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MESSAGE REPEATED...33 141 33....

Is IRC's telephone number

We are repeatedly informed that people are still trying to contact IRC at our old number (changed early last year). Please realize that the Dutch telephone company has already assigned our old number to a new subscriber.

Please note IRC's telephone number correctly in your diaries, and register it with your telephone operator in your organization. It is:

(31)-70-33 141 33.

"HAPPINESS WATER" FOR WOMEN REPORTED FROM CHINA

Women's participation in improving water supply and sanitation has brought remarkable changes in the rural periphery of Chaozhou City, Guangdong province in the People's Republic of China. Among the most important changes are that women have been freed from the burden of fetching water and that the incidence of waterborne diseases has been reduced. This is reported by Mr. Paul Guo, director of the Western Pacific Region of the World Health Organization in reaction to the "Women, Water and Sanitation" series started in this newsletter in 1990.

Chaozhou City, situated downstream of the Ha river, has a total area of 1,330 km². It is divided into 24 districts, which are subdivided into 520 townships with 1,153 villages in the rural periphery. WHO has been collaborating with Chaozhou City since 1981. From 1981 to 1986 155 water supply projects were completed through the participation of women, bringing benefits to 442,000 people. In 1987, clean and safe drinking water was available to 59% of the total population, of which 49% had access to tap water. More than 180 women in different villages participated in the construction of sanitary facilities under the guidance of the city's health department.

"Their participation facilitated the improvement of rural sanitation: 123,470 m² of cement roads were laid, 383 drainage canals with a total length of 27,988 m were built, 630 garbage tanks were constructed and 120 W.C. units were installed. All these facilities remarkably improved the living environment of the

residents, particularly the women, who no longer had to use and empty night-soil buckets every day."

"In 1986, results of the survey carried out in the rural areas where water supply systems had been implemented, showed that the annual incidence of infectious diseases such as dysentery, typhoid and viral hepatitis, was reduced by 93%, 72% and 62% respectively compared with statistics in 1980," Mr. Guo reports from a study done with WHO support in 1987.

The WHO Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS) collaborated with the government in a project to train women in the improvement of drinking water quality. Women were taught financial management, maintenance of water supply facilities and methods of testing and monitoring water quality. Women were also taught community participation in promoting water supply in townships and villages.

During the construction of water supply systems in rural areas, women's views and recommendations were taken into account regarding the selection of water sources, siting of water works, collection of funds, and management and planning of water supply systems. Of the 218 water works in the city, 31% of the staff were women.

"With the time saved from not having to fetch water, women were able to contribute to the development of the rural economy, increasing family income and improving living standards. Previously, one woman in

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- 1991



each household had to spend at least one hour a day fetching water. Now that this is no longer required, they are able to participate in the township-run enterprises. Each household gains 365 man-hours each year, which is equal to 44,5 working days. At an income rate of 4 yuan (1 US\$ = 3.7 yuan) per day, this will amount to 178 yuan. Of the 249,339 households in the city and its surroundings, 115,000 now have access to tap water. This means that an increase of 20.47 million yuan (approximately US\$ 5.5 million) can be gained each year."

"Today, women in the villages of Chaozhou City express joyfully that having piped water supply is the greatest liberation for them. Tap water is referred to by them as "happiness water", concludes Paul Guo.

We invite similar interesting reports from projects on this subject, which we will share with our readers. For more information on the Chaozhou City project contact:

Paul Guo, Director
WHO Regional Centre for the Promotion of
Environmental Planning and Applied Studies (PEPAS)
P.O. Box 12550
50782 Kuala Lumpur, Malaysia

OUTSTANDING LESSONS FROM LESOTHO'S RURAL SANITATION PROGRAMME

Successful sector development is a slow process that best begins with a small-scale project that can be gradually expanded to a larger scale. This is one of the lessons learned from Lesotho's National Rural Sanitation Programme (NRSP), which started in 1983 as a single-district project and has now been expanded into a nationwide programme.

A joint publication of the UNDP/World Bank Water and Sanitation Program and PROWESS (Promotion of the Role of Women in Water and Environmental Sanitation Services) examines the success of this programme. Lesotho's rural sanitation programme is of particular interest because of the level of responsibility it places on users to pay for improved on-site sanitation. This emphasis on user cost recovery may prove to be the decisive factor in ensuring acceptance of low-cost sanitation technology (ventilated improved pit latrines costing US\$ 75-150 per unit) and the long-term sustainability of the rural sanitation programme.

This level of user cost recovery has been made possible by high user demand, which has been elevated through village-level health and hygiene education campaigns. User interest and understanding of improved sanitation has been heightened through attention to community involvement and organization, which has improved not only coverage rates, but long-term sustainability as well.

Requiring households to meet the full cost of improved latrines has an effect on the rate and style of implementation, the authors of this discussion paper say in the introduction. "The pace of construction will be almost entirely dependent on the financial situation of potential users and the level of priority given to improved on-site sanitation. Because of this, a long time-frame and intense organizational activity is required. Donors need to take a longer-term view in evaluating sanitation programmes of this type; success cannot be gauged on simple 'number counting', but needs to be based on broader goals such as the development of local capacity."

This approach raises, of course, the issue of affordability. It is clear that some percentage of the population in rural Lesotho can not afford improved sanitation at current costs. The Lesotho programme has tried several strategies to increase affordability without subsidies, including a credit-union scheme for financing latrine construction. Success in this area has been mixed and further efforts are needed to enable the programme to reach more of the very poor.

Extensive interaction with community members was required to convey the advantages of improved sanitation, and to instruct users on hygiene behaviour needed to maximize associated health benefits. Integration of health and hygiene education with construction and technical activities between the two ministries involved met with initial problems. Over time, co-ordination and co-operation became easier, as water supply professional became increasingly aware that sanitation and health education needed to accompany water supply if significant health impacts were to be achieved.

That these impacts were achieved became clear from the findings of a 1988 health impact study in Mhale's Hoek: those children who lived in households with latrines suffered 24% less diarrhoea than children who lived in homes without a latrine. When latrine ownership was complemented by hand washing after defecation and use of large quantities of water in the

household, incidence of diarrhoea was reduced by more than 30%.

While the course taken by Lesotho's NRSP is by no means the only viable approach to sector development, its history is informative and instructive, and written up in only 26 pages, with a 2-page summary of lessons learned at the end.

"Rural Sanitation in Lesotho - from Pilot Project to a National Program", DP Number 3, may be obtained from:

World Bank
Infrastructure and Urban Development Department
Water and Sanitation Division
1818 H Street, N.W.
Washington, D.C 20433
USA

NEW PUBLICATIONS

- » Roark, Philip (1990). **Evaluation Guidelines for Community-based Water and Sanitation Projects.** - Arlington, VA, USA : Water and Sanitation for Health Project. - 80 p. - (WASH Technical Report no. 64)
Price: Free of charge

The model presented here was originally developed by Dennis Warner and Raymond Isely, and is primarily meant for evaluators serving on WASH assignments involving USAID-funded projects. However, it should also prove useful to other development organizations interested in water supply and sanitation projects. Section I of the report, "Overview of Evaluation Process and Model", provides the background and definition of the evaluation process, and introduces the proposed model and evaluation methods. Section II, "Evaluation Model Guidelines", provides a chapter outline and guidelines of what each chapter should include. The appendices contain a tentative schedule for a four-week evaluation assignment, a questionnaire for field surveys, and a bibliography.

Available from: WASH
Operations Center
1611 N. Kent St. Room 1001

Arlington, VA 22209-2111 USA
tel: +1-703-243 8200, fax: +1-703-525 9137,
telex: WUI 64552

- » Sinha, Bakshi D. ; Ghosh, Arun K. (1990). **Evaluation of Low-cost Sanitation : Liberation, Training & Rehabilitation of Scavengers** . - New Delhi, India : Arnold Publishers. - 144 p.
ISBN 81-7031-250-7
Price: Rs.100

This monograph, with a foreword by Mulk Raj Anand, is an evaluation of a low-cost sanitation programme in three selected towns of Bihar and one in Rajasthan, India. The programme, which in total has already covered 166 towns (1988), has the twin objective of converting dry-latrines into pour-flush latrines and thereby liberating the "scavengers" from their degrading task of collecting nightsoil. The evaluation of the programme in the four towns was carried out by the Council for Social Development, New Delhi, in 1988. Although the majority of the beneficiaries (75% of the sample comprised of 449 households) preferred pour-flush latrines to dry-latrines, quite a large number (23%) of them were facing problems with their pour-flush latrine, while another 7% couldn't use them at all because of blockage. In total 34.5% of the households were not using their pour-flush latrines. Lack of communication between the different agencies and managerial problems are mentioned as causes of poor maintenance and non-use. After their liberation, the socio-economic conditions of the scavengers has improved in terms of income, savings and movable assets. They also no longer suffer the same kind of social and economic discrimination. The vocational training programme for scavengers' youngsters in Bihar, however, did not succeed in getting them employment.

Available from: bookstores
or direct from Arnold Publishers (India) Pvt. Ltd.
AB/9, Safdarjung Enclave
New Delhi 110 029, India

- » Black, Maggie (1990). **From Handpumps to Health : the Evolution of Water and Sanitation Programmes in Bangladesh, India and Nigeria.** - New York, NY, USA : UNICEF. - 133 p
ISBN 92-806-0051-6
Price: US\$ 17.00 (Sales No. E.90.XX.USA.5)

Case histories of UNICEF-assisted rural water supply and sanitation programmes in Bangladesh, India and Nigeria are presented. Each case history is written in an evolutionary format, placing key events in the different contexts - technological, management, social - in a chronological order. A cross-comparison between the three countries reveals a model of evolution in which five key stages appear:

- 1 The identification of the appropriate technology
- 2 The building of human and institutional capacities
- 3 The transfer of technology to local manufacture and supply
- 4 The development of mechanisms for community participation
- 5 The growth of a consumer-driven service

Available from:
UNICEF
3 UN Plaza
New York, N.Y. 10017, USA

- » ESCAP (1989). **Guidelines for the Preparation of National Master Water Plans.** - New York, NY, USA : United Nations. - 163 p. - (Water Resources Series no. 65) ISBN 92-1-119549-7
Price: US\$ 19.00 (UN Sales No. E.89.II.F.17)

This publication is presented in four parts. Part 1 consists of guidelines for the preparation of national water master plans adopted at an Expert Group Meeting held at Bangkok, Thailand from 8 to 12 May 1989. The annexes in part one contain several useful tables on water quality guidelines and water demand for domestic, industrial and agricultural (crops and livestock) water use. Part two comprises selected papers from several ESCAP countries. Part three is the report of the Expert Group Meeting. The final part consists of a manual for planning, design, operation and maintenance of irrigation systems.

