297,500, has just been approved by IDRC. This phase represents an intermediate step in the transfer of the handpump technology from basic research and development to commercialization. The primary aim of the project will be to gain production knowledge and attempt to reduce the cost of manufacture by injection-molding of the plastic components. In addition, wide-scale field trials will be carried out on the mass produced model.

Unlike most technical projects of this type, a study of important sociological and economic factors -- which often influence attitudes and community acceptance and ultimately the success or failure of implementing a technology such as this -- will be included.

It is anticipated that this project will act as a focal point for a network of projects to deal with the wide-scale implementation of the technology and other aspects such as maintenance at the village level, community acceptance schemes, financing arrangements, etc.



Photo: IDRC
The handpump made of PVC plastic has brought clean water to rural families in Malaysia.

IDRC is an autonomous public corporation established by the Parliament of Canada in 1970 to support research designed to adapt science and technology to the needs of developing countries.

For more information, contact: Tony Lovink, Information Officer, Communications Division, IDRC, P.O. Box 8500, Ottawa, Canada K1G 3H9.

WHO EXPERT WARNS AGAINST "SHINY EQUIPMENT" SYNDROME

Copenhagen, June 1; Ribbon-cutting ceremonies and the installation of shiny new equipment are not in themselves the real answer to the need to provide clean water and adequate sanitation to the under-served populations of the developing world, a World Health Organization expert warned here.

At present there is too much imbalance in the allocation of resources in this sector, the expert, Dr. Bernd Dieterich, who is Director of the Division of Environmental Health, WHO, Geneva, told an information seminar for the mass media held at the WHO European Regional Office in Copenhagen.

"You may find a pleasant suburb, with green lawns and a water tap in the kitchen, while only a short distance away women are spending hours each day hauling rusty water cans to and from a water source that is probably contaminated," Dr. Dieterich commented.

The Decade is too often seen in facile political terms, he noted, the emphasis should not be on inauguration ceremonies and the installation of shiny equipment. "There are too many stories of installations put in with the help of well-meaning external groups, and which lie rusting and useless because no one is available with the skills to maintain them, or because running costs were not allowed for, or simply because the villagers prefer to do things in their own way and according to their traditions and culture".

Dr. Dieterich said there was an urgent need for all those involved, including aid groups, national administrations, and the international organizations, to throw their full weight behind the true objectives of the Decade. He said those objectives included:

- concentration on the under-served rural and urban poor;
- strengthening institutional capacity in addition to putting pipes in the ground;
- promoting the use of simple and reliable technology.

"The latter objective is most important, even if it reduces the market for the export of fancy equipment", the WHO official observed. Dr. Dieterich said the first quarter of the Decade had now been reached, and important progress had been made. The World Bank has estimated, for example, that more than 100 million people have benefited from the provision of services since the Decade was launched in November 1980.

He pointed also to the following indicators:

- Total investment is now running at about \$10 thousand million a year.
- Of a sample of 71 developing countries, eighteen have already prepared Decade plans, and another 32 have plans in preparation.
- The tempo of the Decade is accelerating, with marked rates of increase for water and sanitation projects.

But Dr. Dieterich also warned of "danger signals". He pointed out that while some sources of external funding are sustaining or even upgrading their support, others are reducing their contributions. Among the latter were some of the most important funding sources. Overall investment was still well short of the required figure as estimated by the World Bank, which is from \$30 thousand million to \$50 thousand million annually. Investment on this scale is required to meet the needs of the countries concerned, which, he said, "overshadow" the progress made to

date. He summed up the position as follows:

- urban water supply: one out of four persons unserved;
- rural water supply: two out of three persons unserved;
- urban sanitation: one out of two persons unserved;
- rural sanitation: seven out of eight persons unserved.

Although one-third of the required investment is coming from external sources, it would remain a major task to persuade decision-makers in the developing countries to allocate scarce resources to the water and sanitation sector. The main challenge would be to make the most of the resources that were available, Dr. Dieterich added.

THE WESTERN PACIFIC REGIONAL CENTRE FOR THE PROMOTION OF ENVIRONMENTAL PLANNING AND APPLIED STUDIES (PEPAS)

The establishment of the Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS) was authorized by the Western Pacific Regional Committee of the World Health Organization (WHO) in September 1977. The offer of Malaysia to serve as the host country was accepted by WHO and PEPAS was established and began operation on the campus of the University Pertanian Malaysia near Kuala Lumpur in January 1979.

Current functional services of PEPAS include (1) support to development of national policies and plans for environmental health and related resource protection; (2) technological and administrative expertise in various fields, i.e. control of air, land and water pollution; industrial and solid wastes management; hygiene of housing; food safety; environmental impact studies and environmental criteria and surveillance; (3) development of environmental health and resource protection manpower; and (4) information services emphasizing environmental health and related resource protection material of regional significance. Most PEPAS resources are employed in the provision of direct technical cooperation services to Member States in these four functional areas.

An additional function, (5) environmental management programme development, deals with the promotion of policies and/or activities collectively supported by the World Health Assembly or other international forums. In this context, the Centre has regional coordinative responsibility for the implementation of global programmes and projects in environmental monitoring and information systems such as the WHO/UNEP GEMS projects on air and water quality monitoring, health effect studies, biological monitoring, chemical safety and control; and WHO international reference systems and collaborating centres on environmental health subjects.

PEPAS also promotes applied studies in areas of high relevance to WHO, i.e. the International Drinking Water Supply and Sanitation Decade and environmental health aspects of primary health care. The scientific and technical programmes of PEPAS are being implemented by a core of technical professional staff members, short term consultants, visiting fellows and professionals seconded for special studies or training by their governments. The Faculty, laboratory and

library resources of the University Pertanian Malaysia are available to the Centre.

For more information, please contact: Dr. K.M. Yao, Officer-in-Charge, PEPAS, c/o P.O. Box 2550, Kuala Lumpur, Malaysia.

REORIENTING ENVIRONMENTAL HEALTH RESEARCH

A review of the environmental health research programme and possibilities for its reorientation were the focus of a regional consultation held in New Delhi last October. The aim of the consultation at the WHO South-East Asia Regional Office was to establish research priorities in line with "Health for All by 200" and Decade Goals.

Research priorities recommended concerned the following three broad areas: (1) Health aspects of water and sanitation, (2) Research related to support programmes for promoting water supply and sanitation, and (3) Appropriate technology. A brief summary of the topics identified under each broad area is as follows:

Research Topics in Health Aspects

- The effectiveness and operational feasibility of education on hand washing and other specific personal hygiene practices, to reduce the transmission of diarrhoeal diseases.
- The prevention of transmission and control of enterotoxigenic *E. coli*, *Campylobacter jejuni* *Shigella* and Rotavirus with special reference to transmission routes and control strategies related to water supply, sanitation and hygienic behaviour.
- Methods of controlling the breeding of *Culex* mosquitos associated with ongoing projects on low-cost excreta and sullage disposal to reduce the transmission of Bancroftian Filariasis.
- Health aspects of waste recycling in agriculture and aquaculture.
- The occupational health risks of waste (night soil, sewage or refuse) to workers and means of preventing these risks.
- Studies on acceptable levels of certain water contaminants.

Research Topics in Support Programmes

- Belief and behaviour studies with regard to (i) the use of water and food, including use of space and domestic wares, and (ii) the disposal and recycle of wastes.
- Methodological studies on community education and participation, and motivation generation, including development of suitable educational materials.
- Studies on the significance of socio-economic and educational variables in the acceptance of innovations in technology.
- Comparative studies of institutional aspects of the operation, maintenance and surveillance of community water supplies and sanitation, including use of primary health centres, cooperatives, voluntary agencies, etc.
- Attitude surveys of technical and managerial staff employed in operation, maintenance and surveillance of completed schemes, to promote job motivation.
- Studies on appropriate management information systems for water supply and sanitation organizations.
- Studies on ways and means of resource

generation from within the community.

- Socio-economic aspects of (a) water supply systems and water usage, and (b) recycling of waste (human and animal waste, solid wastes, etc.)

Research Topics in Appropriate Technology

- Comparative studies on low cost excreta/waste water disposal systems with or without byproduct utilization, including operation, maintenance and cost benefit, analysis.
- Studies in application of the systems approach to integrated water supply and waste management systems for urban underserved areas.
- Design norms and operational measures for minimizing hazards due to intermittent water distribution systems.
- Factors affecting pollution of tubewells and other methods for effective surveillance.
- Low cost methods and materials for collection, treatment, disinfection and distribution of water for community supplies (sand filters, rainwater tanks, village ponds, infiltration galleries, etc.).
- Water quality surveillance and improvements in bathing ghats and temple tanks.
- Studies on use of renewable energy in water supply and sanitation (wind and solar energy).
- Cost benefit analysis of various technology options.
- Rapid techniques for the detection of faecal bacteria in the field.

Topics Considered Appropriate For Commissioned Research in Two or More Countries

- Comparative studies including technological, institutional, socio-economic and health aspects of the operation, maintenance, and surveillance of water supplies and sanitation in rural areas.
- Comparative studies including technological, institutional, socio-economic and health aspects of excreta disposal and environmental sanitation in urban underserved areas.
- Health aspects of waste recycling in agriculture and aquaculture.

For more information, please contact: Mr. S. J. Arceivala, WHO Regional Office for South East Asia, World Health House, Indraprastha Estate, Ring Road, New Delhi, 110002 India

TRANSFER OF KNOW-HOW THROUGH EXPATRIATE NATIONALS (TOKTEN)

It is estimated that 400,000 to 500,000 skilled professionals born in developing countries are living and working outside their homelands. Many choose to permanently settle abroad.

Since 1976, UNDP has been working with a number of developing countries to counter the exodus of their specialists with a "brain gain". Through a programme called "Transfer of Know-How Through Expatriate Nationals (TOKTEN)", skilled expatriates are brought back to their countries of origin for short consultancies.

The UNDP Global TOKTEN Unit (Division of Global and Interregional Projects) in New York assists in identifying consultants, answering more than ten queries a week from interested professionals in North America. It

also prepares feasibility studies for governments wishing to join TOKTEN, and makes information on the programme available in English, Spanish and Arabic.

A TOKTEN Newsletter is issued periodically to report on various countries' experiences and TOKTEN trends and potentials.

For more information: the UNDP Global TOKTEN Unit, UNDP, 1 United Nations Plaza, New York, N.Y. 10017, U.S.A.

PUBLICATIONS

Evaluation of Health Education and Community Participation in Abub Shahar Group of Villages (India)

This 14-page (English-language) evaluation undertaken by the Central Health Education Bureau (CHEB) points to a marked improvement in the health and water related behaviour of the above named villages. This evaluation took place in the context of IRC's Slow Sand Filtration project, coorganized with the National Environmental Engineering Research Institute (NEERI) and with CHEB.

For more information please write: Dr. B.C. Ghosal, Director, Central Health Education Bureau, Department of General Health Services, Kotla Road, New Delhi, India 110002.

Environmental Health Engineering in the Tropics, An Introductory Text

by Sandy Cairncross and Richard Feachem.

