



who international reference centre for community water supply

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newsletter

Newsletter No. 95 - January 1979

HAPPY NEW YEAR

In 1977 the Mar del Plata Action Plan for community water supply and sanitation (agreed upon at the UN Water Conference, Mar del Plata, Argentina in March 1977), called for improved coordination at the country level and regular consultations among governments, international organizations and non-governmental organizations concerned. Within the scope of this Action Plan, it was recommended to designate the Decade 1981-1990 as the International Drinking Water Supply and Sanitation Decade. In 1978 the organizations within the UN system, concerned with community water supply and sanitation development, agreed on a collaborative approach to promote the Decade's activities and set up a Steering Committee composed of their representatives to initiate necessary action. In addition, in a meeting of UN organizations, bilateral agencies and regional banks, there was expressed a willingness for increased co-operation and support to governments in achieving the target for the Decade in accordance with their national priorities. Various aspects of the preparatory activities for the Decade were started during 1978. Among them were consultations on activities which form a back-up or supportive service to the agencies of governments responsible for the planning, design, construction, operation and maintenance of water supply and sanitation facilities. Back-up services include manpower development, community participation, technology transfer and information systems development. Back-up services were discussed at a meeting held at Henley-on-Thames in the United Kingdom in 1978 under the joint sponsorship of the World Health Organization, the Water Research Centre and the International Reference Centre. The meeting concentrated on technology and information transfer and concluded that in many countries, very real improvements in programme delivery could result from a better informed approach to programme planning and implementation. National entities and mechanisms for information and technology transfer are key elements for the provision of services to operating departments and their establishment or strengthening should be a national priority. Regional and global level support should be available to complement national initiatives. In 1978 the importance of international collaboration was also underscored by the UN Conference on Technical Cooperation among Developing Countries (TCDC), held in Buenos Aires, Argentina, in August. 1979 will be an important year in the preparatory activities for the Decade; the IRC will focus its attention to the support of activities in this context. The Newsletter will regularly report on progress made. We all hope that the activities before and during the Decade will lead to a strong support for all those who work in or for the water supply and sanitation sector in developing countries. With this in mind, the staff of the IRC wishes all the readers of the Newsletter a happy and prosperous new year.

SLOW SAND FILTRATION

A forthcoming publication in the IRC Technical Paper Series (No. 11) is *Slow Sand Filtration for Community Water Supply in Developing Countries, a Design and Construction Manual*, prepared by J.C. van Dijk and J.H.C.M. Oomen. The manual, which has been prepared on the basis of the experiences gained in the first phase of the IRC International Research and Demonstration Project on Slow Sand Filtration, provides comprehensive guidelines for the design, construction and implementation of small slow sand filtration plants. The contents, text and illustrations are attuned to a sub-professional and professional readership. The manual begins with a concise account of the principles of slow sand filtration, its performance under tropical conditions and its applicability for small water supply systems in developing countries. A step-by-step description of the design procedures and methods is given on the basis of a design example for a chosen practical situation. A review of the design criteria is included. The manual gives, in detail, the construction and specification of elements of slow sand filtration plants. A series of alternatives regarding the structural design of elements such as the filter box, the inlet and outlet structure and the under-drainage system are given. In addition, topics such as the pre-treatment system, clear water storage and piping and pumping arrangements are covered. To illustrate the approach outlined in the manual, four typical designs for capacities varying from 25 to 960 m³/day are described and sets of construction drawings and bills of quantities are presented. The typical designs are given for a protected sloping wall filter, a circular ferroceement filter, a circular masonry filter and a rectangular reinforced concrete filter. In the chapter on the implementation of small slow sand filter plants, aspects such as tendering, planning and organization for self-help schemes and building instructions are discussed. Further information: IRC, P.O. Box 140, 2260 AC Leidschendam, the Netherlands.

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Canada

PLASTIC HANDPUMP DESIGN AND TESTING

The University of Waterloo, sponsored by the International Development Research Centre, has carried out a research project for the design and preliminary testing of a simple hand-pump for rural water supplies. The pump is intended for use on shallow wells and is based on plastic materials and manufacturing methods which are within the capabilities of most developing countries. The basic parts of the unit involve a PVC well casing which also functions as the pump cylinder for a plastic piston. The foot valve is constructed of plastic components which are common with the piston. Simple rubber flap valves are fitted on both the piston and the foot valve. Polyethylene piston rings provide hydraulic seals between the piston and well casing/pump cylinder; wear is concentrated on the piston rings, which are easily replaced. The piston rings can be slices of plastic pipe, a material widely available. The foot valve can be readily removed for inspection or repair. Most of the plastic parts of the unit can be made by standardized extrusion, the remainder are easily injection molded or machined from stock items. Prototype models of the pumps are being field tested in several developing countries. Further information: Mr. Alan Plumtree, Department of Mechanical Engineering, University of Waterloo, Ontario, N2L 3G1, Canada.