Available from: booksellers
or direct from United Nations Publications
Sales Section
Palais des Nations
CH-1211 Geneva 10
Switzerland or
United Nations Publications, Sales Section
Room DC2-0853
New York, N.Y. 10017, USA

- » Lauria, Donald T. (1990). **Strategy for Planning Peri-Urban Water Systems : a Case Study From Guatemala.** - Arlington, VA, USA : Water and Sanitation for Health Project. - 55 p. - (WASH Field Report no. 310)
Price: Free of charge

A field study was carried out in a peri-urban community of squatters called Tierra Nueva, adjacent to Guatemala City, which is served by private water vendors. The objective of the study was to devise a strategy for planning an improved piped system which would produce the same revenue presently collected by the vendors. The author argues that users would most likely accept the improved system if level of service, water rates, method of payment, and water quality were comparable to those in the existing system of water vendors. This assumption then favours a metered system based on yard taps for which no connection fee should be charged. Problems relating to the frequency of revenue collection and price selection are also discussed.

Available from: WASH Operation Center
1611 N. Kent St., Room 1001
Arlington, VA 22209-2111
USA tel: +1-703-243 8200
fax: +1-703-525 9137
telex: WUI 64552

Layout change

In our next issue we are changing the layout of this newsletter. The first obvious change is the mast head on the front page which was linked to the just finished International Drinking Water Supply and Sanitation Decade. Other changes concern headings, the use of more white and where and when possible, the use of illustrations.

Chief Editor:	Dick de Jong
Editor:	Nicolette Wildeboer
with contributions from:	Cor Dictvorst

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MOZAMBIQUE OPTS FOR COMMUNITY MANAGEMENT AND COST RECOVERY

From Maputo, Manuel Alvarinho, head of the Water Supply and Sanitation Department of the Mozambican National Directorate for Water Affairs, reports that Mozambique has taken an important step forwards in tackling cost recovery and community participation in both urban and rural water supply programmes.

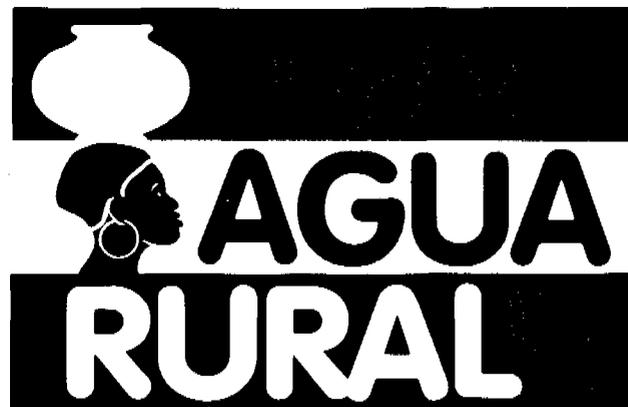
Improved institutional arrangements were the key subject of a week long national conference organized by the Direcção Nacional de Aguas (DNA), the Mozambican National Directorate for Water Affairs, with about 100 participants of central and provincial agencies and authorities. The meeting was held in Maputo from 2 to 9 February and was the first where urban and rural water supply were discussed together. Previously they were treated in separate meetings.

The meeting agreed that at all levels users will be more involved in management, operation and maintenance of their water schemes. "The Economic Rehabilitation Programme is pressing to reduce public expenditures and therefore forces DNA to deal urgently with cost recovery issues", stated the Minister of Construction and Water, Mr. Joo Salomo, when closing the conference. He stressed the importance of social justice: the maximum level of contributions which are

reasonable for the poorest social layers should be determined, and studies should be carried out on possible mechanisms of cross-subsidies.

Water supply to the fast growing peri-urban areas of the main towns will be improved by construction of new public standposts. The water supply companies will hand over the management of these and existing standposts to private persons or - if they have proven their organizational capacity - to neighbourhood committees. A contract will be signed between the water supply company and the licensee, defining responsibilities concerning operation and maintenance, and the price to be charged to the users. The contract has to be approved by the local authorities. A water meter will be installed so that the licensee can be charged by the water company according to the volume of water supplied.

Integrating the tariff for public standposts in the existing tariff structure for urban water supply requires an increase of the minimum tariff for house connections. If this is not done the price for a volume of water supplied by standposts would be higher than the same volume supplied from a house connection. The National Directorate for Water Affairs, together with the water supply companies, will design an adequate tariff structure.



Management of the water supply systems of smaller towns like district centers, will be the responsibility of the local government. Operation and maintenance costs will be funded through user charges. Functioning of the water supply systems will be the responsibility of the local authorities, but they can ask the water sector for help, such as for technical assistance, funding of systems' upgrading or extension, and training of operators and financial staff.

Investments (donor- and government funds) will be concentrated on systems where functioning is well assured, a.o. through consultation in advance of the users about their willingness to contribute to operation and maintenance costs. For extension of systems priority will be given to public standposts serving people in the fast growing new neighbourhoods around the old centres that often date from colonial times and where mainly house connections exist.

Village water supply

For village water supply the manufacture of AFRIDEV handpumps (direct-action and lever pumps) by a Maputo-based private enterprise will be started soon. So far this factory produced the India Mark II pump for the Mozambican National Rural Water Supply Programme, with a production rate of over 1100 new wells and boreholes in 1990. In the meeting it was decided to change because the AFRIDEV is more suitable for maintenance and repair at village level.

The first of the AFRIDEV pumps will be installed this year in pilot areas in each of the ten provinces. The installation will be accompanied by an extended community participation and education programme, preparing the user-community for the management of their water point. The users will elect a management committee for each waterpoint. This will be trained in handpump repair and - if required - in bookkeeping.

A handpump spare parts distribution system will be established through local stores. The spare parts will be bought by the user communities through the management committees. In subsequent stages it is likely that also the costs of installation and repair teams (a.o. for repairs of the concrete structure) and of replacement of pumps will have to be paid for by the users.

The meeting stressed the importance of the Water Sector's Training Centre. Recent extensions and installation of hydraulics and chemical laboratories are important improvements for practical training.

Scholarships made available by various donor organizations will enable the training of more staff of water supply companies and of the rural water supply programme.

AQUA PLUS UPDATE

UNICEF's Supply Division has produced an updated pricelist for the Aqua Plus guidelist, which assists in the ordering of equipment for appropriate technology for water supply and sanitation in developing countries. This guidelist was published in 1988 and is distributed for clients outside the UN by IRC. Aqua Plus and the new pricelist are a useful tool for project managers in the field who have to plan, budget and order equipment.

Dr. Paul Bayer of the UNICEF Supply Division, who is the author of Aqua Plus, was recently in The Hague to discuss the distribution of the guidelist. The Division underwent a reorganization, and Mr. Bayer is now heading the procurement section of 65 staff basically grouped according to UNICEF's main areas of work: water and sanitation, headed by Mr H.H. Schjerven; basic education, headed by Mr. M.W. Irmer; health and nutrition, headed by Mr. V. Srdanovic, and transport headed by Mr. B. Clear. Mr. H. Dahl is the new head of procurement services.

Aqua Plus and the new price list can be ordered by United Nations staff for US\$ 55 from : UNICEF Supply Division, UNICEF Plads, Freeport, DK2100 Copenhagen, Denmark.

Non-UN clients can order their copy for US\$ 110 (including surface mailing only, for airmailing US\$ 40 will be added) from IRC Publications Department.

CONCERN FOR WATER POLLUTION SCORES HIGH IN OPINION SURVEY

An opinion survey covering 16 countries done for the United Nations Environment Programme revealed widespread concern about environmental deterioration. The public in 12 countries listed the pollution of drinking water or that of lakes and rivers as one of their two major environmental worries. Large majorities in every country, ranging from 90% in Mexico to 62% in Zimbabwe would prefer to have lower standards of living with fewer health risks than higher standards of



**Third International Seminar on
Management of Information
Related to Water and the Environment**



**organized in the framework of the UNESCO International Hydrological Programme
(UNESCO - IHP)**

**in collaboration with
the Belgian National Committee for the International Hydrological Programme
(BNCIHP)**

at the Royal Museum for Central-Africa Tervuren near Brussels, Belgium

**on 14 - 15 November 1991
(Attendance free of charge)**

The UNESCO International Hydrological Programme (IHP) Phase IV Working Group for the projects M 2.1 and M 2.2 is dealing with water-related information in a broad sense and concentrates on:

- Promoting, explaining, and using internationally available bibliographic data bases related to water and the environment. This includes the use of data bases on CD-ROM (Compact Disk Read Only Memory) and by online access.
- Guiding those who are planning to set up their own (national) water-related information systems, perhaps in a later stage to be connected with international information systems. The use of Micro-CDS/ISIS software plays a major role here, including the handling of factual data bases.

UNESCO-IHP offers a series of seminars to inform and/or train end-users or intermediaries, and to exchange information among people in the field of water and the environment. Previous seminars were organized in London, UK (1989), and in Dubrovnik, YU (1990).

This seminar will take place in the period that the course :
Management of Information in Science and Technology (MIST)
takes place in Brussels. This assures the presence of about 15 trainees from various countries.

Organizers:

W.W. de Mes (Rapporteur to UNESCO-IHP);
P. Nieuwenhuysen (Chief Rapporteur to UNESCO-IHP, VUB Free University of Brussels);
F. Provost (Rapporteur to UNESCO-IHP, VUB Free University of Brussels)

Secretariat Seminar

W.W. de Mes
Rapporteur UNESCO-IHP
Loevestein 27
2403 JC Alphen a/d Rijn
The Netherlands

Tel Office: 31 2510-95415
Tel Home: 31 1720-45223
Telefax: 31 1720-74935

Questions can also be sent to Paul Nieuwenhuysen by e-mail : Internet address:
PNIEUWEN@RC1.VUB.AC.BE

Preliminary programme

Lectures

- Information is important
(A. Aureli, UNESCO - Water Sciences Division)
- UNESCO and information related to water and the environment
(P. Nieuwenhuysen, Free University of Brussels)
- Retrieval from internationally available water-related data bases
(W.W. de Mes, Rapporteur to UNESCO-IHP)
- Urban Drainage Bibliographic Data base under CDS/ISIS
(M. Sicevic, Jaroslav Cerni Institute, Belgrade)
- Information services to external users provided by the Free University Brussels (VUB)
(F. Provost and P. Nieuwenhuysen, Free University of Brussels)
- Micro CDS/ISIS to manage water-related bibliographic information
(P. Vanouplines and P. Nieuwenhuysen, Free University of Brussels)
- Conversion of data for import in Micro CDS/ISIS data bases
(H. Besemer, PUDOC Wageningen, and P. Nieuwenhuysen)
- A regional water-related information network in Eastern Africa: the RECOSCIX-WIO project
(L. Egghe, Limburgs Universitair Centrum and P. Pissierssens, Mombasa, Kenya)
- Information management in water supply and sanitation: an overview of recent experiences
(H. Heynen, IRC International water and Sanitation Centre, The Hague, The Netherlands)
- The design and development of a new National Water Information System (NIWIS-II) for the
U.S. Geological Survey Water Resources Division
(S. Siwiec and S. Hammond, U.S. Geological Survey Water Resources Division)
- Factual data bases under CDS/ISIS
(M. Fernandez, Royal Museum for Central Africa, Tervuren, Belgium)
- [Title to be announced later]
(G. Naber, Head librarian of the International Institute for Land Reclamation and
Improvement, The Netherlands)

Posters

Product presentations

Hands-on practice (for instance Georef on CD-ROM,...)