Contents: Preface; Part 1 Health and Pollution: 1. Engineering and infectious diseases; 2. Health and water chemistry; 3. Water quality and standards; Part 2 Water supply: 4. Water supplies in developing countries; 5. Rural water supply; 6. Urban water supply and water treatment; Part 3 Excreta and refuse: treatment, disposal and re-use: 7. Excreta and disposal in developing countries; 8. Types of excreta disposal systems; 9. Planning a sanitation programme; 10. Waste water treatment; 11. Refuse collection and disposal; 12. Composting; 13. Health hazards of waste re-use; Part 4. Environmental modifications and vector-borne diseases: 14. Engineering control of arthropod vectors; 15. Dams, irrigation, and health; 16. Schistosomiasis; Appendix A: Biological classification conventions; Appendix B: Glossary; Appendix C: Checklist of water-related and excreta-related diseases; Appendix D: The life cycles of certain helminths infecting man; Appendix E: Units; Index.

283 pages. English only. Price \$US 13.--. ISBN 0 471 90012 5.

John Wiley & Sons Ltd., Baffins Lane, Chichester, Sussex PO19 1UD, United Kingdom.

Primary Health Care: Bibliography and Resource Directory

by J. Montague, Shahnuz Montague and E.

Capparelli, American Public Health Association, 1015 Fifteenth St NW, Washington DC 2005, U.S.A.

Though health problems are frequently unique to the histories and systems of individual countries, many problems are common and their solution can lie in sharing knowledge and experience. The annotated bibliography has sections on: health care in developing countries, an overview; planning and managing of PHC; manpower training and utilization; community participation; and delivery of health services. The resource directory reviews periodicals, bibliographies, directories, handbooks, catalogues and computerized information services, audiovisual and other teaching aids, education and training programmes, procurement of supplies and pharmaceuticals, and international and private donor resources. There is also a list of publications to assist project designers in how to formulate a proposal requesting funding from the major foundations.

NEWS FROM IRC

We are pleased to present the published results of a successful collaborative effort: Rural Water Supply Development - the Buba Tombali Water Project.

It concerns the story of a project at grass roots level in Guinea-Bissau, showing that "real cooperation between a developed and a developing country is possible and beneficial", as Mr. Samba Lamine Mané, Minister of Natural Resources of Guinea-Bissau, puts it in his foreword to the Report.

In this project, water was not only treated as a technical and scarcity problem but also as a hygiene and health issue. This work in Buba Tombali has led to requests for similar projects by communities elsewhere in the country. A remarkable achievement of the project has been the development of the Buba pump on the spot. Topics include community participation, technical aspects, organization, training and logistics, cost data and references.

We feel that sharing the Buba Tombali story can be a valuable contribution to improved water supply projects elsewhere.

Prepared by IRC, the Report has 118 pages with lots of photos and graphic illustrations. So far, English-language edition only. Price \$US 10. Payment by cheque or international money order should be sent directly to IRC. Non-commercial organizations based in or from developing countries may apply for a complimentary copy.

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

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

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

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

Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

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SANITATION PAYS

By Jitendra Tuli

(Information Officer for the WHO South-East Asia Regional Office in New Delhi)

For centuries, the poorest class in India had the job of removing buckets of night soil from private houses, with all the stigma attached to such work.

Inspired by Gandhi's philosophy, a public-spirited group in Patna, India, has put an end to this degrading work and improved the environment, both aesthetically and hygienically, at virtually no cost to the community. The experiment showed that pay toilets pay for themselves.

Gandhi Maidan in Patna is one of the city's biggest parks. It is a landmark, and the venue for all important public meetings and rallies. Early in the morning, one can see hundreds of people taking a brisk walk; in the evenings it seems to be taken over by children who play the games children usually play.

Till a few years ago, however, all this was not possible. The Maidan, as an elderly Patna resident put it, "was strictly off limits, and one avoided going anywhere near it. As for the smell, well, you certainly did not have to ask for directions. Your nose would lead you to it". The park was being used as one vast, open-air public convenience.

As Mr. Bindeshwar Pathak, Chairman of the Sulabh Shauchalaya Sansthan (now known as Sulabh International) explains, "it was certainly a very real nuisance and a shame too. The only solution seemed to be to provide the people with an alternative". And that is exactly what his organization, a voluntary agency involved in providing appropriate sanitation services, set about to do.



The fitting of a latrine slab.
WHO Photo by A.S. Kochar

It was clear from the beginning that the facilities available in Patna were woefully inadequate to meet the demand. Apart from the city's own population, Patna has a sizeable "floating" population. There are also a large number of rickshaw pullers (over 50,000), many of whom do not have a permanent place to stay.

This pattern is similar to that in many other Indian cities where an estimated one-third of all urban households have no latrine; another third have to put up with bucket service latrines; the remaining third are served by: shared flush latrines, 21 per cent; individual

flush latrines, 7.2 per cent and septic tank latrines for 5.2 per cent.

In effect, according to modest estimates, 7 million urban households in India have bucket latrines which should be replaced with water-seal latrines. There are another 7 million households without latrines that need to be provided with the new, water-seal, latrines.

In the eight years since the first pair of "Sulabh Shauchalayas" (which means "easy-to-use convenience") were installed off Gandhi Maidan, there are now over 70,000 in Bihar State, with nearly 10,000 in Patna city alone. Today, over 50,000 persons daily use the cubicles set up in the 40 centres which are run and managed by Sulabh International.

Everyone pays

At one such centre, the busiest in Patna, over 3000 people use the services daily. There were office-goers and rickshaw pullers, tailors and shop-keepers and casual visitors. What each of them appreciated was the ease and speed with which everything was done. "Even during the rush hour, from 5 a.m. to 7 a.m. when there is a queue of 5 to 10 persons outside each cubicle, there is no pushing or shouting. All you do is pay 10 paise (one US cent), get a pinch of soap powder, collect your container with water and find an empty cubicle". The cubicles are cleaned by a band of paid workers who take great pride in keeping everything neat and tidy. As Mr. Pathak explained, although nobody is asked to pay, "nobody refuses". He explained, however, that women and children could use the facility free. Also, those who are unable to pay are not charged.

Most of the centres run by Sulabh International in Patna have an area kept aside for bathing. "We do not have cubicles yet, but hope that this will be possible later", says Mr. Pathak.

At one of the bigger centres, a highly successful experiment has been conducted in using human waste to produce bio-gas. Enough of it is produced to light not only the lamps at night, but also to use for cooking purposes. There are plans to install more bio-gas plants at other centres and to provide gas to the neighbouring households. "The potential is immense", says a confident Mr. Pathak.

The agency has also launched a scheme to train people to make and install "Sulabh Shauchalayas". It actively helps householders with the necessary formalities of getting loans from the local authority to convert bucket privies into water-seal latrines and then goes ahead and installs them. Sulabh International gives a guarantee of two years and looks after the maintenance, where needed.

Mr. Pathak says that the main purpose in taking on this work was to see Mahatma Gandhi's dream of putting an end to the degrading system of scavenging come true. "I must say that though the mental inspiration came from him, it was a WHO publication that really set me off." And then he pulls out a much-used copy of "Excreta Disposal for Rural Areas and Small Communities", by E.G. Wagner and J.N. Lanoix (WHO Monograph Series 39, 1958).

"I was most impressed by this simple approach to a complex problem, and even though I am not an engineer or scientist, I believed in the concept." At the first available opportunity, he tried to put what he

had read into practice. "And I'm glad to say that in this case the theory proved practical."

It is not only in Patna that this is being tried out. Already, similar centres have been established in the States of Andhra Pradesh, Karnataka, Madhya Pradesh, Orissa, Tripura, Uttar Pradesh and West Bengal. There are plans now to open up "Sulabh Shauchalayas" in Jammu and Kashmir and Rajasthan.

As Mr. Pathak points out, the Sulabh Shauchalaya movement has proved more than one thing. "We all know that with the people's participation, you can achieve anything. We are fortunate that we have been able to show in practical terms that there is an alternative to scavenging. People need not make a public nuisance of themselves if they are provided with a convenience which is clean, for which they will be willing to pay a nominal charge. We have also shown that if the municipal or State authorities can provide public conveniences, the community can effectively and efficiently maintain and run them. In fact, we have generated employment for at least 300 people in Patna city alone, not to mention the soap manufacturers and others engaged in making and maintaining the 'Sulabh Shauchalayas'."

As one can see clearly from the experiment in Patna, sanitation certainly means cleanliness, and it pays too!

For more information, please contact: Jitendra Tuli, Information Officer, WHO Regional Office for South-East Asia, World Health House, Indraprastha Estate, Ring Road, New Delhi 110002, India.

UNITED NATIONS ENVIRONMENT PROGRAMME HELPING THE WATER DECADE ENVIRONMENTALLY

Though the International Drinking Water Supply and Sanitation Decade is mostly concerned with the supply of safe water to the people, the United Nations Environment Programme has a far wider mandate in the field of water.

As UNEP is not an executing agency but a catalytic one, UNEP activities in the International Drinking Water Supply and Sanitation Decade are being carried out through the UN system as a whole. Thus, UNEP's financial commitments and activities involve other agencies where, through joint projects and bearing part of the project support cost, UNEP fulfills its mandate.

The fields of work cover activities related to water resource management, training, appraisal of availability of water resources, assistance to governments to form multipurpose plans, helping national institutions, preparation of plans for safe drainage and irrigation, preparation of manuals on community water supply and waste disposal systems in developing countries and implementation of drinking water quality surveillance programmes.

UNEP supports the France-based International Training Centre for Water Resources Management (CEFIGRE) through organizing training courses, workshops and seminar meetings. With the Scientific Committee on Problems of the Environment (SCOPE), UNEP works on ecosystem dynamics in fresh wet-

lands and shallow water bodies.

UNEP organized a major workshop on "integrated management and planning in the lake basin area of Kenya" where a draft plan of action to control water quality of Lake Victoria was formulated. This is now being followed up by the participating bordering countries of Tanzania and Uganda for implementation. The recommendations cover various areas like planning, education and training, effluent monitoring, pollution control, catchment services and management, and regional cooperation.

While UNEP works in close cooperation with governments, it maintains its system-wide approach to the problems from an environmental viewpoint. Its concern for human health has led to concrete steps towards maintaining sources of fresh water. At the same time its efforts are directed to environmental control of vector diseases like malaria, schistosomiasis (bilharzia or snail fever) and onchocerciasis (river blindness).

With UNESCO, UNEP is carrying out a major project protection of the lithosphere (the solid part of the earth) as a component of the environment. The emphasis is to protect the ground water.

Another major activity of UNEP is its international programme on chemical safety and the international register for potentially toxic chemicals. Through this programme UNEP informs governments through a register of all toxic chemicals, past and present.

UNEP's other activity is Infoterra. It has taken full advantage of the recent growth in environment information and its dissemination. A large number of information bases are in operation today serving national, regional and international needs. The Infoterra network involves 116 countries and nearly 10,000 sources.

UNEP works with agencies like the regional commissions of the United Nations, UNDP, ILO, FAO, UNESCO, WHO, International Atomic Energy Agency (IAEA), UN Agency for Technical Cooperation for Development (TCD), The World Bank, UNIDO, UNICEF and UNDR0 in support of the International Drinking Water Supply and Sanitation Decade.

For more information, please contact Mr. Bert Demmers, Senior Information Officer, Information Service, United Nations Environment Programme, P.O. Box 30552, Nairobi, Kenya.

HOW DO THE INTERNATIONAL AGENCIES COLLABORATE IN THE DECADE?