Egypt

ENVIRONMENTAL STUDIES

A project studying water quality in the River Nile and Lake Nasser began in 1975 as a joint venture between the Egyptian Academy of Scientific Research and Technology and the University of Michigan under the sponsorship of the U.S. Environmental Protection Agency (EPA) and the Ford Foundation. Papers presented at the International Symposium on the Environmental Effects of Hydraulic Engineering Work, sponsored by the Tennessee Valley Authority and the University of Tennessee at Knoxville and by the University of Georgia and EPA, discussed the environmental impact of the Aswan High Dam; the hydrology of the River Nile; the effect of the impoundment on Nile biota; an assessment of surface area, siltation and plant production in Lake Nasser using Landsat's digital imagery; the organization and operation of the dam; the effects of the dam on Nile water quality; the results of studies of schistosomiasis in rural Egypt following dam construction; and the regional sociological effects of the dam. *Schistosomiasis in Rural Egypt*, the first report growing out of the public health portion of the project, is in press. The report reveals a marked decline over the past 40 years in the prevalence of the disease, which has plagued Egyptian populations for centuries. Prior to its construction, it was speculated that the Aswan High Dam and related irrigation development would contribute to an increase in this chronic disease of the liver, bladder and lungs. Further information: Environmental Protection Agency, Environmental Research Laboratory, Athens, Georgia 30605, U.S.A.

News from WHO

Environmental health officials from countries in WHO's Western Pacific Region have called for the expansion and full use of educational and training institutions to deal with the critical shortage of workers in environmental health. In a recent WHO seminar, it was strongly urged that professional, trade or technical organizations should participate actively in developing formal environmental training programmes. The seminar, which was held in Manila on 7-14 September, 1978, was attended by 16 health officials from various parts of the Western Pacific, as well as by observers from UNDP and UNICEF. Because improved environmental conditions are essential to the attainment of economic and social goals, the participants called for strong environmental health policies and strategies, supported by the highest level of government and by adequate budgetary allotments. National governments were asked to bring together all who are concerned with environmental health in order to determine the manpower requirements in all categories, from top management and professional staff to rural health aides. The seminar concluded that manpower development programmes should include training in methods to understand the public's attitude and desires concerning the environment. The programmes should increase the skill of environmental health workers in securing public support and participation. Further information: World Health Organization Regional Office for the Western Pacific, P.O. Box 2932, 12115 Manila, Philippines. (Adapted from WHO Chronicle, 1978, Vol. 32, No. 11, page 456).



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Newsletter No. 96 - February 1979

News from IRC

PROGRAMME ON EXCHANGE AND TRANSFER OF INFORMATION (POETRI)

As a support to national and international efforts in the context of the International Drinking Water and Sanitation Decade (1981-1990), the IRC has designed a Programme on Exchange and Transfer of Information (POETRI) on community water supply and sanitation in developing countries. The programme - which recently received substantial financial support from the Netherlands Ministry for Development Cooperation for its first implementation phase of two years - aims at establishing an international clearing house mechanism for the collection, analysis and distribution of pertinent information and documentation. POETRI projects will include the compilation of national and regional directories of sources of information, the compilation and distribution of standard libraries of relevant documents, as well as selective bibliographies on specific subjects within the water supply and sanitation field. Emphasis will be put on stimulation of transfer of relevant information to users in the field.

Tanzania

SHALLOW WELLS

DHV Consulting Engineers (Amersfoort, the Netherlands) have published a report entitled *Shallow Wells*. The generously illustrated report forms part of the final reporting on the Shinyanga Shallow Wells Project in Tanzania. It reflects the experience and expertise gained in the construction of some 750 shallow wells in the Shinyanga region. The well construction project was carried out during the period from October 1974 to June 1978, as a bilateral project of the governments of Tanzania and the Netherlands. The rationale for providing shallow wells is given as well as the organizational set-up of a well construction project in general. Factors pertinent to the siting of wells are analysed, e.g. geological factors, topography, survey methods, test drilling results and water quality data. In the Shinyanga Shallow Wells Project, emphasis gradually shifted from the hand-dug wells initially constructed, to hand-drilled wells. Various well construction methods are described and illustrated with drawings and photographs. Information is also presented on mechanical well drilling, disinfection of wells and fabrication and handling of well rings as well as covers. The hand pump developed for use in the Shinyanga well project is dealt with in a separate chapter where its design and manufacture are described. Details of the various pump components are given and illustrated with photographs and drawings. Chapters on maintenance of wells and pumps, logistics and administration complete the publication. Further information: DHV Consulting Engineers, P.O. Box 85, 3800 AB Amersfoort, the Netherlands.

U.S.A.