ANSWER FORM

- * I am interested in attending the Seminar in Brussels and wish to receive a later announcement and registration form
- * I propose to contribute a lecture on the following theme and will send an abstract:
- * I propose to contribute a poster on the following theme:
- * I propose to present our product:

Name:

Title:

Address:

Telephone/FAX/E-mail:

Country:

Organization:

living with greater health risks, World Health Forum Volume II 1990 reported.

Louis Harris and Associates conducted an opinion survey in 1988-89 for UNEP of 8325 adults in Argentina, Brazil, China, the Federal Republic of Germany, Hungary, India, Norway, Saudi Arabia, Senegal, the USA and Zimbabwe. This was the first survey in which environmental attitudes of the public and leaders in various parts of the world had been measured and compared using the same questionnaire.

Top scoring countries listing water pollution as problem number 1 are China 96%, Argentina 95%, and India, Japan and Hungary with 92%. In the African countries issues related to land and desertification topped the list of environmental concerns. In Kenya the 77% score for water pollution was number four on the list of ten environmental problems. In Nigeria, water pollution was second with 73%, in Senegal fourth with 75%, and in Zimbabwe third with 69%.

Other important findings of the study were:

- * man, not nature, was almost universally seen as the cause of environmental problems;
- * industrial activity and government failure or inertia were seen as the most important causes of environmental degradation;
- * most people, although pessimistic, were not fatalistic; they believed that environmental degradation could be contained or reversed if governments worked together and gave people all the facts;
- * women were generally somewhat more aware of, or more concerned about, environmental degradation than men; they were also generally more critical of the failures of government to protect the environment.
- * A limitation of the study was that surveys were only held in major metropolitan areas and urban centres. It would be interesting to find out how village people would rank their environmental concerns at household level. If anyone has information on this IRC would be interested to receive details. We are currently doing a literature review on perception of water supply and sanitation.

For more information contact:
Louis Harris and Associates, Inc.
630 Fifth Avenue
New York, NY 10111
USA

CALL FOR CO-OPERATION IN FIELD TESTING WASTEWATER FILTERS

The WHO Technical Report No.778 (WHO Geneva 1989) recommends new microbiological guidelines for wastewater use in agriculture. Due to the fact that helminthic diseases have been identified as the main actual public health risk associated with wastewater irrigation in those areas where helminthic diseases are endemic, a strict guideline is recommended, i.e. equal or less than one intestinal nematode egg/l wastewater. Stabilization ponds with a retention time of 8-10 days are particularly effective in helminth eggs reduction. However, conventional wastewater treatment systems such as activated sludge and trickling filter plants are not able to meet this guideline. Tertiary treatment is therefore required to upgrade the effluent of conventional wastewater treatment plants.

The roughing filter tests carried out in the laboratory by the International Reference Centre for Waste Disposal (IRCWD) proved to have a high helminth eggs removal efficiency. IRCWD now intends to field test roughing filters at conventional wastewater treatment plants in areas where helminthic diseases are endemic. Institutions interested in a respective co-operation are kindly invited to contact

IRCWD
Ueberlandstr. 133
CH-8600 Duebendorf
Switzerland
Tel.:1-823 50 19
Fax.:1-823 50 28

IRC TITLES TRANSLATED

Two joint translations of IRC titles in the Technical Paper Series have seen the light of day recently. They concern "Pompes a Main" the French version of "Handpumps, issues and concepts in rural water supply programmes" (TP 25), and "Fuentes renovables de energia para sistemas de abastecimiento de agua", the

Spanish version of "Renewable energy sources for rural water supply" (TP23).

The International Development Research Centre (IDRC) and IRC jointly produced the French translation of the handpump book. IDRC contracted IRC to mail 400 copies to a selection of their contacts. Copies of this title can be ordered from IRC at US\$ 24.00 per copy.

IRC contracted out translation, production and distribution of the title on renewable energy sources to agencies in Latin America. The Centro Inter-Regional de Abastecimiento y Remocion de Agua (CINARA), Colombia, did the translation and organized the printing. The Environmental Health Programme of the Pan American Health Organization decided to incorporate this title in their Textbook Programme. Under this programme key titles on health and environment are selected for cheap production in Spanish for the Latin American market.

PAHO purchased 1.000 copies of this IRC title, which will find an outlet in all the countries in the region, at a low price. CINARA sells the translation in Colombia. They can be reached as follows:

CINARA	PAHO
A.A. 25360	Textbook and Instructional Material
Cali	525 Twenty-Third Street, N.W.
Colombia	Washington D.C. 20037
	U.S.A.

SOLAR PHOTOVOLTAIC PRODUCTS: A GUIDE FOR DEVELOPMENT WORKERS

Revised edition; by Anthony Derrick, Catherine Francis and Varis Bokalders. Intermediate Technology Publications Ltd, London, UK, 127 pp.

Photovoltaics is a mature technology which has already proven its reliability in several small-scale applications in developing countries such as water pumping, refrigeration, lighting and telecommunications. The proliferation of this technology has created a need for accurate, reliable and objective information among field

workers who seldom have time to grasp the intricacies of all the various gadgets offered to them by manufacturers and agents. Photovoltaics differs from several other renewable energy technologies in that it has already been proven under widely varying circumstances, and that a major bottleneck to its dissemination is not connected to the technology, but rather to the lack of availability of reliable information on its operation, cost and range of applications.

In 1988, under sponsorship from the Swedish Missionary Council Office for International Development Cooperation, IT Power and the Stockholm Environment Institute produced a guide to photovoltaic products, to be used by individual and institutional purchaser in developing countries. The guide received good reviews, and the first 1500 sold out.

A new, revised guide has thus been produced with up-to-date performance and cost information of products from leading photovoltaic system suppliers. The addresses of 140 PV suppliers around the world are given. The main purpose of the guide is to provide assistance in selecting photovoltaic systems for water pumping, water treatment, lighting, refrigeration, communications and various other small-scale applications.

The revised edition guide costs £12.50 excl. postage. Please add 20% for surface mail in Europe and the UK, and 25% for airmail. In the Far East, Australasia and the Pacific, please add 40%. The guide can be ordered from:

IT Publications
103-105 Southampton Row
London, WC1B 4HH
UK

Chief Editor	Dick de Jong
Editor:	Nicolette Wildeboer
Layout	Irene van Dieten
with contributions from:	Dick de Jong
	Hans Schoolkate
	Nicolette Wildeboer

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PARTNERSHIP PROPOSED TO RETARD INVESTMENT LOSS

In spite of repeated statements resulting from international meetings and a general recognition of the need to improve the operation and maintenance of existing and planned water supply and sanitation systems, progress in establishing viable and successful operation and maintenance systems is discouragingly slow. Both in the rural and urban areas more than 50% of the existing systems are unreliable, not sustainable or inefficient as a result of poor operation and maintenance. Large quantities of potable water are being lost where water resources are getting more scarce and large populations have no access to safe water supply services. This problem was discussed in an advisory committee meeting organized by WHO with the assistance of GTZ, which took place in February 1991 in Geneva.

The purpose of the meeting was to continue the initiatives of the Working Group Meeting on Operation and Maintenance held in Geneva in June 1990, which was attended by water and sanitation specialists from 25 different countries, and to develop a number of proposals for concrete activities aimed to address the above urgent O&M problems.

A coordinated effort to improve O&M is indispensable to achieve sector goals. New investments do not seem justified if the O&M issue is not dealt with, and if the sustainability of existing systems is not guaranteed before investing in and constructing new systems, which

in their turn will rapidly deteriorate. External support agencies and national governments have long been partners in planning and implementing water supply and sanitation programmes. In a similar way, ESAs and national governments have to form a partnership to retard the major losses in investment which are occurring as a result of inadequate operation and maintenance. It must therefore be recognized that O&M should be addressed by ESAs and national governments together, and that O&M cannot be considered the sole responsibility of national governments.

The Geneva Working Group Meeting in 1990 recommended a comprehensive set of activities to be undertaken to address operation and maintenance at policy level, and to develop coherent strategies to ensure sustainability including institutional, technical, and environmental aspects of operation and maintenance. The advisory committee developed five priority project proposals including the preparation of a global position paper on O&M, development of tools to assess the operation and maintenance status of water supply and sanitation systems, the assessment of needs and resources for training and human resource development in operation and maintenance, the development of implementation strategies for operations and maintenance in rural and urban water supply programmes, and the development of guidelines for improving operation and maintenance in the water supply and sanitation sector.

Global position paper

The urgent need for an improvement in O&M performance has not received the recognition it deserves. For most governments and ESAs it is politically advantageous to stress expanded coverage, even if existing systems are deteriorating and not being replaced. It is therefore essential that decision makers gain full understanding of the major benefits to be obtained from good operation and maintenance performance, and the substantial costs of inadequate O&M. The activity will therefore aim to inform and sensitize decision makers in the sector and to make them aware of the very real financial, social and political benefits which will result from an improvement in operation and maintenance. To add the element of



public information and awareness raising, the proposed activities include the development of a series of eye-catching and arresting posters which will draw attention to and emphasize the need for operation and maintenance. These posters would be distributed widely throughout the world.

Tools to assess the operation and maintenance status of water supply and sanitation systems

Very inadequate information is available on the operation and maintenance situation in both urban and rural areas. Attempts have been made to review operation and maintenance in several areas of the world but the quality and quantity of available information do often not allow the assessment of the O&M status on different levels. A main cause is that local planners and managers do not have the tools and methodology to collect the information systematically and make it available in an accessible form. The activity therefore aims to provide sector professionals with the methodology and tools to generate reliable information for assessment of O&M status at various levels, identify constraints and needs, plan O&M programmes and monitor progress in O&M improvement. The project would include a preliminary desk study to review approaches to O&M management and identify standards for O&M performance. After this study indicators and parameters would be developed and checklists and questionnaires elaborated allowing rapid comparative analysis. The elaborated assessment procedure would be applied on a limited scale for testing before disseminating the tools on a wider scale.

Assessment of needs and resources for training in operation and maintenance

There are many institutions in both the developing and the developed world which provide training in water and sanitation. In addition there has been a trend to develop courses in developing countries to be given to match a particular situation. Unfortunately many of these training resources are not widely known or publicized. The activity involves an assessment of human resource development needs relating to operation and maintenance, and identification of the training resources available.

Developing implementation strategies for O&M in rural and urban water supply programmes

This activity would involve the selection of a number of ongoing projects for which strategies to improve operation and maintenance would be developed,

experimented with and monitored. The projects would be selected after discussions with interested ESAs and national governments. The process would result in a number of case studies describing the most successful and workable strategies.