Most of the United Nations agencies active in the Decade had by end 1982 been able to formulate individual Decade policy statements, agree on general boundaries of country level action, and cooperate in implementing Task Force recommendations. Task Forces now exist on human resources development, project formulation, information exchange, (public) information, and women and the Decade. Technical Support Teams of agency representatives, chaired by the UNDP resident representatives, have now been formed in 60 countries.

Activities of U. N. Agencies

	Developing promotional efforts	Institutional dev't	Human resources dev't	Technology rationalization	Developing financial support
UNDP	x	x		x	x
UNICEF	x		x		x
FAO		x	x	x	
World Bank		x		x	x
UN/DTCD			x	x	
UNCHS		x	x	x	
UNEP				x	
UNESCO	x		x		
WHO	x	x	x	x	x
ILO		x	x		

Two of these agencies, the Bank and UNICEF, participate in national investment projects; the Bank foresees a rise of annual investment from a current level of \$ 600 million to \$ 950 million in 1983 and \$ 1100 million in 1986 and UNICEF's annual expenditure for water and sanitation projects is about \$ 50 million.

Source: WHO, Division of Public Information and Education for Health, 1211 Geneva 27, Switzerland.

FROM NIGERIA: WASADE NEWS

Editor's note: I recently received two current issues of WASADE NEWS, the 4-page newsletter of the UNICEF-assisted Federal Government of Nigeria rural drinking water supply and sanitation project, Imo State. WASADE NEWS is an excellent example of country-level information support for the Decade: well laid out, lots of photos and full of stories where action and positive achievement are the main themes. "After 28 years, Fresh Water Struck in Ohaozara", "Village-Based Workers Graduate", "UNICEF Holds Rural Health Workshop" are just three story captions which give me the impression that the Decade is alive and well in Imo State. Congratulations to editor Chike Anyaegbum and correspondents Chris Ohaja and Shed Odoemenam.

Are there more newsletters like WASADE NEWS? If so, please let me know!

For more information about WASADE NEWS, please contact the Coordinator, UNICEF Project Office, 26/28 Anokwu Street, Owerri - Imo State, Federal Republic of Nigeria.

PUBLICATIONS

Rain and Stormwater Harvesting in Rural Areas; A Report by the United Nations Environment Programme

vii+236pp; 18 tables; 99 figures, 1983. Presently English language only. Tycooly International Publishing Limited, 6 Crofton Terrace, Dun Laoghaire, Co. Dublin, Ireland.

- Contents:
- Rainwater Harvesting for Domestic and Agriculture Use
 - Collection, Storage and Utilization of Rainwater from Roofs and Ground Catchments
 - Ground Catchments on Manda Island
 - Contour Terracing
 - Silt Traps, Check-Dams and Canals
 - Flood Water Farming and Inundation Canals
 - Haffirs and Bunds
 - Rain and Stormwater Harvesting in China

- Harvesting Water from Dew, Mist and Snow
- Design and Evaluation of Rainwater Harvesting Schemes
- Recommendations and Criteria for Pilot Projects.

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 £16.25
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New Newsletter from Decade HRD Task Force

The Human Resources Development Task Force for the Decade is gearing up for specific HRD activities and for those of you with special interest in this field, there is a monthly/ bimonthly Newsletter called HRD Task Force Update. The number 1 issue (2 pages) rolled off the press this June with a call for contributions from readers and with information about a WHO/ILO joint proposal for a "dual focus" approach linking training with the environment (political, social, economic conditions etc.). It is the Task Force's contention that too many HRD programmes are conceived and implemented without due regard for these environmental factors and thus are doomed to failure. For more information about the Task Force and its new Newsletter UPDATE, please write: Neil Carefoot, World Health Organization/EHE/ETS, 1211 Geneva 27, Switzerland.

COURSES

Short Courses in Water, Waste Water and Public Health Engineering

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

Further information and application forms can be obtained from: Dr. S.K. Dutta, Middlesex Polytechnic, Queensway, Enfield, Middlesex EN3 4SF, England Telephone 01-8048131 ext. 253. Telex 9054762.

NEWS FROM IRC

SLOW SAND FILTRATION CAN DO THE JOB IN

20,000 INDIAN PROBLEM VILLAGES

In India about 40,000 problem villages have to rely on surface water. In at least 20,000

of these treatment of the water is required. "There slow sand filtration can do the job better than other treatment methods, giving a better and safer product. The latest cost comparisons show that slow sand filtration is cost effective up to 8 million liters a day, or for a population of 110,000 with an average supply of 70 liters a day per capita." This strong message in favour of SSF was delivered by Dr. B.B. Sundaresan, Director of the National Environmental Engineering Research Institute (NEERI) to the Chief Engineers Conference held in late June, in Nagpur, India. He stated that if the Indian states would consider the SSF alternative for the 20,000 villages instead of opting for rapid sand filtration 90 million US dollars could be saved.

NEERI and IRC initiated applied research on SSF in India in 1976, established four demonstration plants in villages, and are now summing up the experience gained through practical research.

Over 150 engineers and health and information specialists participated in this five day meeting. During the first two days the chief engineers had their final say about the draft Decade Master Plan for the water supply and sanitation sector. They recommended a larger financial input for the water sector in India's seventh Five Year Plan, a minimum of 6 per cent compared to the earlier envisaged 4 per cent. For three days the meeting divided into groups to discuss in detail the contribution of SSF and health education in addition to information support for the water supply and sanitation programme in India.

The seminar participants stressed that in selecting a water treatment system, SSF should receive more attention because of its effectiveness and simplicity. They added that the provision of water supply alone will not improve the quality of life in the community. An integrated approach is required. Health education and community participation are essential requirements to enhance proper operation and maintenance and to create awareness of safe water use. It was also recognized that information support to promote better planning and implementation of water supply and sanitation programmes is inadequate or lacking in India. This weakness, the participants added, underlined the need for establishing an effective information exchange network at the state and national levels in support of the wide range of activities undertaken in the Decade Programme.

For more information about the costs and benefits of slow sand filtration, please write to the SSF Project Manager at IRC.

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Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

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FLOODS AND WATER SUPPLIES: LESSONS LEARNED IN ECUADOR

The following article was prepared by Mr. Fred Reiff, PAHO Sanitary Engineer. Mr. Reiff spent several weeks in Ecuador during the flood emergency, during which time he collaborated with USAID on the water supply problems described below.

This article originated in the Newsletter No. 15 of Disaster Preparedness in the Americas, Pan American Health Organization, 525 23rd Street, N.W. Washington, D.C. 20037, U.S.A.

Starting in late December 1982 and lasting through January and into February, heavy and persistent rains caused severe flooding throughout most of Ecuador west of the Andes. Municipalities, agricultural areas, and transportation networks sustained heavy damage. The adverse economic impact has already been great and is likely to be felt for quite some time.

The health risks of most large scale flooding are both immediate and delayed. Among them, the disruption of public water supplies and waste disposal systems and the contamination of public water supplies can be a major threat to public health: diseases such as typhoid fever, hepatitis, cholera, gastroenteritis, giardiasis may increase as a result. Good planning, design, construction and operating practices which incorporate emergency preparedness principles can greatly diminish this threat. The low number of disruptions of water service systems in Ecuador's urban areas and towns during this period testify to the fact that consideration had been given to protecting critical components of water systems from flood damage in the most densely populated areas. The water supplies of scattered rural dwellings and many small rural communities which lacked community systems were contaminated, however. The most frequent cause was the inundation of wells and pumping facilities.



WHO photo by P. Almasy

The community which had the greatest problem with disruption of water and sewer services and the subsequent contamination of the water systems was Babahoyo, a town of about 70,000 people located along the bank of the Babahoyo River about eighty kilometers northeast of Guayaquil. Babahoyo obtains its water from five deep wells. Four of these had been contaminated by flood waters containing sewage, either by direct submersion or by back siphonage. A sixth well had been drilled but was not yet in service. The distribution system had been knocked out of service and also was heavily contaminated. The results of bacteriological testing for *E. coli* all contained organisms too numerous to count.



International assistance: technical support necessary

Several countries shipped emergency water treatment units to Ecuador as relief assistance. One country sent an engineer and technicians along with their emergency mobile water treatment units to assist with deployment set up and train local personnel. The initial unit was placed in operation within several hours after arrival in Babahoyo by the accompanying technicians who at the same time trained local operators. The set up of the second unit was also used for training local personnel, who were then instructed in operation and maintenance. The success of this technique was evidenced by the fact that the remaining installations were all carried out by local personnel. During the period of heaviest use, a total of three units were operative in Babahoyo. One unit was set up in the nearby town of Baba. Another country sent a water treatment unit which was not accompanied by a technician. It was never set up, and remained in storage throughout the emergency. This indicates that no matter how simple or how effective an emergency water treatment unit may be and no matter how thorough and clear the written instructions are, the likelihood of being used is greatly increased when a technician familiar with the equipment accompanies the unit and assists with the initial set up and training.

Expect the unexpected

Another reason to provide initial technical expertise along with an emergency water treatment unit was disclosed once the units were in operation. Unanticipated substances in the raw water to be treated made it necessary to depart considerably from routine operating instructions. One source of raw water contained such a heavy concentration of extremely fine volcanic clay that approximately half of the operating time was spent cleaning the filters. This source was quickly abandoned. Another source of raw water contained about 1.5 mg/l of iron, primarily in the ferrous state. About 0.2 mg/l of the iron (probably in a colloidal ferric state) was retained on the final ceramic filter, but penetrated the surface sufficiently to make vigorous cleaning necessary. As a result, the filter element quickly wore out.

A large portion of the iron - about 1.3 mg/l - passed through the final ceramic filter and caused two additional problems. It accelerated the release of iodine from the iodine-impregnated resins used for disinfection to such an extent that the final water could not be used. It was decided to bypass this portion of the treatment unit, and then chlorinate the filtered water. This method was not wholly satisfactory either, however, because the filtered water contained ferrous iron. The chlorination oxidized the iron, but the oxidized iron did not agglomerate and settle out. The finished water had a yellow color and a bad flavor.

Although aesthetically objectionable, the water was nonetheless used heavily by the flood victims because it was safe to drink and it was better than other water available. To further improve it, pre-chlorination was later introduced at breakpoint levels. This solved the problem: the final water was sparkling clear, with a free residual chlorine content of 1.5 mg/l and virtually no taste or odor. Use of the water further increased

after it was clear and taste- and odor-free.

Conclusions

Several general observations can be made as a result of the experience in Ecuador:

- There was a large demand for safe water when the municipal water supplies were disrupted and contaminated. The people affected were willing to assist in the operation of an emergency water supply system, in whatever way was needed.
- Furnishing emergency water treatment units during an emergency does not ensure they will be installed or used. Technical expertise is necessary to make sure that they are installed, and that local operators are trained to use the particular equipment that was provided.
- Emergency conditions inherently contain many unknowns. It is impossible to anticipate many of the physical-chemical problems which will be encountered in emergency water treatment. Technical expertise to modify the operations of an imported emergency water treatment unit is necessary in the initial stage. Following adequate training, operation should be handled by local personnel.
- Emergency water supplies are expensive to deploy, operate, and maintain. Preference should be given to flood protection and emergency preparedness for municipal water systems. Those municipalities which had taken precautions avoided disruption of service and/or contamination of water systems. In most cases, it is less expensive to prevent and avoid the need for emergency water supplies than it is to provide them as a crisis response.

EXTERNAL SUPPORT AGENCIES EVALUATE THE DECADE

Evaluation studies on projects and programmes in the water and sanitation sector have increasingly been carried out by the external support community. The studies have generally focused on the provision of potable water, with the aim of improving health and living conditions of the target populations involved.