MICROBIOLOGY STANDARDS

One of the reasons for the passage of the Safe Drinking Water Act of 1974 was the lack of uniform application of the 1962 Public Health Service Drinking Water Standards to all public water systems. Another largely unknown factor is the extent to which the present microbiology standards are adequate to protect against waterborne disease. The epidemiological data supports the adequacy of the standards for protection against cholera and typhoid but the prevalence of the less severe diseases such as hepatitis, giardiasis and gastroenteritis suggests that some adjustment of the regulations may be required. EPA publication 570/9-78-00C, *Evaluation of the Microbiology Standards for Drinking Water* (edited by C.W. Hendricks), focuses on the present standards for coliform bacteria, coliform bacteria detection and control, compliance with the coliform standard and alternative means of determining compliance and lays the groundwork for future regulations development. Further information: United States Environmental Protection Agency, Office of Drinking Water, Washington D.C. 20460, U.S.A.

News from WHO

APPROPRIATE TECHNOLOGY FOR HEALTH

Appropriate Technology for Health is a directory of organizations, institutions, groups and individuals involved or interested in working in the field of Appropriate Technology for Health. The directory gives brief descriptions of their activities. It has been compiled by the ATH Programme, World Health Organization, 1211 Geneva 27, Switzerland. Institutes who wish to be included in the directory should contact the above address.

Water Research Centre

WATER RESEARCH INFORMATION PACKAGE

Information services previously available only to members of the Water Research Centre, United Kingdom, are now generally available as the WRC Information Package. The package is aimed at everyone who needs access to world-wide water-treatment, sewage-treatment and water-pollution literature but whose interests do not appear sufficient to justify membership of the WRC. Making up the Package are information services developed for members and which can now be provided cheaply because of the volume of work done. Mainstay of the Package is *WRC Information*, the weekly listing of some 80 abstracts compiled from scientific journals, books and reports from all over the world. Vouchers enabling a Package user to purchase literature searches, copies of papers, translations and a personalized monthly current-awareness service complete the package. The basic cost is £250 for the Package in English. This price includes 100 vouchers enabling a subscriber to purchase, for example, the monthly current-awareness service (25 vouchers), three literature searches of international data bases (15 vouchers each) and copies of 30 papers abstracted in *WRC Information* (one voucher each). Subscribers who want to use the scheme more extensively can purchase a further 50 vouchers for £100. Further information: Information Section, Water Research Centre, Elder Way, Stevenage, Herts. SG1 1TH, United Kingdom.

New Publications

LEAK DETECTION

Technical Report TR80 of the Water Research Centre, Medmenham, United Kingdom, describes a technique for leak detection in pressurised pipelines using sulphur hexa-fluoride (SF₆) as a tracer. The technique is particularly suitable for use in rural areas where the absence of fittings prevents the use of normal sounding techniques and where bore holes can be easily made. Further information: Water Research Centre, Medmenham Laboratory, P.O. Box 16, Medmenham, Marlow, Bucks. SL7 2HD, United Kingdom.

Meetings

An International Symposium on Artificial Groundwater Recharge (Research Results and Practical Applications) is to be held in Dortmund, Federal Republic of Germany, between 14-18 May, 1979. The symposium has been convened by the German Geological Society and the National Committee for the International Hydrological Program of the Federal Republic of Germany in cooperation with IAHS, WHO-IRC, OWWV, OVGW, SVGW, UNESCO, WRC, BMI-FA "Water supply and Bankfiltration", DVGW, DVWK, FG-WCh, IAH Switzerland and IAH-Germany. The purpose of the symposium is to outline the present state of knowledge and technology in the field of artificial groundwater recharge and to initiate an exchange of experience between experts of different countries, so as to allow extended and improved use of artificial groundwater recharge. Further information: Dr. Karlheinz Schmidt, Institut für Wasserforschung, Dortmund zum Kellerbach, D-5840 Schwerte 1-Geisecke, Federal Republic of Germany.

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Newsletter No. 97 - March 1979

Ghana

SCHISTOSOMIASIS CONTROL

Whereas in surveys carried out from 1955 little schistosomiasis was found in the area which was to become Lake Volta (the world's largest artificial lake) in the late sixties, the infection had become prevalent in over 90% of the children living near the lake, by 1969. Schistosomiasis is a chronic debilitating disease (seriously affecting the bladder and kidneys), which is transmitted by fresh-water snails in natural and man-made watercourses, ponds and lakes. The UNDP/WHO Research Project on *Schistosomiasis Control in Man-made Lakes* which started in 1971 had as a basic aim to carry out research into the most effective and economical ways of controlling the disease in man-made lake conditions. Other objectives were to study the ecology and epidemiology of schistosomiasis in man-made lakes and, on the basis of field trials, to advise on how best to control the disease and provide training in schistosomiasis control measures. In seven years the project has amassed a unique collection of data and undertaken disease control with drugs for infected persons and chemicals to kill the snails, and by the installation of village water supplies (to reduce the daily contact with the lake water). Health education has also been a feature of this UNDP/WHO project. Adapted from *WHO Chronicle*, 1979, Vol. 33, No. 3, page 106. Further information: World Health Organization, 1211 Geneva 27, Switzerland.