Developing guidelines for improving operation and maintenance in the water supply and sanitation sector

Many engineering designs are at the root of O&M problems. Management systems often fail to provide the necessary guidance for operation and maintenance. In order to provide guidance to engineers and managers a series of reports is proposed to be written concerning design and management of urban and rural water supply and sanitation systems.

WHO has expressed its willingness to continue to act as focal institution to promote and coordinate efforts to gain priority for operation and maintenance. It requested the advisory committee members, including IRC, to identify external support agencies and national institutions which would potentially be interested in the implementation of the above activities. Once executing agencies, technical support and potential funders have been identified, WHO will contact them to inquire about their interest in participating in the financing or executing of specific projects for which outline proposals have already been prepared by the advisory committee. Reactions to this article are therefore welcome. Please contact Teun Bastemeijer of IRC or José Hueb of WHO, Div. of Environmental Health, CWSS Dept., 1211 Geneva 27, Switzerland

ROYAL DECORATION FOR DIRECTOR IRC

"Since 1970 you have made a large contribution to the creation of an information structure on drinking water supply and later also on sanitation in developing countries..."

These words were spoken by J.G.M. Alders, Dutch Minister of Housing, Physical Planning and Environment on behalf of Her Majesty the Queen, on 29 April 1991, when IRC's Director Mr. J.M.G. van Damme was named Officer in the Order of Orange Nassau, a Royal Decoration given for outstanding service and achievement.

"Through this information structure, essential support is given to activities towards providing dependable water supplies to those in developing countries who are lacking even the most basic water and sanitation



The Dutch Minister of Housing, Physical Planning and Environment congratulates IRC's Director J.M.G. van Damme with his decoration.

facilities," continued the Minister. "This is clearly seen, for example, in the large part IRC plays in information exchange regarding the use of low-maintenance handpumps all over the world. Due to your inexhaustible energy and contagious enthusiasm the understanding of the importance of good information, provided in a way that it meets the needs of the poor countries, has grown immensely.

Aside from this, but also because of this, you have made IRC an institute that is recognized by important international organizations working in the water and sanitation sector in developing countries such as the WHO, UNICEF and the World Bank, as a trendsetter in the area of information exchange throughout the world.

For this reason, among others, IRC has, under your leadership, become an organization of some 30 staff members, who are confronted with an increasing stream of contracts from all over the world. The role that IRC has assumed in developing countries under your leadership contributes significantly to the good name, particularly in the area of water supply, that the Netherlands has worldwide...

It is an honour to present you with a Royal Decoration for your achievements."

"This ribbon is 30 ribbons," Mr. van Damme told his staff. "This was a reward for efforts in which we all worked together, and to which you all have given your energy and creativity as participants in an organization which serves others."

UNIQUE OXFORD WORKSHOP ON HYGIENE BEHAVIOUR

"Studying behaviour can become a routine part of water and sanitation programmes. If done in a participatory way, it can help to empower the target communities in improving their own health, on their terms. That will, in turn, lead to real sustainability." This comment came from Dr. Sandy Cairncross of the London School of Health and Tropical Medicine at the outcome of the week-long workshop on the measurement of hygiene behaviour which took place in Oxford in April.

Professor Gilbert White mentioned that the workshop was "revolutionary", as it was the first one to state so clearly that human behaviour is an essential part of improving human health through water supply and sanitation. The workshop brought together 44

participants, mainly anthropologists and epidemiologists from 23 countries.

The workshop highlighted major developments in programmatic approaches that have occurred in the eight years since a similar workshop was held in Bangladesh. The research emphasis discussed shifted dramatically from strictly quantitative approaches to a blend of qualitative and quantitative measures of hygiene behaviour. The study of hygiene behaviour does not have to be a lengthy activity. Studies of weeks rather than months suffice to be useful at programme level.

During the workshop much attention was paid to participatory research versus academic research carried out by outsiders. Community participation and local

level empowerment also emerged as important concepts in relation to the organization of data gathering and programmatic activity. Five domains were identified on which analysis should concentrate:

- * water sources,
- * water use in the home and personal hygiene,
- * faeces and defecation,
- * food, its preparation and storage
- * household cleanliness including control of animals.

Both people's behaviour in terms of their own perceptions of its meaning and purpose, and the researchers' concepts and perceptions of its public health significance need to be analyzed.

Major outcomes of the workshop will include:

- 1 A book with guidelines on the study of hygiene behaviour to be produced by IRC.
- 2 Training-workshop material to accompany the guidelines, to be produced by WASH.

A book with all the papers submitted to the workshop will be published separately in India.

For more information write to:

London School of Hygiene and Tropical Medicine
Sandy Cairncross
Keppel Street
London WC1E 7HT
United Kingdom

IRC's TRAINING COURSES and BRIEFING PROGRAMMES

This is to remind you that IRC continues to organize briefing programmes for staff working in water supply and sanitation on a regular basis. These programmes can be tailored to individual needs. Please contact IRC for possible dates, cost, and additional information.

For interested readers we enclose two application forms for the special courses, which IRC organizes

ERRATUM

In our article "Happiness Water for Women - China" in the IRC Newsletter No. 198 of January 1991, Mr. Paul Guo has been described as "director of the Western Pacific Region of the World Health Organization". Please note that he is the director of the WHO Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS).

together with two international training institutes in the Netherlands. They are:

- * Water supply and Environmental Sanitation for Low-income Urban Communities: 2 - 20 September with the Institute for Housing and Urban Development Studies (IHS) and;
- * Management for Sustainability in Water Supply and Sanitation Programmes: 14 October - 1 November with the Management for Development Foundation (MDF).

The course fee for each course is US\$ 3,000. Hotel and personal expenditures are estimated at US\$ 2,500 for three weeks. IRC does not have a budget to sponsor participants. So far most participants have been sponsored by external support agencies (multilateral organizations and bilateral donors) or have been able to pay the course from a training budget within their institution or programme.

For more information contact IRC's Training Section.

IHS Course on Housing, Planning and Building

Another course dealing with low-income urban populations is also being offered by IHS. The 59th and 60th International Courses on Housing, Planning and Building will take place from 16 January to 5 June 1992 and 6 August to 18 December 1992 respectively. The five-month courses, conducted in English, are designed to assist professionals from developing countries in assessing housing policies and in increasing their capabilities to deal effectively with housing programmes and projects. Candidates should have professional experience and be engaged in work related to the field of low-income housing, should have a bachelor degree, and should have proficiency in English.

Closing dates for registration for the two courses are 1 Sept. 1991 and 15 March 1992 respectively.

Further information and IHS application forms can be obtained from the Registrar,

IHS
P.O. Box 1935
3000 BX Rotterdam
The Netherlands.

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LEARNING FROM EXPERIENCES IN KERALA

In the southern state of Kerala in India interesting experiences from one district, on community latrines for instance, influence the decision in another district. This is the result of quarterly meetings of the Socio-Economic Units which function in the Dutch-Danish supported Water and Sanitation Project in the North, Central and Southern parts of the state. Established in 1987/88, these units attached to the Kerala Water Authority benefit approximately 21 million people in mainly rural areas.

Various staff members of these units have followed the Management for Sustainability course which IRC provides twice a year together with the Management for Development Foundation. In April 1991 we had a chance to talk to Ms. Elizabeth Zachariah, who heads the Socio-Economic Unit in Calicut in the Northern Region.

"We can use each other's experiences, even though the districts are culturally and socially different," Ms. Zachariah says. "I can give two examples for that. In one of the districts women masons were trained for constructing twin pit pour-flush latrines. The approach taken in this process was worth exploring also for our district. When I planned to introduce women's training to make them masons I soon found out the cultural and social resistance to this. The predominantly Muslim men would not allow their women to leave their houses. Moreover, the powerful local contractors who employ male masons, objected and also would not employ

women masons. So, we had to drop the idea at this stage."

The experience in Ms. Zachariah's project with community latrines did not work out as earlier expected by everybody. This experience contributed to the decision in one of the other units to rethink the planned community latrine programme. She also reports that in the South, street drama is effectively used in mobilization and hygiene education at village level. "In the North this does not go down well, so we have to use different media." Because of our shared experiences in the Sanitation programmes, we have succeeded in demonstrating a possible, sustainable and replicable programme in Kerala.

The Knowledge Attitudes and Practice (KAP) study which Ms. Zachariah did before starting the project provided, besides other things, an insight into which media were popular with village people. Film and television were most popular with men, radio and increasingly television scored best with women. The Socio-Economic Units have just completed the field testing of a school book prepared by The Northern Unit for fifth graders explaining the inter-relationship between water, sanitation, health and waste disposal. Teachers' and pupils' views were tapped. Among the spin-offs of this exercise are simple colourful cards and name slips for the pupils, containing key messages.

Ms. Zachariah reports good collaboration on the health education side with the Health Department at district and Panchayat level. "In the past this used to be difficult, but now health inspectors join the effort by introducing new health programmes in schools and taking local health education classes. The communication between the engineers and the sociologists is also improving," she continues. Engineers increasingly see the benefits of involving communities in finding the best locations for public standposts, and involving the communities in simple operation and maintenance. On the other hand the technical staff of the Kerala Water Authority still find it difficult to accept delay in technical solutions caused because of community mobilization and participation.

Both the Danish International Development Agency (DANIDA) and the Netherlands Directorate-General



for International Co-operation (DGIS) have insisted that they wanted to fund integrated water supply and sanitation programmes. They share funding of these Socio-Economic Units, which are essential to sustainability of these programmes.

There is a co-ordination group in Kerala Water Authority comprising senior KWA staff, staff of the Socio Economic Units and the two donors. This group reviews progress of hardware and software activities and provides backup support for carrying out field activities. In their July 1990 meeting the group approved minimum criteria for site selection proposed by the Socio Economic Units in all the bilateral schemes. These criteria include: between 15 and 40 households per public tap, with maximum walking distance to standposts of 200 to 250 metres. Due to the active involvement, participation, increased commitment and motivation of the local people, KWA and Panchayats in the selection process, all the parties are satisfied about this approach.

As such, the co-operation of the Danes and the Dutch in Kerala is one of the few practical examples of effective donor co-ordination at country level.

NO EASY ROAD TO COMMUNITY MANAGEMENT IN TANZANIA

Making the move to community management of rural water supply and sanitation services is no easy road, as those involved in a major sector programme in Tanzania are currently finding out.

In common with many other programmes in Africa and elsewhere, progress in Rukwa region in western Tanzania has been hampered by the failure to develop an approach ensuring the long-term sustainability of improved schemes. A "blueprint" strategy, based on an elaborate and detailed Master Plan, has failed to live up to expectations, and a change of approach has been required. During the past year or two, attempts have been made to turn the programme on its head and change a top-down, supply-driven model into a sustainable, demand-driven approach, based on community management. Community financing is to play a central role, in line with recent national moves away from a "free water" policy.