Besides demonstrating some of the benefits accruing to the target populations - e.g., improved access to a better supply of potable water and, in some cases, diffusion of new technology, the evaluations have underlined the difficulties in reaching definitive conclusions about improvements in the health and living conditions of the target populations specifically as a result of the assisted projects. Such difficulties arise largely due to the complex nature of the interactions between project activity in the water sector and in other closely related social infrastructure areas. This again points to the need for complementarity of water supply investments with increased activities in the sanitation field and health education.

It could be said that the effectiveness of expenditures on "softer" programme components is difficult to assess. If a careful look is taken behind the supposedly "harder" figures on number of pumps installed, wells drilled etc. they may reveal that these figures are often not reliable indicators of accomplishment.

Hence, alternative ways of thinking about the success of external aid may be needed and that two promising areas to which such

thinking might be directed are:

- (1) Consumer satisfaction;
- (2) The national organization's on-going capacity for rehabilitating existing systems.

Most important lessons learned

- A major constraint in improving water supply and sanitation systems is the lack of qualified manpower and the inadequacy of local institutions in the recipient country. Human Resources Development needs differ widely from country to country, with the most pressing need sometimes being for village-level operation/maintenance personnel, rather than for highly trained specialists. There is thus a need for more technical assistance in this area.

- Inadequate resources for public health education is a severe constraint to realize project objectives. A programme of health education is thus an essential component of water supply projects, particularly in rural areas. Such education should emphasize, for example, how water can be utilized to intercept the main disease transmission routes.

- While the technical execution of projects normally causes the least problems and mostly is reported as satisfactory, the operation and maintenance requirements and the economic aspects have largely been neglected. Current operation and maintenance is mostly unsatisfactory causing a large proportion of the investment to remain unutilized or underutilized. Tariffs to cover the cost of running and upkeep of the systems have normally not been calculated on a recovering cost basis; very often large consumers have been found to be privileged by regressive tariffs instead of penalized by vigorously progressive tariffs.

- The choice of appropriate technology is an important factor in project success. Water system technology should be appropriate to local circumstances, and should impose demands for maintenance no greater than can realistically be met by the community being served with the quality and quantity of national programme assistance that can routinely be expected. An increased share of low-cost technologies in the technology mix is necessary to improve cost ratios and promote self-reliance at village level.

- Community participation in all stages of planning, construction, operation and maintenance of rural water supplies is of the greatest importance for successful implementation of projects.

- The need for better management and improved institution building. This is based on the observation that constraints to progress in the sector are more likely to lie in difficulties of implementation rather than in shortage of capital funds, so that an urge to put primary emphasis on getting the hardware into place and off the ground should be resisted until it is clear that satisfactory efforts are also being made in the areas of institution building, manpower training, health education, community surveys and community participation, and the design/selection/local manufacture of appropriate technology.

With particular reference to regional development banks and funds and the operation of the World Bank a high priority is given to the following findings:

- Institution building including upgrading of institutional set-up of the utility responsible for implementing and managing water supplies and sewerage projects, re-

cruitment and training of competent managers, technicians and skilled labour to staff the executing agency.

- Plans and programmes for water supply should be planned together with the other sectoral and regional projects and programmes.

- The need for a realistic sector strategy.

- The need for improving project preparation.

The United Nations agencies also share the above-mentioned consensus. Special emphasis is placed on the importance of community participation, health education, sanitary facilities to complement water installations and human resources development.

Further guidance to evaluation work can be found in the Minimum Evaluation Procedure (MEP) for water supply and sanitation projects document issued by WHO (ETS/83.1-CDD/OPR/83.1)..

(Source "Trends in External Support to the IDWSSD", IDWSSD Media Encounter, Copenhagen, Denmark, 31 May - 1 June 1983, issued by EHE/GWS, WHO, Geneva).

* * * * *

COURSES

New WEDC Course for Non-Technologists

In 1984 the WEDC Group (water and waste engineering for developing countries) is offering a ten-week residential training programme which breaks new ground. Some technology will be included, but the WEDC Diploma Course in Community Water Supply and Sanitation at Loughborough University of Technology, England, is primarily for non-technologists working or intending to work in rural areas or amongst underprivileged urban communities in developing countries.

Throughout the Third World projects for safe drinking water and sanitation are planned and implemented by a variety of professionals. Some have little background or limited experience in this field. The majority learn by their own mistakes and know little about progress in other countries.

This WEDC Diploma Course provides the opportunity for non-technologists to combine the study of broad development issues with training in technology and management. The following major topics are included: development, health and community; water supply and sanitation technology; administration and management appropriate for project implementation.

Information about the new course may be obtained from:

John Pickford, WEDC Group Leader, or Dr. Morag Bell, Department of Geography, University of Technology, Loughborough, Leics LE11 3TU, England. Phone: 0509 263171, Telex: 34319 UNITEC G.

XVIII International Course in Groundwater Hydrology

To be held in Barcelona, Spain from 13 January to 13 July 1984, this course is mainly intended for graduates from higher technical schools and science faculties who wish to receive further training or specialize in the problems of prospecting, tapping exploitation and planning of groundwater while studying surface water and other hydrological resources.

The teaching programme will be: auxiliary disciplines, groundwater exploration and ex-

plotation, and water management. This means a total of 311 hours for the theoretical and applied courses, 9 field trips, 7 technical visits, and the production of a practical report on groundwater through group work. Lectures are given in Spanish. For further information, please write to Curso Internacional de Hidrologia Subterranea, Beethoven, no. 15-3º, Barcelona-21, Spain, Telephone (93) 322-19-51, Telex 52455COABNE.

PUBLICATIONS

ENDA Publication on Water Pumping for Rural Water Supply

ENDA, a non-government organization ("Environment and Development in the Third World"), located in Dakar, Senegal, has published a handy booklet providing an overview of water pumping technology for rural water supply. It also contains a discussion of the social and cultural factors involved in the installation of water pumping devices for rural communities in Third World countries. ENDA works in the areas of training, research, publication and distribution of information directed to self-help development of rural communities, and it organizes exchange of experience, knowledge and technology among Third World countries. ENDA, P.O. Box 3370, Dakar, Senegal.

NEWS FROM IRC

IRC announces the latest publication in its Occasional Paper Series:

The Colombian Field Manuals and Training Guides for the Promotion of Community Participation in Water and Sanitation Schemes

This 125-page publication is a translated and edited version in English of community participation materials from the National Institute of Health, Ministry of Public Health, Colombia. It was translated from the Spanish by Dr. Anne Whyte, Institute of Environmental Studies, University of Toronto, Canada. Water and sanitation agencies want community participation to lead to a better community acceptance of projects, to build more facilities within a given budget and to promote sharing of the burden of maintenance when costs are too high for the government or users alone. For the villagers, community participation means getting facilities which answer their needs. Community participation is also pursued for wider development goals: water projects as one of the conditions for better health and as an entry point for further village projects,

access to basic services for the poor and involvement of women in village decision-making and technical training.

To try to implement participation programmes to achieve such goals, practical experiences from elsewhere can be of great value.

This IRC Occasional Paper is an example of such an experience. It demonstrates how the Instituto Nacional de Salud in Colombia has proceeded in this field.

Although based on experiences up to 1978, IRC considers the translation relevant, as little materials on this topic from Spanish speaking countries are available in English. A brief appraisal of later developments in the approach of INAS and a review of the results of the application of health education methods in the Slow Sand Filter Project in Colombia are published in IRC's Occasional Paper "Report on the Slow Sand Filtration Demonstration Projects in Colombia".

The Colombian Field Manuals and Training Guides for the Promotion of Community Participation in Water and Sanitation Schemes. 125 pages, in English only. Price US\$ 5.--. Non-commercial organizations as well as individuals based in or from developing countries can apply for a complimentary copy.

The IRC Annual Report for 1982 is now available on request.

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

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

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

Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

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UNICEF CO-OPERATION IN WATER SUPPLY AND SANITATION PROGRAMMES

Scope and Nature of Water-related Activities

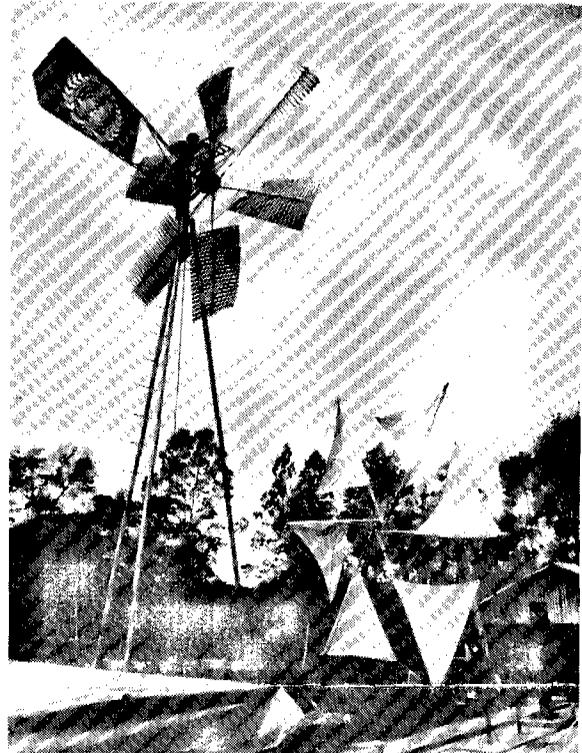
UNICEF is rapidly expanding its water-related activities, which are concentrated on community water supply and sanitation in rural and certain peri-urban areas. It is a major partner in the International Drinking Water Supply and Sanitation Decade.

UNICEF spending (mainly supply of equipment and materials) for the 1980's is expected to average US\$ 50 million per year. UNICEF's work in this area is seen as a prerequisite for improving child and maternal health and for releasing women and children from the time-consuming, energy-sapping carrying of water.

Most programmes in which UNICEF participates employ simple, low-cost technology and serve low-income rural or peri-urban communities. In recent years, special importance has been attached to linking sanitation and health education activities to water supply schemes.

UNICEF has now over 100 technical project staff posted in the field. These work under the UNICEF field representatives, but receive certain backstopping from a Water and Environmental Sanitation Team (WET) with five staff members with a background in geology, groundwater technology, engineering, health education and community participation. Operations are carried out in close collaboration with the other organizations in water supply and sanitation, inside and outside the United Nations system. Some 40 per cent of UNICEF's regular budget goes to water supply and sanitation and considerable contributions and funds-in-trust are mobilized from other sources.

The newsletter "From the UNICEF Waterfront" is published several times a year, and the subject is given much attention in various UNICEF publications, particularly with the "Decade" impetus.



Wind-driven water-pumps displayed at the Village Technology Unit in Nairobi, Kenya use low-cost, locally available materials. The Unit was jointly developed by UNICEF and the Kenya Village Polytechnic programme.

Photo: UNICEF/WHO/Thorning

Typical Projects executed by UNICEF since 1971

In Pakistan, water supply and sanitation are becoming more of a component of basic services for children rather than a purely sectoral, public-works type of action. With the new approach towards area concentration and community involvement, drinking water supply schemes (and even sanitation schemes, as in rural Azad Kashmir and in Karachi) have become effective entry points for integrated basic services programmes. In Punjab, Baluchistan and northern areas, water has become the determining factor in selecting the areas for concentrated assistance from UNICEF. In 1981, an elaborate

planning process identified these areas, selected the most appropriate technology, prepared the communities, set up the institutional framework and started drawing up community-based operational plans for implementation during 1982-1986. An important feature of this new approach is the incorporation of "beneficiary" indicators into the planning/implementation/monitoring process through the established local bodies.