India

Waste water treatment and disposal systems are given a low priority in developing countries due to the high cost involved. Technological innovations suited to local requirements involving low cost technology are required. A conceptual system involving sewage treatment in oxidation ponds, using the algal laden effluent for pisciculture and further utilisation for agriculture has been proposed. A demonstration plant was built to treat and utilise 270,000 litres per day of sewage and detailed observations made during its operation for several years. The oxidation pond was assessed for its effectiveness to stabilise the unstable organic matter and reduce bacterial pollution as measured by *Escherichia coli* and *Streptococcus faecalis* and *Salmonella* sp. There is appreciable reduction in faecal coliforms, faecal streptococci and *Salmonella* sp. in the oxidation pond. It is desirable to adopt those species of fish such as *Cyprinus carpio* which are well cooked before human consumption. The fish pond effluent with nutrients was effectively utilised for coconut palm cultivation. Additional revenue generated from fish production and coconut palms would not only meet the operation and maintenance expenditure but will add to the income of local communities. An ecologically balanced system involving sewage treatment in oxidation pond, fish production and agricultural utilisation by surface irrigation is well suited for developing countries. Reference: Low Cost Waste Treatment and Utilisation System, by Sundaresan, Muthuswamy and Govindan, paper of the conference "Sanitation in Developing Countries Today", July 1977, Oxford, United Kingdom. Further information: National Environmental Engineering Research Institute, Nehru Marg, Nagpur - 440020, India.

Pakistan

DESIGN OF TUBE SETTLERS

Tube settlers are now widely used in many countries to remove sediments or flocculated material at an increased rate. The adoption of the overflow rate as the key design parameter for tube settlers has been proposed. Experimental data on uncoagulated waters confirm that column settling tests from which equivalent overflow rates can be derived can be used as the basis for determining full scale tube settling systems. If a safety factor of two is applied, the column settling curve may be used directly for tube settler design. Reference: K.M. Yao, Column Settling Test and Tube Settling, *Journal of the American Water Works Association*, 71 (2), 109-112, 1979.

U.S.S.R.

LOCAL GENERATION OF HYPOCHLORITE

The Institute of Communal Water Supply and Purification of the Pamfilov Academy of Rural Economy and the PKB Academy of Rural Economy have successfully developed equipment for local generation of hypochlorite for disinfection of rural water supplies. Electrolysis of industrial salt yields hypochlorous acid and alkali which interact to form sodium hypochlorite. In the electrolytic cell which is provided with graphite electrodes, bubbles of gas are formed which provide a natural circulation until a concentration of about 7 g/l of active chlorine is achieved. Studies are going on at the Institute of Communal Water Supply and Purification, Pamfilov Academy of Rural Economy, Volokamskoe Sosse 16, Moscow D-373, U.S.S.R., to obtain higher efficiencies and longer life time with noble metal electrodes. Such local production is important for the continuous operation of especially rural water supplies. Institutes and scientists working on a similar study are invited to send information on their work to the IRC, P.O. Box 140, 2260 AC Leidschendam, the Netherlands.

Water Research Centre

The work of the Medmenham Laboratory will be open to inspection to visitors during its Open Days, 9-11 May, 1979. Major projects from the Stevenage Laboratory will also be presented. The address of the Medmenham Laboratory is: Water Research Centre, Medmenham Laboratory, P.O. Box 16, Medmenham, Marlow, Bucks. SL7 2HD, United Kingdom.

World Bank

SUCCESS AND FAILURE OF SANITATION PROGRAMMES

A survey of rural water supply and sanitation programmes in eight developing countries (Bangladesh, Columbia, Dominican Republic, Kenya, Malaysia, Peru, Republic of Korea and Upper Volta) was undertaken to identify and analyse those technical, financial, organizational and managerial factors which have contributed to the success or failure of the programmes. In the World Bank Report P.U. Rep. No. PUN 42, *Observations of Rural Water Supply and Sanitation Programmes in Eight Developing Countries* (September 1978), recommendations are made on programme design and implementation, with the emphasis on government commitment, community involvement and strong executing agencies. Further information: Energy, Water and Telecommunications Department, World Bank, 1818 H. Street N., Washington D.C. 20433, U.S.A.

New Publications

Biogas, a useful fuel gas for household purposes, can be generated by anaerobic digestion of organic waste such as crop residue, cow dung and night soil. *Biogas Technology in the Third World* is a multi-disciplinary state-of-the-art review by Barnett, Pyle and Subramanian published by the International Development Research Centre (IDRC), Canada. The first chapter establishes in broad terms the energy options facing rural communities in the Third World and considers in detail just what is known about the technical aspects of biogas production. A microapproach to the social and economic appraisal of rural technologies in their social context and the need to compare biogas investments with alternative uses of the resources available in specific rural locations, is presented in the second chapter. The third chapter complements the other two by presenting practical field experience. It is based on an extensive survey of a large number of biogas plants and their supporting infrastructure in India, Indonesia, Japan, the Philippines, the Republic of Korea and Thailand. Further information: International Development Research Centre, P.O. Box 8500, Ottawa, Canada K1G 3H9.