Moving to community management involves far more than simply "handing over" schemes to communities, and expecting them to take on long-term management

and financing responsibilities, as a recent review of the programme, supported by the Norwegian Agency for Development Cooperation (NORAD), has underlined.

Important groundwork has already been laid by concentrating on simpler, lower-cost technologies. Boreholes, shallow wells, and protected springs are becoming a more common sight, as unsustainable and expensive motorised systems are phased out. Initial evidence suggests that communities are able, and probably willing, to pay the relatively modest maintenance costs of these systems, provided that a secure water supply can be assured. Many more changes are required, however. Among the most important highlighted by the review were:

- * the raising of construction standards, to protect communities from extra costs caused by poor workmanship
- * the development of effective approaches to human resource development to support the strengthening of local management and problem-solving capacities in communities
- * the handing over of greater control and decision-making to communities themselves, and women in particular, in selecting technologies, service levels, and management systems
- * the development of effective, appropriate, community-oriented, monitoring and information management systems, with greater emphasis on identifying long-term financial implications and spare parts requirements
- * greater integration of community development activities in the water sector with other community-based development work, linked with the establishment of long-term back-stopping and advisory support services to communities
- * maximum decentralization of planning and implementation, to bring programme activities as close to the people as possible
- * greater use of the private sector for implementation, supply, and maintenance work.

NEW PUBLICATIONS

PARTNERS FOR PROGRESS: AN APPROACH TO SUSTAINABLE PIPED WATER SUPPLIES

Published by IRC as No. 28 in the Technical Paper Series, this book focuses on programmes involving piped supplies for rural or urban fringe communities. In doing so, it recognizes that piped supplies are appropriate for only some of those in need of new

water supplies. In many cases, the financial or technical commitments needed to keep a piped water supply functioning will be beyond the reach of target communities and supporting agencies. Boreholes equipped with handpumps or improved dug wells may then be a more appropriate solution. Often, the right solution will be a mix of technologies, with provision for progressive upgrading as the community gains experience of new systems and reaps the health and economic benefits of improved supplies.

Not only should the provision of safe, convenient water facilitate health and socio-economic benefits, but the community organization needed to make the water system successful can provide a starting point for many other development activities.

To develop and promote some of these concepts, funds from the Netherlands Directorate-General for International Co-operation (DGIS) were utilized by IRC to support the development of community-based water supply and sanitation methodologies based on public standposts in four developing countries (Malawi, Zambia, Indonesia and Sri Lanka). The Public Standpost Water Supplies (PSWS) demonstration project (1983-1986) promoted maximum involvement of communities in all stages of project development. It also emphasized the need for the government agencies concerned to provide dependable support and to help equip community members for their role in the future running of the systems. A follow-up project (1988-1992) on Piped Supplies for Small Communities (PSSC) in both Malawi and Zambia, aims to develop and apply the community-based approach further, and puts new emphasis on the development of mixed levels of service.

In all four countries, community participation produced good results, including a visibly increased commitment to self-help in water supply and sanitation and other health issues. It is important to recognize that involving whole communities in decision making needs time and patience from both community members and implementing agencies. However, on the basis of the project experiences, it is fair to say that the resulting benefits in user satisfaction and scheme reliability justify the investment in time, effort and flexibility of approach.

The main theme throughout the book is planning and developing sustainable piped water systems in rural and peri-urban areas. Its objectives are both to review and summarize experiences from the PSWS and PSSC projects and projects from other developing countries,

and to translate them into more general project guidelines for the entire project cycle.

The book begins by setting out the principles of this approach, and the lessons learned from previous experience. The phases of the approach are discussed a logical sequence, beginning with the importance of choosing the right technology and service level as key conditions to sustainability.

The basis for the community's management of the resulting system is laid in the project preparation and planning phases, when the partnership approach begins. Both technical and non-technical aspects are discussed, and the way local men and women can take part in informed decision-making and building of local management capacity is described.

A key phase is design and construction. This is addressed with special emphasis on user acceptability and involvement. The proof of sustained functioning and use only comes during the operational phase, which is nowadays correctly receiving increased attention with much progress in the development of community support systems, community-based financing, and monitoring and evaluation of project performance and use. Finally, the authors look at ways programmes can be improved using some of these concepts, including demonstration and exchange of information. An appendix looks at the wider setting and describes some universal sector issues as optional background.

The book is aimed principally at developing country professionals of all disciplines who are involved in planning, implementing or supporting piped supplies projects. It is not intended to be a technical text or one that focuses on any single subject. Instead the book aims to promote the integrated approach, with professionals of many backgrounds working together to assist communities to plan, realise and successfully sustain and benefit from piped water supplies. TP 28 can be ordered from IRC.

DRINKING WATER SOURCE PROTECTION

Drinking water supply systems are affected by and affect water resources, but agriculture and industry are often the main users of water and also the main polluters. Protection of drinking water sources, in particular sources of small and medium-sized community water supplies deserves urgent attention, in view of an increasing number of these systems and the need to ensure their sustainability.

Addressing these problems, IRC has recently published "Drinking Water Source Protection - A review of environmental factors affecting water supplies", no. 15 in the Occasional Paper Series. Although a worldwide water shortage is not expected within the next 150 years, problems already occur at a regional and national scale. In a recent study concerning water resource problems 15 out of 35 countries were facing more or less severe shortages. In most countries water use grows faster than the population. Consequently, the number of countries facing shortages is likely to increase and acute problems are expected to arise more frequently over the coming years.

There are many examples showing the urgent need for protection of drinking water sources and water resource management. In Maharashtra state, India, exploitation of groundwater for sugar production causes village wells to dry up and aquifers to become saline. Processing factories started using water from deep boreholes and the consequent rapid groundwater depletion from 1985 to 1987 resulted in a staggering increase of villages with no permanent source of drinking water from 1,800 to 23,000 as public and private wells ran dry.

In Baluchistan, Pakistan, groundwater levels have been falling in certain valleys at a rate of 26 cm/year since the 1960s as a result of land degradation due to overgrazing and groundwater extraction for irrigation. In Cape Verde, groundwater recharge was seen to double after reforestation with pinus trees, but this experience could not be replicated due to legal and institutional constraints, even though there is shortage of water for irrigation and domestic uses. In Latin America, the Reconquista and Matanza rivers in Argentina, the Choqueyapu-Reni rivers in Bolivia, the Tiete river in Brazil, the Magdalena river in Colombia and many others receive serious levels of toxic industrial pollution due to untreated factory discharge.

This occasional paper presents an overview of available information concerning such problems, analyses their causes and their nature and identifies experiences to solve or control these problems with specific emphasis on drinking water sources for small and medium size water supply systems and on the role of user communities in protecting sources of drinking water. It also identifies priorities in initiating country level activities and suggests ways to deal more systematically with the issue of water source protection. It is hoped that this paper will contribute to greater awareness concerning environmental factors affecting water

sources, and will stimulate governments and external support agencies to develop effective strategies to address the issue.

The publication was prepared by IRC consultant Michael Lee and Teun Bastemeijer with financial support from the Drinking Water Department of the Netherlands Ministry of Housing, Physical Planning and Environment (VROM). OP15 can be ordered from IRC.

SANPLAT : THE TWO DOLLAR LATRINE

- * Brandberg, Bjorn (1990). **The SanPlat System : Integrated Implementation of Lowest Cost Sanitation for Public Health Programmes Based on Experiences from Malawi and Mozambique.** - Trollhättan, Sweden : SBI Consulting International. - 45 p. Price: Not quoted

The Sanitation Platform or SanPlat is a small prefabricated concrete slab and drop hole which can be produced locally for less than two US dollars. A SanPlat can be constructed with one bag of cement as compared to five bags required for conventional VIP latrines. Other features include an elevated footrest to reduce fouling, a keyhole-shaped drop hole which makes it safe for children, and a tight-fitting lid to reduce foul smells. This paper has been prepared to promote the SanPlat system which was developed in Mozambique and Malawi. There are several annexes containing construction details as well as a draft training manual for managers of SanPlat production centres.

Available from: SBI-Consulting International AB
Sterlanggatan 110
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MORE COLLABORATION NEEDED TO SOLVE WATER AND SANITATION ISSUES

"This Global Forum showed me that there is an extremely rich potential in the sector. All is there to make water supply and sanitation a higher priority on the political agenda." With these words the newly elected Chairperson of the Water Supply and Sanitation Collaborative Council, Ms Margaret Catley-Carlson, closed the Global Forum held in Oslo from 18 - 20 September.

Developing country participants were for the first time invited to join this meeting of the Council to exchange information and experience on water supply and sanitation issues. After five years as an informal forum of primarily water specialists and donors of the North, the Oslo forum boasted almost 50% representation from the South.

The conference was organized by the Norwegian Agency for Development Cooperation (NORAD), in collaboration with the other Nordic development agencies: SIDA from Sweden, DANIDA from Denmark and FINNIDA from Finland. The Nordic countries have been in the forefront of transforming the Council into a forum in which representatives from the North and the South participate on equal footing.

After three days of discussions in working sessions nearly 140 water and sanitation specialists from 60 countries reached a consensus for continued collaboration, especially at country level. The Council endorsed action on seven key

issues, and accepted actors and supporters who volunteered to push these issues in the next two years.

In the final plenary discussion the following working groups were given the mandate to pursue action:

1. *Country-level collaboration* - promoting and facilitating of this collaboration must remain a top priority for the Council. Canadian CIDA agreed to initiate a new working group on this issue.
2. *Applied research* - a new working group will focus on encouraging new research, identifying priority areas for research and helping developing country institutions to carry out research. The International Reference Centre for Waste Disposal (IRCWD) will take the initiative to form this working group.
3. *Information management* - recommendations were endorsed with respect to country-level capacity building actions. IRC was mandated to continue the existing informal working group as a working group of the Council.
4. *Information, education and communication* - the Council endorsed further elaboration of and support to IEC strategies for intensified action at the global, national and local level. IRC was asked to continue to take the lead.
5. *Gender issues* - a new working group will be formed to collect experiences on application of gender planning concepts in the sector and to assess gender training needs. INSTRAW agreed to organize this group.
6. *Urbanization* - the Council endorsed a recommendation to establish a working group on the increasing problems of urbanization and integrated management of water resources and wastes. Italy, France, Germany and the World Bank agreed to take the initiative.
7. *Operation and maintenance* - the existing informal working group on this issue led by WHO was mandated to continue its work.

Ms. Catley-Carlson would like to see action on these priority issues, and stressed that participation in and contributions to these working groups under the aegis of the Council is open. In various recommendations Council members were urged to raise the necessary resources to support the activities proposed by the working groups. Council participants were also urged to be active in their



respective countries in the preparation for both the Water and Environment Conference in Dublin in January 1992, and the United Nations Conference on Environment and Development in Brazil in 1992 (see below).

The next meeting of the Water Supply and Sanitation Collaborative Council in two years time will review progress on these issues. The Government of Morocco has expressed interest to organize the 1993 Council meeting.