In Nigeria, a new and innovative programme was launched in Imo State. The programme begins with the sanitation component followed by water-well drilling and hand-pump installation components, after which the local population will have been fully involved. The Imo State drinking water and sanitation project is a community education-based effort involving hand-pump technology and government participation at four levels, from federal to community. UNICEF assistance has included laying the groundwork for parallel epidemiological and house-to-house water use surveys in the target areas; providing technical personnel as well as Nigerian and foreign consultants specializing in environmental sanitation, excreta disposal, training design, community mobilization, social anthropology, and water-borne disease epidemiology; establishing a heavy equipment workshop and maintenance yard in facilities made available by the state government; and providing two high-performance drilling rigs, along with the vehicles and varied hardware needed to support the rigs. Evaluation of the project may also break new ground: costs, cost benefits, disease reduction and child mortality will be charted by surveys comparing control populations and the two project "tracks". A "fast" track will devote relatively less time to mobilization, participation and training, and a "slow" track will concentrate on those areas and therefore embody the main concepts of the project.

In Malawi, a feasibility study of an integrated approach to rural water supplies was made in the Upper Livulezi Valley of Ntcheu District. This approach integrates five components of rural water supplies: protection of existing shallow wells; rehabilitation of existing boreholes; construction of newly dug wells; construction of shallow boreholes; and establishment of a maintenance structure for all water points. A related development, with UNICEF assistance, is the local design and production of two types of PVC hand pumps for the boreholes. Until recently, Malawi installed expensive imported pump models, mainly the cast-iron types, which were extremely difficult to maintain. The maintenance costs of the imported hand-pump models are estimated at US\$ 15,000 -- about US\$ 170 per pump per year. If the local pump project proves successful, it should enable communities to carry out their own maintenance, thus avoiding the high breakdown rates of the imported pumps.

Some typical fields in which UNICEF gives support:

- Survey and programming, including provision of advisory services and consultation with communities;
- Training of national staff including in-service training;
- Supply of equipment and materials for the installation of wells (by provision of e.g., drilling rigs, well-casing and

pumps), simple gravity schemes (by provision of pipes and fittings), and latrines; also standardization of equipment and materials on a national basis;

- Provision of master well drillers and other technical support;
- Community participation in the planning, construction and maintenance of water supply, and environmental improvements;
- Health education and control of water quality in co-operation with WHO;
- The local manufacture of equipment and materials, including, in several countries, handpumps.

For more information please contact Dr. Martin Beyer, Senior Adviser Drinking Water Programmes, UNICEF, WET Section, 866 United Nations Plaza, New York, N.Y. 10017, U.S.A.

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THE SUGAR AND SALT LIFELINE by Sumi Krishna Chauhan Editor of Earthscan's Waterlog

Some of the world's leading medical experts and administrators met in June 1983 in Washington to put their seal of approval on a simple but revolutionary therapy which could save the lives of millions of children. Oral Rehydration Therapy (ORT), the treatment of diarrhoea with an inexpensive mixture of mineral salts, sugar and water, was barely recognised in medical circles 10 years ago. Five years ago few doctors took it seriously.

Yet the International Conference on Oral Rehydration Therapy (ORT) drew nearly 800 participants from more than 30 countries. Clinical paediatricians, public health specialists and administrators all endorsed ORT as a way of treating diarrhoea sufferers away from hospitals and doctors' clinics.

The meeting also backed the decision of international agencies such as the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), and of many national governments to promote ORT. Bangladesh Minister for Finance and Planning A.M.A. Muhith said the treatment had been known in ancient times, but was "lost in the conflict between tradition and modern science in the wake of the industrial revolution". The "circle has turned", he said. The International Centre for Diarrhoeal Diseases Research in Bangladesh (ICDDR/B) has been pivotal in developing both the therapy and a programme to extend its use in villages.

WHO Director-General Halfdan Mahler predicted that the therapy could "reduce the diarrhoeal death rate in infants by more than 50%". In developed countries diarrhoea is only a sporadic nuisance, but in developing countries, it is a "symbol of underdevelopment", he said. The developing countries would need US\$ 2 billion a year for 10 years to eliminate the problem, Mahler warned.

One in every 10 children born in the Third World dies of diarrhoea before the age of five. In 1980 there were five million such deaths - about 10 per minute. ORT does not cure diarrhoea, but it can effectively control the dehydration which often accompanies it by replacing the water and salts lost by the body during diarrhoea.

In the mid-1960s an effective oral rehydration formula was developed almost simultaneously by scientists in Bangladesh, India and the

USA. It was first used on a large scale in 1971 among refugees from the fighting in Bangladesh.

The oral rehydration solution (ORS) - glucose, salts and water - was based on the discovery that glucose (or sugar) helps carry mineral salts and water through the intestinal wall into the bloodstream. In 1978, the British medical journal *The Lancet* described this as "potentially the most important medical advance this century". But the world's doctors have been trained to fight dehydration by allowing fluid to drip through a needle into a patient's veins - a therapy which requires the patient be in hospital. It is hard for doctors to accept that this may not be necessary except in extreme cases. Doctors have also been taught to stop feeding and "rest the bowel" during diarrhoea. Top child specialists continue to advise mothers to stop feeding infants suffering from diarrhoea, though recent WHO guidelines firmly recommend continued feeding, especially for infants on breast-milk.

For a "revolutionary medical advance", ORT is surprisingly simple. The solution can be made by dissolving a prepackaged powder of glucose (20 grams), salt (3.5 grams), sodium bicarbonate (2.5 grams) and potassium chloride (1.5 grams) in a litre of water. UNICEF and WHO are distributing millions of ORC packets every year; many developing countries are making their own, and there are several brands.

Even the very cheapest packets, distributed by UNICEF in Bangladesh, cost about eight US cents each to make. This is expensive for most developing countries. A child in Bangladesh needs six packets a year, so the cost of the solution per child would amount to roughly half the country's annual per capita expenditure on health.

Home-mixed solutions - a scoop of sugar and a pinch of salt dissolved in the right amount of water - are being promoted in several community projects. In Honduras, children are given bananas to replace the potassium their bodies lose in diarrhoea.

Most doctors, noting that too much salt can be dangerous, give home-mixed ORS only qualified support. Dr. William B. Greenough, Director of ICDDR/B, pointed out that future research should work toward food-based solutions such as rice water and other cereal soups to treat dehydration and nutritional damage, and on immunisation to prevent diarrhoea.

Many community health specialists see ORT as an effective way of improving ineffective primary health care systems. In northeastern Brazil, the old ritual chants over sick children to ward off the "evil eye" now include new references to "diarrhoea". The chanting over, the "rezadeira" (traditional healer) gives the child a dose of more modern medicine, scientifically prepared ORS, according to Dr. Maria Auxiladora de Souza, Professor of Community Medicine at Brazil's Federal University of Ceara, Fortaleza.

The conference in Washington carefully avoided boosting ORT as a cure for all ills. Greenough warned against propagating "a new mythology, which may not be as effective as we hope". The Ford Foundation's Dr. Lincoln Chen summed up the general view: while recognizing the usefulness of ORT, "we must avoid overselling it", he said.

Diarrhoea is a major killer, but it is only one symptom of poverty and underdevelopment. ORT cannot be allowed to divert health offi-

cial resources from the creation of complete primary health care systems, the meeting decided.

The Appropriate Health Resources and Technologies Action Group Ltd. (AHR TAG) publishes a quarterly newsletter on all aspects of the treatment and control of diarrhoeal diseases. If you would like to see a copy please write to AHR TAG, 85, Marylebone High Street, London W1M 3DE, United Kingdom.

GUINEA WORM WRAP-UP

GUINEA WORM WRAP-UP is an informal memorandum issued periodically to summarize information and news pertaining to dracunculiasis for interested persons around the world.

It is intended to encourage communication and cooperation among persons working on some aspect of dracunculiasis and stimulate additional control and research activities. The editors would welcome letters in response, some of which will be published in future issues (address: Guinea Worm Wrap-Up, Centers for Disease Control, Building 1, Room 2122, Atlanta, Georgia 30333). News about control or research projects, published articles, published or unpublished surveillance data about the occurrence or extent of the disease, effect of interventions on the disease, effect of the disease on agricultural or other economic activities, etc., are eagerly solicited.

Some activities in the fight against the guinea worm include:

Washington Workshop on Dracunculiasis

Leading authorities on dracunculiasis from around the world gathered in Washington DC on June 16-19, 1982, for the first international meeting devoted to dracunculiasis, entitled A Workshop on Opportunities for Control of Dracunculiasis. The workshop was sponsored by the Board on Science and Technology for International Development of the U.S. National Academy of Sciences, with funding from the United States Agency for International Development (USAID), and co-sponsored by the World Health Organization (WHO). Invited participants attended from Ghana, India, Nigeria, Togo, the United Kingdom, and the United States, as well as representatives from WHO headquarters, the African Regional Office of WHO, USAID, World Bank, and the OCCGE (Organization for the Coordination and Cooperation in the Struggle Against the Great Endemic Diseases). The purposes of the workshop were to review the current state of knowledge about the disease, its epidemiology, prevention and control, and to make recommendations for future research priorities and other actions which would contribute to the prevention, treatment, control, and eradication of dracunculiasis. A Report of the meeting and Proceedings of the conference are being edited and should be available a little later this year from the above address.

Dracunculiasis Surveillance

A global summary of the reported dracunculiasis endemic areas was published in the 5 March 1982 issue of WHO's *Weekly Epidemiological Record*, (57(9):65-67). Since then, much more information has become available

about the status of the disease in India (see below). The Government of the Islamic Republic of Iran also recently informed WHO that no cases of dracunculiasis have been detected during the past 5 years in the course of surveillance activities carried out in the formerly endemic areas.

News of the Indian Guinea Worm Eradication Programme

India's Guinea Worm Eradication Programme, which got underway in 1981, is aiming to eradicate dracunculiasis from India within 5 years. This multi-faceted effort, which is closely linked to that country's activities being undertaken during the Water and Sanitation Decade, also employs health education, active surveillance, and temporary chemical treatment of contaminated water sources in its attack. During the active search of all known endemic areas in the seven affected States in May-June 1982, 29,906 cases of dracunculiasis were enumerated. A summary of these data appeared in the January 28, 1983, issue of the WHO Weekly Epidemiological Record; (58,(4):21-23). The most recent National Guinea Worm Workshop was held at Tirupati (Andhra Pradesh) in July this year.

AFRO Provides Consultant to Three Countries

At the request of national authorities in Benin, Ivory Coast, and Togo, the African Regional Office of WHO provided a short-term consultant epidemiologist from CDC to those three countries beginning in early February this year. The consultant is charged to help develop national plans for control or eradication of dracunculiasis in those countries, in the context of other Water and Sanitation Decade activities.

OCCGE Studies

In 1982, the OCCGE began sponsoring a study comparing the efficacy of health education and provision of safe drinking water for control of dracunculiasis in two villages of Upper Volta, with the financial assistance of USAID/Strengthening Health Delivery Systems through AFRO/WHO. Comparable studies are being considered in Ivory Coast and Niger. Dracunculiasis was one of two secondary themes for discussion at the 23rd OCCGE Technical Conference in Ouagadougou, April 11 to 14, 1983.