Weston Environmental Consultants have published the report of a two-year study to investigate the feasibility of dual or multiple water systems, entitled *Multiple Water Supply Approach for Urban Water Management*. A mathematical model has been developed for technical and economic analysis of various alternatives for long term water supply management. The purpose is to help cities, planners and engineers to analyse and decide whether the multiple supply approach to water management will be beneficial in long term planning of water resources. Three grades of water have been considered for the model: potable, sub-potable and non-potable. The report is available from: Communications Department, Weston Environmental Consultants, Weston Way, West Chester, P.A. 19380, U.S.A. (Price U.S. \$10.)

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Newsletter No. 98 - April 1979

India

RESEARCH PROGRAMMES IN ENVIRONMENTAL ENGINEERING SCIENCE

Research Programmes in Environmental Engineering Science in India (1978), edited by B.B. Sundaresan, S.K. Kesarwani and S.G. Bhat, is a publication of the National Environmental Engineering Research Institute, Nagpur, India. The publication provides information on research being carried out in India in the area of environmental engineering and science and is based on a systematic survey undertaken to collect the relevant information from various sources in India. Information such as research projects under progress indicating persons involved, the institution where the work is being carried out and names of sponsors has been compiled. Further information: National Environmental Engineering Research Institute, Nagpur - 440020, India.

Lebanon

ARAB WATER WORLD

Arab Water World is a bimonthly journal published in Beirut, Lebanon. The journal, which is bilingual (English/Arabic), is aimed at the water and/or sewage industry in the Middle East and Africa. The same publishers will shortly issue a *Middle East Water Directory*. This two-volume publication will give a listing of public and private sector firms engaged in the water and sewage industry in the Middle East, Africa and Asia. Listing in the directory is free of charge and there is still space available for interested firms. The directory will be available at a price of U.S. \$100.- which includes a year's subscription to *Arab Water World*. Further information: Arab Water World, P.O. Box 135121, Beirut, Lebanon.

Niger

HOUSEHOLD FILTER

A small water filtration unit has been developed in Niger and 120 of these units are being installed at rural schools and dispensaries. The unit is constructed of a circular drum, 64 cm in diameter and 100 cm high. Three legs support the unit to provide a clear space of 50 cm between the tap at the bottom of the unit and the supporting ground. The lower 25 cm of the drum is a filtered water storage compartment, separated from the filtration media by a perforated steel plate. This plate supports a 10 cm layer of coarse sand and a 23 cm layer of fine sand. Next above this is a 10 cm layer of crushed charcoal and, on top, a roughing filter composed of a 10 cm layer of gravel. A plastic screen above the filtration media is used to remove leaves, twigs and similar particles from the raw water. Capacity of the filter is reported to be 5 m³ per day and cost of the drum is 40,000 CFA (U.S. \$186.-). Approximate cost of media is 3,000 CFA (U.S. \$14.-). It is expected that the filtration media would be removed and replaced when capacity is below an adequate rate. The pilot project of 120 filter units is being supported by U.S. AID. Further information: Mr. Abdoulaye Kane, WHO Sanitary Engineer, B.P. 739, Niamey, Niger.

U.K.

SCHISTOSOMIASIS WORKING GROUP

The Liverpool School of Tropical Medicine (at the University of Liverpool, United Kingdom) has formed a working group of civil engineers, biologists, etc., which has as its object the exchange of information and ideas and the discussion of matters of mutual interest in the control of schistosomiasis transmission through water resources developments and irrigation systems. Although the number of direct participants in the working group cannot be increased at present, anyone interested in being kept informed about the group's activities is invited to write to Liverpool School of Tropical Medicine, Mr. J.M. Jewsbury, Senior Lecturer in Medical Parasitology, Number One Old Hall Street, Liverpool L3 9HG, United Kingdom.

U.S.A.

FILTRATION PILOT PLANT DESIGN

As drinking water quality standards become more stringent and the need for filtration in water treatment increases, the use of pilot studies prior to filter design is increasing correspondingly. A review of filtration theory as it applies to pilot-plant design is backed by descriptions of basic pilot-scale equipment and analyses of actual studies. Reference: Avner Adin, E. Robert Baumann, John L. Cleasby, The Application of Filtration Theory to Pilot-Plant Design, *Journal of the American Water Works Association*, 71 (1), 17-27, 1979.