Note from the editor: in the next newsletters we will publish selected items from the wealth of valuable papers and documentation distributed at the Global Forum in Oslo.

New Council staff

In the Oslo Global Forum **Ms. Margaret Catley-Carlson** took over as Chairperson of the Water Supply and Sanitation Collaborative Council from the first-ever Chairman **Mr. Sandy Rotival**. In her first meeting Ms. Catley-Carlson exhibited her experience and motivation to provide the Collaborative Council with strong guidance and leadership.

Ms Catley-Carlson is Deputy Minister, Department of National Welfare, Canada. During her career she served with the Department of External Affairs for the Government of Canada in Sri Lanka and the United Kingdom. In 1979-80 she served as Vice-President of the Canadian International Development Agency (CIDA). In 1981, she served as Deputy Executive Director of UNICEF.

In her (part-time) work as "ambassador" for the sector she will be supported by a new Executive Secretary in the Secretariat of the Council at WHO, **Mr. Ranjith Wirasinha**. On secondment from the Asian Development Bank and with Swiss funding Mr. Wirasinha took over from **Mr. Peter Koenig**, who has now left WHO on secondment to the World Bank in Washington.

Mr Wirasinha has been working at the ADB for the past thirteen years, seven of which as Senior Project Engineer for the Water Supply Division. Prior to joining the Bank he worked with Watson Hawksley, U.K. Consulting Engineers, and with the Department of Water Supply and Drainage, Sri Lanka.

A VOICE FOR AFRICA

The newly established Regional Orientation Committee for Water Supply and Sanitation (ROC) in Abidjan is to act as a voice of the sector in Africa and the champion of the spirit of the African Water Supply and Sanitation Conference held in Abidjan in May 1990. "The ROC hopes to foster efforts across the continent to reverse the negative trends in Africa, to scale up efforts to reach poor people with water and sanitation services, to promote strategies that will ensure sustainability of those services, and thus to contribute to economic development." A fourth objective of the ROC is to ensure the transfer of knowledge by promoting systematic exchange of information, ideas, experience, and lessons learned among countries in the region and between those countries and other organizations interested in the water and sanitation sector.

This declaration delivered at the Oslo Global Forum by Mr. J.G. Cardoso, Secretary of State of the Ministry of Natural Resources and Industry of Guinea Bissau, was welcomed warmly by the participants. The ROC was formed in follow-up of the Abidjan meeting in 1990. It had just held its inaugural meeting in Abidjan on September 9 - 11, which was convened by the African Development Bank with support from the World Bank. Technical assistance for the meeting was provided by WASH, with the support of USAID.

"The spirit of Abidjan, May 1990 was remarkable and the participants believed that the preservation of this spirit would greatly serve the sector as it battled with the enormous challenges that the 1990s would bring." For that reason the Abidjan meeting formally mandated the establishment of the ROC, which has now come into being as a committee representing the broader Abidjan Forum.

The core of the ROC comprises 11 members, 6 sub-regional conveners on a rotating basis, 4 representative African institutions, and External Support Agencies as associate members. The African Development Bank provides the chairperson of the ROC and hosts the Secretariat.

For more information contact:
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Abidjan 01
Cote d'Ivoire

GUIDELINES FOR WATER SUPPLY SURVEILLANCE UNDER REVISION

Recently, some of the worst fears of those involved in drinking water quality have been realised with the massive cholera outbreaks in Latin America and southern Africa and with the rapid spread of the disease following the recent cyclone in Bangladesh.

Infectious diseases transmitted by water are still major infant killers worldwide, and water-based parasites disable several hundred million people each year. Because of this, the control of pathogenic agents in drinking water is the subject of careful scientific investigation. For this purpose the World Health Organization with the Robens Institute of the University of Surrey, UK recently called together an international panel of water chemists, biologists, sanitary engineers and health educators, including IRC's Marieke Boot, to consider the most up-to-date evidence and experiences in the field of drinking water supply surveillance. The World Bank Training Centre for Water and Sanitation at the University of Zimbabwe hosted the meeting, which was held from the 24 - 28 June 1991 and was attended by 20 participants including experts from Africa, Asia, Latin America and Europe, as well as those from international organisations.

The experts discussed revision of the earlier published WHO guidelines for the surveillance of community water supplies. A key recommendation was that microbiological monitoring should always be accompanied by an inspection of the sanitary condition of the water supply in order to prevent contamination rather than detect it once it has already occurred. It was recognised that the community could play an important role in undertaking surveillance activities. New approaches to mitigating the effects of poor water quality through technical interventions were proposed in light of experience gained during the last ten years. The experts recognised that lasting improvements can be made with the active participation of the communities in preventing the contamination of water supplies and of water in the home. This is particularly true for small rural villages and the poor urban communities now mushrooming around many major cities of the developing world.

The World Health Organisation is paving the way for a new realistic approach to improve water quality in the 1990s through the revision of the three volumes of Guidelines for Drinking Water Quality. These books have formed the cornerstone of water quality programmes in

many countries worldwide since their preparation and in their revised form will make a major contribution to confronting the challenge of drinking water quality.

WHO will proceed with the new edition of the guidelines through further toxicological and epidemiological reviews during 1992. While the experts reach their final conclusions, the WHO Collaborating Centre for the Protection of Water Quality and Human Health at the Robens Institute will continue to expand its coverage of country pilot projects to field test the revised surveillance methods for small community supplies. It is hoped that the Training Centre for Water and Sanitation at the University of Zimbabwe will become a new focal point for training and research activities in this field for southern Africa.

WOMEN, WATER, SANITATION JOURNAL

In recent years, many projects have involved women in preparation, implementation and maintenance of new water supply and sanitation facilities. Also, studies on the functions and effects of women's involvement have been carried out.

To ensure that this new information reaches a wide audience, the Norwegian Agency for Development Co-operation, NORAD, asked IRC to continue its bibliographic work on women, water and sanitation. The result is "Women, Water, Sanitation", an annual abstract journal. The first one for 1991 was recently published, 1992 and 1993 versions are to follow.

The journal builds on an earlier comparative study, "Participation of Women in Water Supply and Sanitation: Roles and Realities". This 1985 IRC study reviewed over 800 documents, most of which are written by authors from developing countries and report field experiences and research.

The three abstract journals will be produced in close co-operation with PROWESS, UNDP's project for the Promotion of the Role of Women in Water and Environmental Sanitation Services. Each issue of the journal will contain a state-of-the-art summary and some 50 abstracts of selected books, reports and audio-visual materials.

Subjects to be covered in the three issues include:

- Traditional roles of women in water and waste management, maintenance, community hygiene and local learning systems

- Women's involvement in project preparation and design
- Participation of women in implementation projects: handpumps, piped water systems, protected wells, rainwater harvesting, low-cost water treatment, low-cost sanitation
- Involvement in maintenance: planning, training, work; effects on functioning, costs and status; problems to overcome
- Management of local maintenance, finance, water use and hygiene, environmental aspects
- Training local women for maintenance, management, financing; training field workers to work with women; training policy makers, planners, managers and trainers
- Water use and hygiene: studies, education materials, experiences and results
- Benefits of water and sanitation projects; use of water and time gains; socio-economic impact studies; unwanted side effects of water and sanitation projects on women
- Monitoring water and sanitation projects; role of women in community-based monitoring; monitoring of community participation and involvement of women
- Tools on women's roles: policy papers, checklists, manuals, audio-visual materials
- National donor policies, sector papers
- Bibliographies and reviews

A subscription to three issues of the journal (1991, 1992, 1993) will cost US\$30, including surface mailing and bank costs. For airmail copies, the total subscription fee is US\$35. Single copies will cost US\$17.50.

Special offer: for subscribers to the abstract journal we offer the 1985 Literature review "Participation of Women in Water Supply and Sanitation: Roles and Realities" (TP 22) at US\$ 15 (instead of US\$ 23).

UNICEF TECHNICAL BULLETINS

Since October 1990, the Water and Sanitation Group at UNICEF's Supply Division in Copenhagen has been issuing the quarterly "Water and Engineering, Technical Information Bulletin". The bulletin deals with all aspects of water well supply for developing countries. Each issue also features special topics, as well as information on newly developed products for third world countries.

So far, three titles have been published: no. 001 Hydraulic Fracturing, it works and where to use it; no. 002 Improved equipment for resistivity measuring; no. 003 New Lubrication for down the hole hammer drilling. Subscriptions to Water and Engineering are free of charge and can be obtained by contacting:

Mr. Haavald Schjervén
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Water Supply Section
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UNICEF Plads, Freeport
DK-2100 Copenhagen
DENMARK

IRC BRIEFING PROGRAMMES AND COURSES 1992

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23 March - 12 April

Management for Sustainability in Water Supply and Sanitation Programmes (MDF/IRC)

4 - 22 May and 2 - 20 November

Chief Editor	Dick de Jong
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URBANIZATION: WATER SUPPLY AND SANITATION SECTOR CHALLENGES

Unlicensed abstraction of groundwater from deep wells in parts of eastern Bangkok are mainly to blame for continuing ground subsidence at rates up to 5 cm a year. Over half of the rivers in Central and South America in a recent sample had faecal coliform counts in excess of over 1000 per 100 millilitres. Pollution of the Haungpu River around Shanghai, the city's principal drinking water source, has caused the water transmission main to be moved 40 kilometres upstream at a cost of US\$450 million. In Lima, Peru upstream pollution has increased treatment cost by 30%.

These are only a few examples from the key-note paper presented at the Oslo Global Forum of the Water Supply and Sanitation Collaborative Council by Mr. G.S. Sinnatambi, from the United Nations Centre for Human Settlements (Habitat) about the challenges of urbanization for the sector.

By the year 2000 approximately 40% of the population in developing countries will be living in urban areas and 18 of the 22 cities with a population of more than 10 million people will be in developing countries. The number of

cities with populations over 4 million in developing countries is expected to increase from 22 in 1980 to 50 in 2000 and 114 in 2025. Most of the increase in urban population will be accommodated in slum tenements and squatter communities, the so-called 'informal' settlements. An increasing body of literature indicated that the urban poor are susceptible to heavier burdens of a wider range of diseases, especially water- and waste-related diseases, than not only their urban counterparts but also the rural poor.

Health conditions of the urban poor

Nairobi, Kenya: In the informal settlements of Kibera, prevalence of parasitic worm infection is 40% as compared to none in high-income settlements.

Kabul, Afghanistan: Infant mortality in the old city slum is 1.5 times higher than the rest of the city.

Port au Prince, Haiti: In urban slums the infant mortality rate is almost three times that in rural areas.

Soweto, South Africa: The prevalence of roundworm (ascaris) infection among hostel dwellers in Dube was seven times that in rural areas. The incidence of tuberculosis in Soweto was more than a hundred-fold that among high-income communities.

Singapore: The prevalence of hookworm, roundworm and whipworm among squatters was more than double that found among flat dwellers.

Sao Paulo, Brazil: Infant mortality from enteritis, diarrhoea and pneumonia in the city's peripheral squatter settlements was twice as high as that in the city core.