Recent Articles

For a list of recent articles on anti-guinea worm activities, please write Guinea Worm Wrap-Up, Centers for Disease Control, Building 1, Room 2122, Atlanta, Georgia 30333, USA).

Teaching Materials

An excellent teaching slide collection on dracunculiasis is available from Teaching Aids at Low Cost (TALC) (Address: Foundation for Teaching Aids at Low Cost, Institute of

Child Health, 30 Guilford Street, London WC1N 1EH; England. An especially well-done color movie, Avicenna's Thread, is available from J.P.R. Productions, 5 rue Broussais, Paris, France 75014 (available in English).

For further information about the fight against the guinea worm, please contact the Centers of Disease Control at the address on page 3.

PRACTICAL STEPS TO COMBAT GUINEA WORM

In the August 1981 IRC Newsletter we reported on the adoption of the elimination of guinea worm as a sub-goal of the International Drinking Water Supply and Sanitation Decade.

In the September 1981 Newsletter we featured some practical advice from UNDP on how to accomplish this health objective. These guidelines include:

* 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 USSR.

* 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. diarrhoea 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 that 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.

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Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.



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THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE IN EUROPE

by Dr. J. I. Waddington

(Dr. Waddington is Director, Promotion of Environmental Health, World Health Organization, Regional Office for Europe, 8 Scherfigsvej, Copenhagen, DK-2100, Denmark.)

Introduction

From its inception, the International Drinking Water Supply and Sanitation Decade has focused attention on the less developed countries of the world and in particular their non- and underserved populations.

As a consequence, there may have been a tendency to regard the Decade as of little concern to Europe. This should not cloud our eyes to the fact that there are serious shortfalls in water supply and sanitation services in even the most developed countries, a number of which will have serious difficulties in attaining adequate and safe water supply and appropriate sanitation for all by the year 2000.

Wide Difference of Levels

Even in the European Region there is a wide difference in levels of economic development between different countries and in some, particularly Algeria, Morocco and Turkey, the main thrust will have to be in terms of attaining complete population coverage. The population of these three countries alone is 85 million, compared to the 320 million living in 28 African Member States south of the Sahara.

The Mediterranean Area: Lots Of Work To Be Done

An assessment of the deficiencies in service

within the northern Mediterranean states is difficult because of an imbalance between different parts of these countries and between urban and rural areas. However, an estimate indicates that 15 million people are not served by a public water supply and around 75 million have no appropriate means for sanitary disposal of faecal matter.

A WHO meeting held in Rome in April 1980 reviewed the problems of acute diarrhoeal diseases in the Mediterranean region and placed emphasis on support for safe water and sanitation programmes combined with health education as the most effective control method. The meeting concluded that diarrhoeal diseases are a major cause of morbidity and mortality in infants and young children in all Mediterranean countries, as in less developed regions of the world, and emphasised that the lack of personal hygiene facilities and inadequate levels of environmental sanitation were the main responsible factors.

One Mediterranean country which had improved its notification of diarrhoeal disease incidences has observed a tenfold apparent increase in the last 20 years with the rate of severe enterocolitis reported per 10,000 population as 40. This is still recognized as being far below the actual incidences. It is also estimated that even amongst the most developed Mediterranean countries, about 10% of all admissions of children to hospitals are due to diarrhoeal diseases; 90% of the diarrhoeal disease cases occur in children under two years of age. These figures clearly indicate the seriousness of the problem in southern Europe and the significance of the Decade for the area. Cholera still regularly occurs in a number of Mediterranean countries.

Tourism Adds To The Problem

The problem in the Mediterranean is exacerbated by the pleasant climate which attracts large numbers of tourists each summer from the North and which overtaxes sanitary facilities. The resultant spread of infectious diseases is a case for international concern. Additional factors are personal and food hygiene. Without appropriate treatment of faecal wastes before discharge to the marine environment, pathogens find their way into the food chain, mainly through shellfish and particularly those which are eaten raw. Much of the incidence of diarrhoeal diseases transmitted through food is indirectly the result of inappropriate faecal waste disposal or lack of personal hygiene, the latter depending on adequate water and health education. Frequently, although water supplies have been



provided, there are substantial shortfalls in waste water disposal systems.

Decade Assessment: Sanitation Weakest Link

An assessment of the water supply and sanitation situation in Europe was undertaken in preparation for the commencement of the Decade. On the basis of this, it was estimated that, excluding the Soviet Union, there are, country by country, between 1 and 5% of the urban population without connection to a water-borne sewerage system, while in the rural areas between 70 to 100% of the population rely on individual waste disposal systems. It should be appreciated, however, that individual sanitation systems are often the most appropriate means of sanitary disposal of faecal wastes in rural areas, although there must be an effective system for the surveillance of such facilities in order to safeguard public health. About 100 million citizens in the European Region are without satisfactory water supplies and 250 million without adequate sanitation. Although coverage by water supply and sanitation services is generally higher in central and northern Europe than for the Mediterranean countries, it is estimated that 25 million people will have to be provided with a satisfactory water supply and 105 million will have to be provided with appropriate sanitation if the Decade goals are to be reached.

Northern Europe: "Modern" Pollution

A major thrust of the Decade in the more northern European countries will be related to the protection of the very limited water resources from pollution. In certain areas availability of water resources of adequate quality is already a constraining development and there is growing concern at the presence of potentially harmful substances in water being delivered to the consumer. It is estimated that between 200 to 1,000 new chemicals are being introduced each year, as a result of which an increasing range of micro-pollutants, mostly organic substances, are reaching the aquatic environment. These may remain in water and many of them are not removed by normal processes of water purification.

In recognition of the increasing significance of organic chemicals in water supplies, the new WHO Guidelines for Drinking Water Quality have considered the health implications for 35 substances identified as already occurring in significant concentrations and/or sufficiently frequently in water supply to warrant attention. These substances include chlorinated alkanes, polynuclear aromatic hydrocarbons, pesticides, chlorobenzene, chlorinated phenols, benzenes and alkylaromatics and trichloromethanes. Also considered in the new Guidelines are 16 inorganic health-related substances which can occur in water from natural sources or as a result of inappropriate waste disposal. These are arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, hardness, lead, mercury, nickel, nitrate, selenium, silver and sodium.

Source pollution can be considered of two basic types: long-term pollution and accidental spills. The former can only be overcome by effective land use planning and overall water resource management. The incidence and severity of the consequences of accidents can be reduced by systematic measures for contingency planning and response.

Waste Water Disposal: A Major Challenge

A high proportion of pollution affecting sources of drinking water derives from the discharge of community and industrial waste waters. Groundwaters are increasingly being affected by leaching from dumped solid wastes, especially chemicals. But pollution can also occur from non-point sources, especially in relation to run-off or percolations from agricultural land.

Rising concentration of nitrates in groundwater has been recorded in a number of the European countries with levels as high as 30 mg/l, three times higher than the WHO guideline values.

Although the protection of water resources may have a higher priority in Europe than in developing countries, this is only because in the latter there is still much to be done in providing basic services to a large proportion of the population. However, industrialization and intensive agriculture are resulting in increasing threats to water quality in these countries too. Source protection is a field of endeavour where the scope for North/South dialogue is great and the experience of the Member States of the European Region of WHO can be made available to the developing countries.

The European Region is also concentrating on problems of water supply and sanitation in special geographical areas such as arid zones, the Arctic and the particular problems of small islands. This experience too should be valuable for the developing world.

The Decade has clearly great significance for the European countries themselves; however, they also face the challenge of sharing their experience and resources with the developing countries of the world through developing programmes which are both national and international in character.

* * * * *

SHARING TECHNOLOGY REGIONALLY

Developing countries are exchanging technical help in a project for the construction of low-cost latrines, undertaken jointly by the World Bank and the United Nations Development Programme (UNDP).

In Bangladesh, feasibility studies have been done for low-cost sanitation in 10 secondary towns with a total population of 400,000. In each town the Department of Public Health Engineering is constructing a prototype pour-flush latrine for demonstration purposes. The experience gained will then be shared with Nepal.

The project employs a team of sanitary engineers, public health specialists, health educators and social anthropologists who form the Technology Advisory Group (TAG) of the World Bank.

Begun in 1976, the project has covered 18 countries. In India, for example, TAG is developing feasibility studies in 110 towns of seven states selected as priority areas by the Government. The total investment, expected to be US\$ 70 million, will serve 5.7 million people by 1990, or about 80% of urban sanitation requirements.

Demonstration latrines have been constructed in 1,100 locations and TAG will now be covering 100 more towns in the remaining Indian states.

In Brazil and Tanzania the concept of non-sewered sanitation is gaining wider acceptance, and TAG hopes that this success will

promote the use of low-cost sanitation in other countries also.

For more information, please write Technology Advisory Group, World Bank, 1818 H. Street, Washington D.C. 20433, U.S.A.

EMERGENCY CONTAINERS FOR THE STORAGE OR DELIVERY OF DIETARY FLUIDS

Crown Agents (London, England) has informed us that the British Milk Marketing Board possess a stock of containers which they are prepared to donate to socially useful causes. They would be supplied free of charge, but recipients would be expected to meet the cost of transportation.

The containers are flexible "pillow tanks" of either 700 or 1400 litre capacity. They are made of a good grade 1500 gauge CGB polythene with heat sealed seams and an injection moulded outlet with screw fitting. Emptying is normally via a pump or direct into a vacuum filling milk tanker. Dimensions are approximately 2290 x 1980 mm (700 litre) and 2510 x 2290 mm (1400 litre).

The containers are packed two to a large cardboard cylinder approximately 2500 mm long and 400 mm diameter although some may be stored loose.

In use the seams must be supported e.g. by bales or the sides of a truck body and the base of the container must be protected against puncture e.g. by nail heads - a layer of sacking or paper would usually be sufficient.

Although containers are also suitable for water transport, for the milk application they are intended as "one use" only.

Currently there are 700 containers in the 700 litre size and 800 in the 1400 litre size, and any organization interested in obtaining a supply for emergency stock piling should contact the Assistant Head, Farm Transport Operations, Milk Marketing Board, Thames Ditton, Surrey KT7 0EL, England.

WORLD ASSOCIATION OF SOIL AND WATER CONSERVATION

Encouraging the wise use and conservation of soil and water resources are objectives of scientists, educators and policymakers throughout the world, and now a forum exists for these people to assess soil and water conservation needs worldwide. That forum is the World Association of Soil and Water Conservation, created earlier this year to:

1. Promote information exchange;
2. Work for adoption of conservation policy;
3. Encourage multinational cooperation in conservation programs;
4. Emphasize the importance of protecting soil and water resources for the welfare of mankind.

The Soil Conservation Society of America has agreed to provide guidance and support to the Association in its infancy. SCSA will maintain the membership list and assist in producing a quarterly newsletter for Association members. News items for the WASWC "Newsletter" are welcome. Please send them to Mr. Nicholas Raymond, editor, 1776 F Street, N.W., Washington, D.C. 20437, USA.

For more information about the newly-formed World Association of Soil and Water Conservation, please contact the Soil Conservation Society of America, 7515 N.E. Ankeny Road, Ankeny, Iowa, U.S.A. 50021.

PUBLICATIONS

Maximizing Benefits to Health - an appraisal methodology for water supply and sanitation projects

WHO Offset Document ETS/83.7, WHO, Geneva, 1983.