News from WHO

WHO SYMPOSIUM RECOMMENDS INTEGRATED APPROACH TO ENVIRONMENTAL PROBLEMS

An integrated approach, which would take into account economic and social factors in the solution of environmental problems, was recommended by a symposium on environmental protection programmes in industrial areas held at Katowice, Poland, from 23-28 October, 1978, with 92 participants from 13 countries. Twenty-one papers were presented on topics of legislation and economics in relation to environmental pollution control, environmental pollution control in the context of regional planning, and pollution control programmes and methods. It was agreed that the main problem in all industrialized countries, whatever their economic system, was how to strike a balance between the need to maintain or improve material living standards and to protect the environmental quality of life. The main conclusions of the meeting were that: comprehensive modelling of interrelated environmental and economic factors is not sufficiently developed to allow a wholly scientific approach to environmental pollution control, although optimization models are available for determining the least expensive solution to sectoral problems; effective monitoring and enforcement procedures are essential for environmental pollution control; the long-term aim must be to check pollution at source by modifying industrial processes to reduce residues or effluents. This approach would include the use of alternative materials and "in-house" recycling of wastes to the maximum extent practicable. Adapted from *WHO Chronicle*, 1979, Vol. 33, No. 2, pages 64 and 65. Further information: WHO Regional Office for Europe, 8 Scherfigsvej, Copenhagen Ø, Denmark.

Water Research Centre

The following papers and proceedings are now available from the Water Research Centre: *The Effects of Storage on Water Quality*, a Water Research Centre symposium held at the University of Reading, March 1975 (price £15.-, free to members); *Groundwater Quality - Measurement, Prediction and Protection*, a Water Research Centre conference held at the University of Reading, September 1975 (price £15.-, free to members); *Flotation for Water and Waste Treatment*, a Water Research Centre conference held at Felixstowe, June 1976 (price £10.-, free to members). Further information: Water Research Centre, Medmenham Laboratory, P.O. Box 16, Marlow, Bucks. SL7 2HD, United Kingdom.

Courses

The International Institute for Hydraulic and Environmental Engineering (IHE), Delft, in cooperation with the Delft University of Technology and the Netherlands Universities Foundation for International Cooperation (NUFFIC), is organizing an 11-month International Post-Graduate Course for Hydrologists. The study programmes offered are applied hydrology and operational hydrology. The course will start in October 1979. Further information: The Registrar IHE, NUFFIC, P.O. Box 90734, 2509 LS The Hague, the Netherlands.

Conferences

The Colorado State University Research Institute, in cooperation with the Colorado State University, is sponsoring a short course for individuals dealing with the analysis of watersheds and rivers. Practical applications concerning physical processes and responses will be emphasized. The objectives of the course are: to provide the opportunity to learn techniques orientated to solving practical problems associated with the analysis and utilization of watersheds and rivers; to become acquainted with the physical processes governing the response of watersheds and rivers; to enhance the participant's insight of mathematical modelling techniques related to watershed and river analysis; to demonstrate several levels of integrated methodologies for the analysis of watersheds and rivers; to provide documented copies of programmable calculator programmes. Dates of the course, which will have two sessions, are 28 May-1 June, 1979 and 4-8 June, 1979. Further information: Mrs. K. Schneider, CSU Research Institute, P.O. Box 342, Fort Collins, Colorado, 80522, U.S.A.

The Institute of Civil Engineers is organizing a conference entitled *Water Resources - A Changing Strategy ?*, to be held in London, 2-5 October, 1979. The conference will discuss recent and expected changes in water resource planning, design, construction and management in the developed countries, and will consider the relevance and application of this technology to the developing world. Further information: Conference Office, Institute of Civil Engineers, Great George Street, London SW1P 2AA, United Kingdom.



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Newsletter No. 99 - May 1979

News from IRC

CALL FOR TYPE DESIGNS OF WATER SUPPLY COMPONENTS

With the designation of the International Drinking Water Supply and Sanitation Decade (1981-1990) and increasing government commitment to improve the drinking water supply situation, it is anticipated that hundreds or even thousands of drinking water supply schemes will be planned for construction in developing countries. In the approach of such a programme in which similar technical components such as spring capture, wells, pump-houses, storage reservoirs, filters, etc. are applied over and over again, standardized designs can be used with great benefit, e.g. rapid planning and construction, simplified maintenance with possible stocking of standard spare parts, increased local skill with repetitive exercise, minimum of engineers' designing hours needed ("once for all" designs need only periodical review), delegation of work to sub-professionals and increased possibility of local manufacture (when break-even quantities are exceeded) at greater economy. In supporting efforts in this direction the International Reference Centre for Community Water Supply is starting a study in which IRC consultant Dr. F.E. McJunkin will identify type designs of water supply components for small supplies in a number of countries and review material received at the Centre through a mail survey reaction to this call. The resulting manual will serve as a reference work and guide to countries which are in the stage of setting standards for their national plans and draft standardized designs. To participate in this joint effort, please mail your typical designs to IRC, P.O. Box 140, 2260 AC Leidschendam, The Netherlands.