Kuala Lumpur, Malaysia: Prevalence and intensity of roundworm and whipworm infections among slum children was twice that among rural plantation children.

The challenges facing developing country governments in the management of water resources to achieve continuing and sustainable urban development can be presented as five key issues (see box). By developing and implementing nationally relevant policies to address these issues, governments can help assure that water resources play an optimal part in social and economic development.



Priority issues in urban water resources management include:

Issue no. 1: Access to water, sanitation and waste-disposal services:

- Adequate water, sanitation and refuse-disposal, particularly for the poor
- Bridging the gap between the increasing cost of water and user willingness/ability to pay
- Sustainable services and reliable supplies
- Maximizing health impacts.

Issue No. 2: Depletion and degradation of water resources:

- Preventing surface- and groundwater contamination and depletion
- Reducing environmental impacts
- Providing surface water drainage.

Issue No. 3: Allocation of water resources:

- Balancing competitive uses
- Water demand management
- Pricing policies and instruments
- Industrial water use.

Issue No. 4: Institutional/legal/management aspects:

- Integrated water management
- Effective monitoring, surveillance and enforcement of standards
- Legal, administrative and social constraints on water use
- Regulatory instruments
- Institutional capacity building.

Issue No. 5: Resource mobilization:

- Mobilizing and generating financial resources
- Management and human-resource capacity building
- User participation and involvement
- Economic and fiscal instruments.

Focus on serving the urban poor

In order that water supply and sanitation services can be provided to the urban poor on a sustained basis, a fundamental step is the creation of an enabling environment where governments seek to meet basic requirements of tenurial security, assume responsibilities for providing services that the poor cannot provide for themselves, and facilitate and engender new partnerships with community groups, non-governmental organizations and, where appropriate, the private sector to support government actions. Within such an enabling environment the provision of water supply and sanitation services could serve as the

first step towards upgrading informal settlements, one that is likely to have the most beneficial impact on the living conditions of the poor and the quality of the urban environment as a whole.

Water supply and sanitation services are but two of a range of environmental infrastructure services that the poor need. Some choices will have to be made where community capacity to pay is limited. This might entail a total community development approach to bring communities to a point where the provision of water supply and sanitation becomes their next priority. Under the community development approach, the provision of basic services might well need to be preceded by programmes to generate incomes and provide primary health care in order to meet more fundamental needs such as food and clothing. While access to water supplies features prominently among the needs of the urban poor the need for concomitant sanitation services might require the creating of demand through public education campaigns and the construction of the demonstration units. In general terms, however, experience has shown that with the exception of a few cases of recent migrants, most of the urban poor, when provided an enabling environment, will harness and apply their resources in improving basic services and their own shelter.

Water supply and sanitation services should be provided on the basis of strategic planning. Strategic service planning entails the development of a dynamic service provision programme that is able to take account of community needs and involve a multi-disciplinary team of engineers, behavioural scientists and communication specialists together with financial and economic management specialists. Strategic service planning and delivery embodies the following basic principles:

- (a) **Broad coverage objectives:** The objective is to serve as many people as possible within the planning area with sustainable systems;
- (b) **Use of multiple technologies:** A range of technologies should be used, each one selected to suit particular site conditions and in true response to community preference and affordability. High service standards can be used in cases where they are appropriate and sustainable;
- (c) **Focus on service required:** The priority provision of those services that the communities want, wherever possible, in an integrated manner that will ensure the maximization of both the environmental and health

impacts of service interventions. Implicit in the principle of integrated service provision is decision-making on multi-sectoral cost-benefit analysis and environmental impact assessment and accounting and requisite project communication support;

- (d) **Flexibility:** The plan should be as flexible as possible and capable of adapting to future growth patterns, perceived community needs and requirements. Reliable monitoring, evaluation and feedback processes should be built into the planning process and institutional framework;
- (e) **Upgradability:** The provision of services should permit the progressive upgrading of the systems;
- (f) **Community participation:** The planning, implementation and upkeep of services should be based on community consultation and participation. A gender perspective in targeting such involvement at those intimately affected or interested is essential for success, resource optimization and for ensuring sustainability;
- (g) **"Effective demand" as a prime selection criterion:** The level of service, technology utilized and ways through which services are to be delivered should be selected in response to community preferences and declared commitments and willingness to pay. Informed decision-making based on accurate information and, perhaps, user experience with demonstration units are essential for determining genuine effective demand. The role of communication support in demand stimulation might prove essential before large-scale sanitation programmes can be launched;
- (h) **Sustainability:** Services provided must be both technically and financially sustainable and must be designed and operated with this clear objective in mind. Special emphasis must be placed on supporting and strengthening the anticipated weak links in sustained service provision;
- (i) **Institutional framework:** Strategic service provision will require the close collaboration of many sectoral agencies. The overall responsibility for providing water supply and sanitation to informal settlements should, however, rest with a single agency. Where government authorities are willing to assume this responsibility, the creating of a special unit with existing water and sanitation authorities is usually the most effective. Considerable external support will, however, be needed to develop a cadre of professionals to plan and deliver services embodying the principles of strategic service planning.

Focus on safe waste disposal

In addition to maintaining and better utilizing existing systems and extending services to the urban poor, increasing sector investments will need to be focused on disposing of wastewaters and solid wastes.

Environmentally sound waste management needs, however, to go beyond simply the safe disposal of the wastes that are generated. It should seek to address the root cause of the problem by attempting to change unsustainable patterns of production and consumption. Defined thus, environmentally sound management of solid wastes and sewage presents a unique opportunity to reconcile economic development with environmental protection. Correspondingly, an international framework for waste management has recently been established founded on a hierarchy of policy objectives: first, minimize waste generation; secondly, recycle to the extent possible the waste that cannot be avoided; and thirdly, dispose the non-recyclable fraction of unavoidable wastes in an environmentally safe way. Since current consumption levels are naturally low in most developing countries, some increases will be inevitable as these countries attain basic standards of economic welfare. The focus of waste management programmes must, therefore, be concentrated on waste recycling and reuse and the treatment and safe disposal of the wastes to acceptable environmental quality criteria. The instilling of sound waste management policies and approaches now could help ensure a sustainable urban development process for the future.

Conclusions

The number of poor populations living in urban informal settlements with inadequate access to water supply and sanitation services is growing faster than the present, unprecedented rates of urbanization that most developing countries are experiencing. Unless there is a conscious shift in both government and donor policies to address this problem urgently, the resulting impacts on the urban environment and national development could reach crisis proportions. The creation of an enabling environment and the corresponding provision of basic services that the urban poor cannot provide for themselves, within the framework of strategic service planning, is essential if the impending crisis is to be avoided.

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GUINEA WORM ERADICATION STEPPED UP

The fight against the debilitating guinea worm disease which affects nearly 10 million people each year, and costs more than US\$ 1 billion a year in terms of lost agricultural outputs, is being stepped up considerably. UNDP and UNICEF, along with the Carter Presidential Center and the US Centers for Diseases Control are spearheading a drive to eliminate the disease by 1995. The two most endemic countries, Ghana and Nigeria, reduced 'dracunculiasis' by 34.8 and 38.4 % respectively in 1990. The most recent World Health Assembly has increased the pressure to make this mini-campaign successful.

The 44th World Health Assembly (WHA) unanimously approved a resolution (WHA44.5) on 13 May 1991 that "declares its commitment to the goal of eradicating dracunculiasis [guinea worm] by the end of 1995...". It also contained a passage which "urges the Director-General [of WHO] to immediately initiate country-by-country certification of elimination so that the certification process can be completed by the end of the 1990s." The chief delegates of Chad, Ghana, India, Nigeria, and Pakistan also described the actions being taken against guinea worm in their respective countries during statements to the main plenary session of the WHA.

In a number of these countries former US President Carter has been a very powerful spokesman, initiating action from high level policy people.

The guinea worm disease is a water-associated disease transmitted through contaminated drinking water. Though seldom fatal, the disease is painful and makes walking and working impossible. It is preventable through the provision of clean and safe drinking water and its hygienic use. Chemical vector control with Temephos kills the guinea worm host at the source.

The new commitment of the WHA to the target date also emphasizes the need for those remaining endemic countries to conduct a national search for cases as soon as possible. These countries are the Central African Republic, Chad, Côte d'Ivoire, Ethiopia, Mali, Niger, Sudan and Uganda. They will need to begin their village-based interventions at the earliest possible opportunity. The new resolution also means that donor agencies need to respond immediately to requests from endemic countries for assistance in eradication.

Two weeks before the WHA meeting, the Executive Board of UNICEF met in New York, and approved a proposal to provide technical and other support to guinea worm eradication programmes in 19 countries. The new aid covers the period 1992-1994, and amounts to US\$ 4.5 million (US\$ 1.5 million for each year). This is on top of any related activities planned by individual UNICEF missions in endemic countries. Following the US\$ 1.5 million provided by UNICEF in 1989-1991 for the investigation of the status of guinea worm in endemic African countries, Benin, Burkina Faso, Cameroon, Mauritania, Senegal, and Togo all completed national searches. They are underway or are about to begin in Côte d'Ivoire, Mali, and Niger.

For more information contact:

WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, Centers for Disease Control (F-22), Atlanta, Georgia 30333, USA

GUINEA WORM NETWORK

UNICEF is setting up a Dracunculiasis Operations Research Network with help from the WHO Collaborating Center for Dracunculiasis at the Centers for Disease Control in Atlanta, USA; at USAID; and at the London School of Hygiene and Tropical Medicine (LSHTM). Dr. Sandy Cairncross of the LSHTM will be the coordinator. Dr. Sam Bugri, National Coordinator of the Guinea Worm Eradication Programme in Ghana, will act as co-chairperson.

Local researchers and public health practitioners from several West African countries met in Burkina Faso in May 1991 at a workshop on Operations Research for Eradication of the Guinea Worm. The objective was to develop specific proposals aimed at improving disease surveillance and reporting capacity. The meeting also discussed methods of health education and ways of integrating guinea worm eradication programmes into existing health and social institutions.

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CONTROLLING CHOLERA IN PERU

Low-income settlements in Lima, Peru served as the epicentre to the recent cholera epidemic in Latin America. The cholera outbreak cost an estimated \$460 million in export and tourism. Various agencies such as UNICEF and the Water and Sanitation for Health (WASH) project gave assistance to the government to fight the epidemic.

Two WASH consultants went to Peru to examine water supply deficiencies, design short-term corrective measures, and identify long-term needs and possibilities for interventions in water and sanitation in the light of the cholera epidemic. During their visit earlier in 1991, the team concluded that Peru had practically all the necessary human and institutional resources to mount an effective anti-cholera campaign. It had yet, however, to realize a unified, coordinated campaign stressing preventive environmental health measures as a complement to curative ones.