"Maximizing Benefits to Health" considers all of the aspects that must be taken into account if maximum benefits are to result from investments in water supply and sanitation technology. A methodology is proposed which permits the conversion of community and project information into a numerical form, thus simplifying the project appraisal process prior to the allocation of resources to project implementation.

The proposed methodology is a unique one. Fourteen aspects are identified and described in the four broad areas of local health conditions, the nature of physical facilities for water and sanitation, human behaviour and available support services. Each of the fourteen aspects is further subdivided in such a way that a simple scoring system can be applied. The result is that a score of from 0 to 4 can be determined for each of the fourteen aspects. The sum of the aspect scores yields a project score which, when high, indicates a good chance for a successful project. Conversely, a low project score or a zero in one or more of the aspect scores is indicative of potential project failure.

The methodology has two readily evident applications. First, it is a rational procedure for the selection of projects for implementation from among a number of candidate projects. By greatly increasing the prospects for successful projects, scarce resources -- financial, human and material -- are conserved. The second application relates to programme design since use of the methodology for project selection will quickly reveal those aspects of a programme that are consistently weak. Thus, programmes can be redesigned to overcome those weaknesses.

Planners, decision makers, programme implementors and evaluators should find "Maximizing Benefits to Health" to be a useful and practical tool which will help ensure that health benefits will be one of the major dividends from investments in water supply and sanitation.

Copies of the document may be requested from The Manager, Environmental Health Technology and Support Unit, World Health Organization, 1211 Geneva 27, Switzerland.

A Model for the Development of a Self-help Water Supply Program

(47 pages): This is one of a series of informal working papers on various aspects of water supply and sanitation in developing countries, prepared by the World Bank Technology Advisory Group (TAG). Its author, Colin Glennie, has been closely involved in the very successful community water supply programme in Malawi and his model stresses the practical problems that

have to be dealt with. It highlights the crucial role and training requirements of field staff. It is most important that programmes "must start small and develop slowly initially", says Glennie. "The rate of development will accelerate once sufficient confidence and expertise has been generated". A strong national programme can then be developed in ten years.

More information from: TAG, the World Bank, 1818 H. Street NW, Washington, D.C. 20433, U.S.A.

Ventilated Improved Pit Latrines: Recent Developments in Zimbabwe

by Peter R. Morgan and D. Duncan Mara (41 pages).

This informal report describes and evaluates the work done in improving pit latrine designs by the Blair Research Laboratory in Zimbabwe. It has been prepared by the World Bank's Technology Advisory Group (TAG), and is the third in a series of technical papers jointly produced with the United Nations Development Programme for the World Water Supply and Sanitation Decade.

Publications Department, World Bank, 1818 H. Street NW, Washington, D.C. 20433, USA.

Earthscan paperbacks now available

Water, Sanitation, Health - for All? Prospects for the International Drinking Water Supply and Sanitation Decade, 1981-90, by Anil Agarwal, James Kimondo, Gloria Moreno, Jon Tinker (first published 1981, reprinted July 1983). Price: £ 3.00/US\$ 7.00.

A Million Villages, A Million Decades? The World Water Supply and Sanitation Decade from two South Indian villages by Sumi Krishna Chauhan, K. Gopalakrishnan (first published as Waterlog May 1983). Price: £ 3.00/US\$ 7.00. Address: Earthscan, 10 Percy Street, London W1, England.

CONFERENCES

International Symposium on Environmental Management for Developing Countries July 25 - 31, 1984, Istanbul, Turkey

The theme of this symposium will be Appropriate Environmental Technology and Management. Under this general title the following subjects will be covered:

- Treatment and Disposal of Domestic and Industrial Wastewater;
- Solid Waste Management;
- Recycling;
- Appropriate Technology;

- Energy Production from Wastes;
- Management of Agricultural Residues;
- Environmental Impact and Management;
- Case Studies;
- Ecology and Environmental Conservation;
- Public and Occupational Health;
- Socio-Economical Aspects of Pollution Control;
- Environmental Design and Pollution Monitoring.

A poster session and an exhibition will take place during the symposium. Engineers and scientists of any nationality are welcome to submit papers or participate in the symposium. Authors are invited to submit a copy of a maximum 500-word abstract by January 30, 1984.

For further information, contact: ENVITEK, Environmental Technology Research and Development Center, Bahariye Cad. 56, Kadiköy - Istanbul, Turkey.

COURSES

International Course on Rural Energy Planning

This 9-week course, 1 May - 30 June 1984, is to be held at Twente University of Technology in The Netherlands. The course aims at the rationalization of energy at a rural level embedded in the planning of the overall rural economy. Second, it aims at the reinforcement of the capabilities of rural decision makers to negotiate on the basis of more specific analysis and planning.

The course will provide the participants with an understanding of:

- rural multi-objective analysis and planning, e.g. applied to energy problems.
- technology subjects, e.g. techniques of the various possible sources for rural energy supply.
- problems of implementation and administration.

The working language will be English. Information on admission, application, selection and study programme can be obtained from: The Course Administrator, Technology and Development Group, Twente University of Technology, P.O. Box 217, 7500 AE Enschede, The Netherlands, Tel.: (0)53-892738.

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

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

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

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

Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

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THE UNITED NATIONS DEVELOPMENT PROGRAMME: HEALTH, WATER AND SANITATION

Challenge

Poor health caused by widespread prevalence of tropical diseases, poor environment and inadequate nutrition, exacts an enormous toll in human suffering and lost productivity in developing countries. Malaria affects 800 million human beings, taking the lives of about a million children under two years of age in sub-Saharan Africa alone. Some 200 million persons in 70 countries are chronically weakened by schistosomiasis (snail fever), while another 30 million are slowly going blind from onchocerciasis (river blindness). Diarrhoeal diseases kill up to six million children and contribute to the death of 13 million adults every year. Parasites infect nearly half the developing world's population, and respiratory diseases are rampant. The causes of this deplorable situation are manifold:

- malnutrition, which affects pregnant women with special harshness, weakens individuals from birth and reduces their resistance to disease;
- acute shortages of health personnel at all levels;
- lack of effective tools, including vaccines and drugs, for the prevention and treatment of tropical diseases;
- neglect of research on the diseases endemic in developing countries, without which better preventive tools and treatment methods cannot be developed;
- poor environmental conditions, in particular, the widespread lack of safe drinking water and sanitary waste disposal systems.

The last two factors are especially crucial and are the key to any fundamental improvement in the present situation.

Much too little is presently known about the diseases prevalent in developing countries and their prevention, mainly because most of the world's health research has been concentrated on the very different illnesses which affect developed countries. In addition, many

of these diseases are water-borne. They cannot be eradicated without a radical improvement in community environment, with particular regard to purer drinking water and better sanitation facilities and practices.

Water/Sanitation Related Diseases

Infection	Infections thousands /year	Deaths thousands /year	Average no. of days lost per case	Relative disability*
Water-Borne Diseases				
Amebiasis	400,000	30	7-10	3
Diarrhoeas	3-5,000,000	5-10,000	3-5	2
Polio	80,000	10-20	3,000+	2
Typhoid	1,000	25	14-28	2
Water-Washed Diseases				
Ascariasis (roundworm)	800,000-1,000,000	20	7-10	3
Leprosy	12,000	Very low	500-3,000	2.3
Trichuriasis (whipworm)	500,000	Low	7-10	3
Water-Based Diseases				
Schistosomiasis (bilharzia)	200,000	500-1000	600-1000	3.4
Diseases with Water-Related Vectors				
African trypanosomiasis (sleeping sickness)	1,000	5	150	1
Malaria	800,000	1,200	3-5	2
Onchocerciasis (river blindness)	30,000	20-50	3,000	1.2
Fecal Disposal Diseases				
Hookworm	7-9,000,000	50-60	100	4

Source: after Julia A. Walsh and Kenneth S. Warren, *Selective Primary Health Care: An Interim Strategy for Disease Control in Developing Countries*, *The New England Journal of Medicine*, vol. 301, no. 18, November 1, 1979, p.967

*1 means the sufferer is bedridden; 2 able to function to some extent; 3 able to work; 4 experiences minor effects.

Response

UNDP has devoted a growing share of its Global and Interregional resources to health improvement since the mid-1970s. The main focus has been on the two critical areas mentioned above: basic and applied research on the diseases which plague the developing world; and improvement of drinking water and sanitation facilities.

These efforts have been planned and implemented in close collaboration with WHO, the World Bank, UNICEF, many bilateral donors, several foundations, and research laboratories and health institutes in both developed and developing countries.

Milestones

* 1974 - establishment of the UNDP/WHO/World Bank Special Programme for Research and Training in Tropical Diseases (TDR) for a concerted attack on malaria, schistosomiasis (snail fever), onchocerciasis (river blindness), trypanosomiasis (sleeping sickness), leishmaniasis, and leprosy. TDR aims to develop better tools for the prevention and treatment of these diseases; train developing country health personnel to use these tools; and assist in building up developing countries' own health research and training



capacities. A consortium of international donors and affected countries now provides approximately \$ 25 million a year for the Programme.

* 1976 - support for the development and better quality control of improved vaccines against the common childhood diseases - diphtheria, tetanus, tuberculosis, polio, measles and whooping cough - within the framework of WHO's Expanded Programme on Immunization (EPI);

* 1977 - initiation of intensive research to develop better treatment methods and, if possible, a vaccine against diarrhoea, as a component of WHO's Diarrhoeal Diseases Control Programme;

* 1978 - transformation through the initiative by UNDP's Division for Global and Interregional Project (DGIP), of the Dhaka Cholera Control Laboratory in Bangladesh into an International Centre for Diarrhoeal Diseases Research, to carry out research, conduct field trials of new tools and treatment methods, and serve as an international training ground for developing country health personnel; establishment of an International Consultative Group under the chairmanship of DGIP to mobilize continuing support for the Centre;

* 1978 - formation of an inter-agency group for concerted support of the International Drinking Water Supply and Sanitation Decade (IDWSSD) (1981-1990), which aims to provide safe drinking water and proper sanitation for all by the year 1990. This group now comprises UNDP (Chairman), United Nations (UN), World Health Organization (WHO), the World Bank, UNICEF, International Labour Organisation (ILO), Food and Agriculture Organization of the UN (FAO), UN Educational, Scientific and Cultural Organization (UNESCO), UN Environment Programme (UNEP), UN Centre for Human Settlements (UNCHS), and UN International Research and Training Institute for the Advancement of Women (INSTRAW);

* 1979 - support for WHO's Health Learning Materials Programme to strengthen countries' capabilities to develop, produce and utilize low-cost training materials in the health field. Drinking water and sanitation activities receiving DGIP support within the framework of the IDWSSD include:

* Development of Drinking Water Supply and Sanitation Programmes, through which six developing countries were assisted in formulating national programmes and projects;