United Republic of Cameroon/United Republic of Tanzania

DESIGN CRITERIA

For the design engineer who has newly arrived in a country it is frequently hard to find out the appropriate criteria on which to base his designs. Here are some clues. In a speech inaugurating a new village piped water supply with public standposts in Cameroon, the local governor told the villagers to prevent straying cattle from damaging the standposts and to provide a run-off for waste water and avoid breeding of malaria mosquitos. In Tanzania, pipelines are supposed to be laid several feet deep to prevent elephants, who can smell the water, from digging them up. In one engineering report the roof of a ground storage reservoir was designed to bear the weight of two elephants.

Water Research Centre

ANNUAL REPORT 1977/1978

The *Annual Report 1977/1978* of the Water Research Centre (U.K.) is a useful work of reference for those who want to make acquaintance with the Centre (or bring their knowledge about the Centre up-to-date). The main areas of activity of the Centre are described, as well as the state-of-the-art of these activities. At the end of each scientific section a list of references relevant to the work is given. A complete list is also given of the reports and papers published by the Water Research Centre over the last three years, numbering well over 300. Also included in the Report are the committees on which the Centre is represented, significant staff appointments, and distinguished visitors to the Centre. These lists will be of interest to many of those concerned with the worldwide areas of water research. Copies of the Annual Report are available on request to the Water Research Centre, Medmenham Laboratory, P.O. Box 16, Medmenham, Marlow, Bucks. SL7 2HD, United Kingdom.

New Publications

THE STRUCTURE AND MANAGEMENT OF THE BRITISH WATER INDUSTRY

The Structure and Management of the British Water Industry is the first in a series of Water Practice Manuals published by the Institution of Water Engineers and Scientists. The publication covers the following aspects of the British Water Industry: Historical Development; The Water Industry from 1974; Water Law; Economics; Finance; Management and Research. Further information: The Institution of Water Engineers and Scientists, 6-8 Sackville Street, London W1X 1DD, United Kingdom.

Meetings

The 3rd International Trade Fair on Waste Handling and Cleansing will be held at Jönköping, Sweden from 17 to 21 September, 1979. The International Trade Fair is arranged by ELMIA AB together with experts from the National Environment Protection Board and national agencies and associations. A number of conferences will be held in conjunction with the Trade Fair. Subjects of the conferences will be as follows: Heat treatment of waste combined with production of heat, gas and electricity; Composting of waste; Research, development trends and usual practice within the field of wastes; Waste recovery; Hazardous waste. Further information: ELMIA AB, Box 6066, S-550 06 Jönköping, Sweden.

WORLD CONGRESS ON ENVIRONMENTAL SANITATION IN DEVELOPMENT PLANNING

From the 12 to the 16 of November, 1979, the Secretariat of Public Health and Welfare of Mexico, the World Health Organization, and the Pan American Health Organization will sponsor a Congress in Mexico City to present scientific and technical information concerning the interaction between health and the development process as well as to exchange experiences concerning the multidisciplinary organizational, conceptual and methodological issues related to social and economic development and environmental health. The Congress will provide information to professionals in both the health and development sectors to help them incorporate environmental health objectives in national development planning, and will emphasize practical national experience that could be applied elsewhere. In addition, there is expected to be a review of existing activities, sources of information and available training courses. The Congress is open to all countries and should be of interest to those professionals responsible for economic analysis and funding of development projects. It should be of special interest to those responsible for the design and implementation of development projects as well as scientists and educators concerned with research and training in this area. For additional information please contact the Congress' General Secretariat at Ave. Chapultepec No. 284 - 13o Floor, Mexico 7, D.F., Mexico.



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newsletter

Newsletter No. 100 - June/July 1979

News from IRC

COMMUNITY PARTICIPATION

A forthcoming publication in the IRC Technical Paper Series (No. 12) is *Participation and Education in Community Water Supply and Sanitation Programmes - A Literature Review*, prepared by Christine van Wijk-Sijbesma. It is meant to support national development agencies in the design, testing and implementation of community education and participation strategies in water supply and sanitation programmes. The book is the result of a study of some 300 documents (full-length studies and articles as well as published or unpublished project reports). It analyzes the role community participation and education can play in the various stages of a community water supply and sanitation programme. These stages are systematically followed in the book and the necessity of and possibilities for participation and education are discussed, with constant reference to the literature consulted. The author distinguishes planning, collection of information about the community, provision of information to the community, joint decision on facilities to be constructed, implementation, operation and maintenance, and joint evaluation. Much attention is given to the subject of health education, which emerges as an essential element of any programme, if the desired health benefits of the new facilities are to be achieved. Continuation of health education in some form after completion of the programme would seem to be an important condition for long term success. Among the many subjects discussed are the relative merits of a mass media versus a personal contacts approach, of democratically governed versus agency controlled operations and maintenance, of self-help activities versus contracted labour and other matters fundamental to development work. A bibliography consisting of a series of 145 detailed annotated abstracts of documents on which the literature review was based, will appear a few weeks after its companion volume as No. 13 in the IRC Bulletin Series. The books can be obtained from the IRC, P.O. Box 140, 2260 AC Leidschendam, The Netherlands.