The consultants pointed out that in the long term, the severe water and sanitation problems of Peru will have to be tackled, otherwise cholera will continue to be a threat. The recent epidemic had its causes rooted in a long-term neglect of sanitation. This is backed up by the figures for 1989, which show that 41% of the urban population and 82% of rural dwellers in Peru were without sanitation facilities.

A spin-off from the above consultancy arose from a request from the USAID mission in Peru for WASH to organize a three-day workshop in Lima. The aim was to produce an inter-sectoral master action plan on water supply and sanitation to address the epidemic. The workshop took place in June with participants from all the concerned ministries and other sector agencies, together with representatives from the World Bank, UNDP, CEPIS, PAHO and USAID.

WASH is also providing technical support to a cholera task force set up in May within USAID. The task force will respond to the cholera epidemic in Peru and surrounding countries. WASH has received a US\$ 655,000 buy-in from the USAID Bureau for Latin America and the Caribbean for ongoing technical assistance in cholera prevention.

For more information contact:

Water and Sanitation for Health Project (WASH), 1611 N. Kent St., Room 1001, Arlington, VA 22209-2111, USA, tel: +1-703-2438200, fax: +1-703-5259137, telex: WUI 64552

ON THE ROAD TO DUBLIN AND RIO 1992

To address the vital topic of water resources management and its central role to the success of global strategies for sustainable development, an International Conference on Water and the Environment will be held in Dublin, Ireland from 26 - 31 January 1992. The conference is expected to be pivotal in focusing world attention to critical fresh water issues of the 1990s and beyond. It will act as the formal lead for fresh water issues into the United Nations Conference on Environment and Development (UNCED) to be held in Rio de Janeiro in June 1992.

Water is a basic and essential component of life. Its availability and quality are of critical importance to our natural and human environments. Health, food, energy and productivity are intimately linked to a safe, reliable and affordable water supply. The major issues in Dublin will be addressed by 11 speakers of international standing on the following topics:

- Statement of the problem: assessing the resource
- Water - the environmental and developmental dimensions: striking a balance
- Meeting the needs of the rural areas:
 - "Water for the people - community water supply and sanitation"
 - "Water for sustainable agricultural development"
 - "The ecology of rural water management"
- Water for Urban and Industrial Development:
 - "The importance of water resources for urban development"
 - "Environmental issues: impacts of water and waste management"
 - "Integrated urban water management"
- Challenges for the future:
 - "Ecologically sound water management"
 - "Water allocation - economic, social, legal and regulatory approaches"
 - "Water in our common future"

First Earth Summit

The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in June 1992 is expected to be the largest summit ever and the most important - the first Earth Summit. Participants will be of the highest level and will include heads of state and government. Decisions will be taken that will shape the prospects of human life in the years towards the new millennium.

Meanwhile, world population and human activities continue to grow, adding to the pressures on the environment. The problems are manifested by global warming; ozone depletion; pollution of air, water and the food chain; the destruction of forests, soil, plant and animal life.

The 1992 conference will specifically look at the question of environment and development. Environmental impact is a result of economic behaviour and can only effectively be addressed when changes occur in that behaviour - changes not only at the level of individuals, but also at the level of governments and corporations. Issues to be addressed include: climate change, transboundary pollution, waste management, the protection of land resources, the conservation of biological diversity, the management of the oceans and coastal areas and the quality and supply of freshwater resources.

For further information contact:

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Women and UNCED '92

The role of women at all levels continues to be important in advancing environmental awareness, education and management in the support of sustainable development. UNEP's Senior Women's Advisory Group on Sustainable Development together with UNIFEM, UNFPA, UNDP and other organizations organized the Global Assembly on Women and the Environment - Partners in Life, which was held in Miami from 4-8 November 1991. This meeting provided an opportunity for women to present their ideas on water and energy as it relates to climate change, waste, environmentally friendly systems, technologies and products.

Participants from all over the world presented among others success stories on water, waste, environment and energy.

The report "Women and the Environment", to be produced by the UN ECOSOC's Commission on the Status of Women will mainly be derived from the recommendations arising from the Global Assembly. This report will be added to the priority theme for development at UNCED '92.

NEW IRC TITLE ON HYGIENE EDUCATION

Just Stir Gently, The way to mix hygiene education with water supply and sanitation is the new book in the IRC Technical Paper Series (order code TP 29), providing options and methods for integrating hygiene education with water supply and sanitation projects.



Hygiene Education is a process which aims to promote conditions and practices that help to prevent water and sanitation-related diseases. Hygiene education is an important component of water supply and sanitation projects for two reasons: (1) to maximize the potential benefits of improved water supply and sanitation facilities and (2) to help users to appreciate the need for their proper operation and maintenance and to create a willingness to contribute to their costs.

Integrating hygiene education with the other aspects of water supply and sanitation projects requires skilful planning and management. However, responsible staff are often not fully prepared for these tasks, either by their professional background, or by their experience. This problem is compounded by the fact that a great deal is still unknown about what constitutes a successful hygiene education programme.

This book brings together present knowledge and experience of integrated hygiene education programmes. Its aim is to facilitate:

- decision making in the integration of hygiene education in the various phases of water supply and sanitation projects;
- negotiation and cooperation among government agencies, donor agencies and health institutions on hygiene education-related matters;

- better planning and management of hygiene education programmes as a first requirement for increasing the success of such programmes.

Aspects covered by author Marieke T. Boot include the process of behavioural change; hygiene education planning, implementation, monitoring and evaluation; hygiene education approaches and methods; programme organization; manpower and costs. Examples from the field are used to reinforce the text and to give some ideas of "real life" situations.

The book is intended primarily for those responsible for the development and implementation of hygiene education components in water supply and sanitation projects. Staff responsible for the formulation, planning and management of integrated water supply and sanitation projects may find the book useful as well.

This book can be seen as a companion volume to two earlier IRC titles on the same subject. TP 29 is available at US\$ 27.00 from IRC's Publication Department.

HAND-WASHING AGENTS AND DIARRHOEAL PATHOGENS

A recent study indicated that mud and ash are equally as efficient as soap for hand-washing. This was based on the results of samples for faecal coliform counts which were obtained from just washed hands of twenty women (age range 18-35 years). These women, who live in a slum area in Dhaka in Bangladesh, washed their hands on five consecutive days with either soap, mud, ash or just water without a washing agent. As a control, on one of the five days the women did not wash their hands at all.

The objective of the study was to examine the efficacy of local hand-washing agents in reducing the transmission of diarrhoeal pathogens. A modified fingertip technique was used for obtaining the samples. The presence of faecal coliforms was determined by the membrane filtration method. Of the 80 samples taken, 24 had faecal coliform bacteria. Seventy percent of the control women had significant contamination with faecal bacteria. The proportion of contamination among those using a washing agent was lower than those of controls and of those using only water. Washing hands without using any agent led to no significant reduction of contamination.

The study was followed up by a questionnaire on general household cleanliness and hygiene. This revealed that most women in the study (85%) normally washed their hands using only water and no cleansing agent after defecation. The remainder used mud. Many women had no awareness of the benefits of hand-washing. One of the recommendations arising from the study was that health education programmes in this area ought to concentrate on increasing women's awareness about the importance of hand-washing using locally available washing agents.

Hoque, B.A.; Briend, A. (1991). A comparison of local handwashing agents in Bangladesh. In: Journal of Tropical Medicine and Hygiene; vol. 94, no. 1; p. 61-64

WASHING PREVENTS BLINDNESS

As many as 500 million people could be saved today from contracting trachoma (a bacteria-related disease which leads to blindness) if they regularly washed their hands and faces. The blindness of between five and ten million people around the world might also have been prevented. These are the estimates made by UNDP in a recent report.

The most obvious way of reducing the incidence of trachoma is by hygiene education, according to the National Research Institute for Ophthalmology based in Cairo, Egypt. Trachoma itself originates from a bacterium transmitted from eye to eye by house flies or possibly contaminated cloth or water. The discharges caused by the disease can be spread to uninfected people by flies. Flies are often abundant in village communities where rubbish and excreta are not properly disposed of because of a shortage of water.

Dr. Sandra Lane, a medical anthropologist who conducted a study of a northern Egyptian village, suggested that the simple hygiene solution had proven to be unacceptable to many villagers, especially women and children. Various stigma were associated with washing, and even in situations where women did wash, this was often done using less than hygienic common facilities. The goal of a trachoma-free population world-wide would seem to depend upon improved water supplies and the encouragement of better personal hygiene.

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telex: 62206049*

NEW PUBLICATIONS

Cotton, Andrew ; Franceys, Richard ; Hutton, Len ; Pickford, John (1991). Watsan 2000 : proceedings of the UNICEF orientation/training workshop for water and sanitation staff, 23-27 July 1990. Loughborough, England, WEDC, Loughborough University of Technology. - 214 p. ISBN 0-906055-25-3 Price: £17.50

In July 1990 fifty managers of UNICEF national water supply and sanitation programmes met at the Water, Engineering and Development Centre (WEDC) in Loughborough, England to discuss plans for UNICEF activities in the 1990s. Part of the time was also spent on a training workshop led by WEDC. This publication gives the introductory papers by WEDC, short notes presented by UNICEF delegates and reports of discussions. The workshop was divided into five sessions. Topics covered were community management, environmental issues, urban aspects, finance and economics, and institutional development. The discussion reports include in-country experiences of UNICEF projects on each of the five topics.

Available from: Water, Engineering and Development Centre (WEDC), Loughborough University of Technology, Loughborough, Leicestershire LE11 3TU, United Kingdom, tel: +44-509-222885 fax: +44-509-2111079, telex: 34319 unitec g

Chachage, C.S.L. ; Nawe, J. ; Wilfred, L.L. (1990). Rural water and sanitation programme in Morogoro and Shinyanga regions : a study on women involvement in the implementation of the programme. Dar es Salaam, Tanzania, Dar es Salaam University Press. - x, 68 p. Price: Note quoted

This study aims to examine women's involvement in the Morogoro/Shinyanga Rural Water and Sanitation Programme in Tanzania. It also endeavours to view village level operation and maintenance (VLOM) from the women's point of view. This was done by conducting questionnaires with 16 men and 16 women from eight villages on the problems found in the villages and views on how they could be solved; women's position at both household and village level; and their involvement in the programme. As far as the water and sanitation programme is concerned, three problem areas were identified: technical (quantity in relation to the number of the population served and proximity to the users, and quality); financial, including lack of spare parts; and organizational difficulties in realizing self sustaining projects.

Women's involvement in the Water and Sanitation Programme had been limited to activities related to the construction of water points and keeping them clean. There were few caretakers and not a single woman was a village mechanic. If not clearly defined, the participation of women in the water and sanitation programme may result in an increase of the women's workload rather than a reduction. The penultimate chapter of the report provides an overview of the experiences of four other water programmes in Tanzania from the point of view of women's involvement.

Available through booksellers or direct from: Dar es Salaam University Press, University of Dar es Salaam, POB 35091, Dar es Salaam, Tanzania, tel: +255-51-49192, fax: +255-51-48274, telex 41561.

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