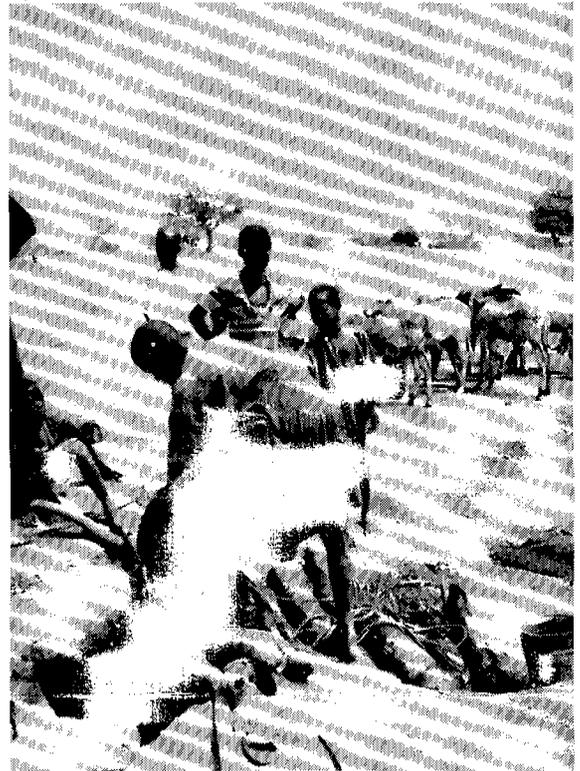
* Testing and Development of Rural Water Supply Hand Pumps, to help countries identify those types of hand pumps best suited to their particular water supply conditions and social and economic situations. The goal is to reduce costly breakdowns and stimulate local hand pump manufacture, especially of the new generation of pumps appropriate for village-level maintenance. Fifteen countries presently participate in this programme;

* Development and Implementation of Low-Cost Sanitation Investment Projects, under which a multi-disciplinary advisory team has assisted some 19 countries in three regions in designing and constructing low-cost sanitation systems as an alternative to traditional, capital-intensive sewerage. The project also trains nationals in alternative sanitation technologies;

* Research and Development in Integrated Resource Recovery, to study waste disposal and recycling practices which provide alter-

natives to high-cost, high-technology sanitation solutions and make these available to developing countries through demonstration schemes and preparation of investment projects;

* Information and Training Programme in Low-cost Water Supply and Sanitation, financed through "cost-sharing" contributions from the Canadian International Development Agency (CIDA), to produce and disseminate audio-visual training and information packages on low-cost water supply and sanitation options.



Men and cattle share the same water hole in a West African country -- with a consequent threat to human health from water-related diseases.

WHO Photo by P. Harrison

Impact

Under the TDR Programme, UNDP support from Global funds has helped to develop a new co-ordinated approach to research on tropical diseases involving the active participation of affected countries; the strengthening of their research and training institutions; and close collaboration among developed and developing country institutions under the guidance of highly expert international scientific working groups. It has also been instrumental in creating a research and training network of some 10,000 scientists and collaborating institutions, approximately 4,300 of them in affected developing countries, to implement the Programme. Some \$ 98 million for more than 1,300 TDR research and related projects in 81 countries has been mobilized from multilateral and bilateral donors (including countries affected). Significant results include:

- progress in the development of vaccines against malaria and leprosy;
- improved drug therapy for schistosomiasis;
- drug screening for more effective compounds to treat onchocerciasis;

- a more accurate diagnostic test for trypanosomiasis.

UNDP's assistance has also helped to establish a major programme of immunological and other research needed for a better understanding of the epidemiology of diarrhoeas, and the eventual development of a preventive vaccine. Among the achievements:

- development of a new, live, oral typhoid vaccine which has proved 95 per cent effective in an initial three-year field trial in Egypt;

- a simple diagnostic test for rotavirus infection which eliminates the need for expensive electron-microscopes;

- successful growth of human rotavirus strains in tissue culture, giving considerable impetus to research in this area.

In support of the EPI Programme, DGIP has contributed to:

- development of vaccines against several childhood diseases which are more stable and consequently retain their potency longer in hot climates;

- upgrading of several quality-control laboratories for these vaccines;

- planning of a global certification scheme to be implemented by WHO for raising vaccine quality control laboratories to international standards.

Progress in providing safe water and adequate sanitation has been achieved through:

- selection of handpumps for field testing through rigorous laboratory testing of some 30 different models;

- follow-up field testing of 150-200 pumps of three or four types in 14-15 countries, at an average cost of \$ 300,000 per field trial. Donors are providing over \$ 5 million in complementary support for this effort;

- research and development on low cost pumps for village level maintenance;

- influencing national sanitation policies affecting 80 million people in 19 countries. Low-cost sanitation projects have already been designed and are being constructed in five countries with an aggregate investment of \$ 88.5 million from national and international sources, plus supplementary technical co-operation worth \$ 2.5 million.

For further information: please contact the UNDP Resident Representative in your country. For further documentation about UNDP, please write Mr. Paul Boyd, Director, Division of Information, United Nations Development Programme, 1, United Nations Plaza, NY 10017, New York, U.S.A.

UNINTENDED SUBSIDY

A water supply project in Banyusidi, an upland village in Central Java, Indonesia, brought water to all the households. But the better-off houses benefited the most because they used the free water for both domestic and other purposes such as watering crops.

The Banyusidi village water supply was initially funded by the British organization, OXFAM, and carried out by community effort, with technical supervision from the Yayasan Dian Desa, a local voluntary organisation. Later the community took over the project completely and the local government gave a small amount of money.

In 1979, two years after the project was completed, OXFAM evaluated it and concluded

that the richer households contributed more on average towards implementing and maintaining the project than the poorer ones.

Seventy five percent of the water was used for domestic purposes, and the richer and the poorer villagers used the same amount of water in the home. But the better-off households also used some of the water for irrigation, and this helped them earn more. But they paid nothing for this usage. This was a kind of unintended subsidy, says OXFAM.

Source: Williams, Glen. (1982) Indonesia: choosing the right strategy. Reading Rural Development Communications (RRDC) Bulletin 14, University of Reading Agriculture Extension and Rural Development Centre, London Road, Reading RG1 5AQ, United Kingdom.

PUBLICATIONS

AIT's Environmental Sanitation Information Centre (ENSIC) publishes a series of Environmental Sanitation reviews and translations of some Asian language publications, such as:

Polprasert, Chongrak; Rajput, Vijay S; Donaldson, D and Viraraghavan, T. (1982). Septic tank and septic systems (110 pages), Environmental sanitation reviews No. 7/8.

Tuan, V A and Tam, D M. (1981) Human faeces, urine and their utilisation, (53 pages), a verbatim translation from the original Vietnamese.

Enquiries to: D.M. Tam, Information Scientist, ENSIC, Asian Institute of Technology, P.O. Box 2754, Bangkok, Thailand.

Water resources development and health

(118 pages): This updated bibliography (unpublished WHO Document PDP/82.2), prepared for the World Health Organization (WHO) Parasitic Diseases Programme, is a completely revised edition of an earlier document. It has a broad scope and includes documents and publications on the effects of development projects such as man-made lakes, irrigation networks and small water impoundments on health. The number of references (up to October 1980) has increased from 470 in the first edition (1975) to 1250. There is also an index of titles.

Source: WHO, 1211 Geneva 27, Switzerland.

Journal of Diarrhoeal Diseases Research:

the International Centre for Diarrhoeal Disease Research (ICDDR), Bangladesh, which has done pioneering work in the field, will soon be publishing a quarterly journal. It will include original research articles and communications on all aspects of diarrhoeal diseases, particularly in Asia.

More information from: M. Shamsul Islam Khan, Managing Editor, Journal of Diarrhoeal Diseases Research, ICDDR, GPO Box 128, Dhaka-2, Bangladesh.

FIFTEEN YEARS OF IRC

For IRC, this month marks fifteen years of information-oriented projects to help solve community water supply and sanitation problems.

On 19 December 1968 The World Health Organization and The Netherlands Government

signed an agreement which established IRC. Almost two years later, the Dubrovnik International Conference on Research and Development in Community Water Supply laid the basis for what is now international cooperating in the advancement and transfer of knowledge and methods on community water supply and sanitation and IRC's co-ordination role in this area.

Ten years ago, in 1973, on behalf of WHO, the directors of institutions collaborating with IRC, in a symposium at Bilthoven, (The Netherlands), identified specific activities needed in research, development, training and dissemination of information. The testing of the slow sand filtration method in developing countries was decided upon as one of the top priorities and was followed up by the initiative of these institutions from developing countries and IRC.

After 10 years of cooperative endeavour, the Integrated Slow Sand Filtration (SSF) Demonstration Project in five developing countries is in its final phase of exchange of experiences, after applied research at village demonstration plants. Some 4,000 design and construction manuals in English, French and Spanish on SSF have found their way all over the world. Operation and Maintenance Manuals have been, or are being, translated into Spanish, Arabic and Thai.

Other examples of IRC's role in helping to close the gap between available practical knowledge and actual needs of water supply and sanitation agencies include work on handpumps and public standposts, community education and participation, standardisation of design, programme evaluation, manpower development, and POETRI, the information programme.

Under the joint sponsorship of WHO and UNEP, IRC produced the most authoritative source of information on handpumps in 1977 (available in English, French and Spanish). Two publications on the design and operation of public standposts followed in 1978.

Since early this year another integrated demonstration project, on public standposts, has begun in four countries. An IRC study on standard treatment plants in Indonesia has helped to lead to construction of the first prototype plants which eventually may be used in some three thousand small schemes under the national rural towns programme. In community education and participation, IRC published in 1979 two groundbreaking studies on the theory and practice of local participation in water and sanitation. At field level IRC has been instrumental in a pilot project in Tanzania to develop a community participation component in the national rural water supply programme.

Three years ago IRC published the first major study on evaluation for water supply in developing countries based on the work of the Ross Institute of the London School of Hygiene and Tropical Medicine. Specially for the Decade and in cooperation with WHO, the Programme on Exchange and Transfer of Information (POETRI) has been developed since the late seventies. Its aim is to assist developing countries in establishing and strengthening of systems providing technological information support to their community water supply and sanitation programmes.

For fifteen years IRC has worked together with people and organizations in developing countries, while enjoying cooperation with UN agencies, in particular WHO, and has been financially aided by many donor and other agencies. In order to enhance its activity, IRC was transformed into a non-profit independent foundation in 1981 at the start of the International Drinking Water Supply and Sanitation Decade. IRC's newly established Governing Board has representatives from UNDP, UNICEF, the World Bank as well as WHO (as observer), and members from financially supporting Netherlands Ministries.

And what can be said about IRC's impact?

"We are using IRC's information on slow sand filtration everyday to teach our engineers. The same goes for the IRC Handpump book". The World Bank Water and Sanitation Advisor Joe Freedman pointed this out to Pieter Winsemius, the Dutch Minister of Housing, Physical Planning and Environment. The Minister's working visit to IRC coincided with the recent meeting of IRC's Governing Board. During that occasion, Freedman's Governing Board colleague, Dr. Martin Beyer of UNICEF, stressed the importance of IRC's role as an essential tool to develop, popularize and disseminate knowledge on the issues that can make or break the Water Decade. Dr. Peter Lowes of UNDP said that, much to his satisfaction, the overall trend of IRC's work is moving upward. He added that IRC could help in the process of public education in the North concerning the many positive activities going on in the South than is usually reported.

"Fascinating but not easy", was how Minister Winsemius described IRC's work domain. He also raised the vital question of how IRC could multiply its efforts. To get an answer to this intriguing question IRC would very much welcome views from Newsletter readers on the impact of IRC's work in the field. Or in other words : what has been the result of the more than 50 projects in and with developing countries and over 30,000 publications and 400,000 IRC Newsletters which we distributed on request during the last decade?.

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

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

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

Requests for information on IRC should be addressed to IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.