Indonesia

FERROCEMENT RAIN WATER TANKS CUT LOSS

With UNICEF support, 500 ferrocement water tanks of 9 cubic metres each have been constructed by local craftsmen in the Gunung Kidul area near Yogyakarta in Central Java. The World Bank, following this lead, now proposes to finance another 5,000 of these tanks. The construction is simple, using a network of coarse wire and chicken netting which is plastered with cement mortar. Total cost is about U.S. \$150.00 as against U.S. \$250.00 for similar tanks with more conventional construction methods. Further information: Dian Desa, Jalan Kerto Muja-Muju 8, Yogyakarta, Indonesia.

New Zealand

ANNOTATED BIBLIOGRAPHY ON WATER DEMANDS

Forecasts of water requirements based on extrapolation of past trends are often found to be in error. The demand for water is not a fixed requirement but is determined by many factors which change with time. The influence of these factors may be modelled to provide better water demand estimates and forecasts. For the bibliography, 67 articles and technical reports analysing the demand for water in municipalities, agriculture and industry have been selected and abstracted. The bibliography brings together the available information on water demands from more than 100 authors in 15 countries and is intended as a convenient reference for the analyst or water planner. Reference: *Water Supply and Management*, Vol. 3, No. 2, 1979.

South Africa

MANUAL FOR WATER RENOVATION AND RECLAMATION

The National Institute for Water Research, in collaboration with the Water Research Commission has published a *Manual for Water Renovation and Reclamation*. The aim of this manual is the dissemination of information useful to design engineers, researchers and organizations concerned with the reclamation of water from wastewaters. It is based mainly on extensive investigations by the National Institute for Water Research on the large-scale operation of the Stander water reclamation plant, as well as on laboratory and pilot scale investigations. The various treatment processes, such as high lime treatment, ammonia

stripping, softening, quality equalization, stabilization, filtration, active carbon adsorption and regeneration, sludge handling and disinfection using chlorine and ozone are discussed in detail. Where necessary, the work is supplemented by applicable theories and supporting literature. Cost aspects of water renovation, as well as organization and control of water reclamation plants, are discussed. Further information: Council for Scientific and Industrial Research, P.O. Box 395, Pretoria, South Africa.

U.S.A.

ENVIRONMENTAL IMPACT OF INTERNATIONAL CIVIL ENGINEERING PROJECTS AND PRACTICES

In October 1977, the Environmental Impact Analysis Research Council (EIARC) and its committee on large International Civil Engineering Projects of the American Society of Civil Engineers organized a workshop to identify factors leading to programme successes or failure in civil engineering practices. The workshop was organized around two sessions. The first was devoted generally to case studies; the second concentrated on discussions of socio-economic and environmental considerations and their impact on civil engineering. Now the American Society of Civil Engineers has published the proceedings of these two sessions. The publication, entitled *Environmental Impact of International Civil Engineering Projects and Practices*, includes case studies on: Environmental impacts of four African impoundments, by L. Obeng; Water supply projects in developing countries, by D.E. Cullivan and R. Careaga; Four developing country waste disposal projects, by R.L. White and G.D. Beers; Irrigation and people, by M. Welbank, and Grand plans for water, by W.R. Derrick Sewell. Further attention is paid to health issues (D. Donaldson), pricing (J.J. Warford and P.L. Rosenfield), community participation (M. Elmendorf), appropriate technology (M.G. McGarry) and standards (B.E. Willard). The editors of the publication, J.M. Kalbermatten and C.G. Gunnerson also contribute with a review of the results of the workshop in a paper entitled *Environmental Impacts of International Engineering Practices*. Further information: American Society of Civil Engineers, 345 East 47th Street, New York, N.Y. 10017, U.S.A.

Meetings

The International Association on Water Pollution Research will hold a Regional Conference on the Pollution of the Mediterranean, 24-27 September, 1979, at Palma de Mallorca, Spain. Papers on the following topics will be presented: Sociological aspects of coastal pollution; Pollution in special zones (coastal lagoons, estuaries, etc.); Incidence of various sources, Urban, Agricultural, Industrial; Health hazards of coastal pollution; Aesthetic aspects of coastal pollution; Territorial planning as a means of combating coastal pollution; Sewage treatment: with special reference to the Mediterranean; Systematic sewage control; General mathematical models of pollution in the Mediterranean; Influences of seasonal variation in the use of beaches; Technical and economic factors; Pollution and life in the Mediterranean; The Mediterranean sea as a waste disposal dump; Pollution by hydrocarbons; The approach to joint legislation for defence of the Mediterranean. Further information: Mr. R. Urbistondo, Comité Espanol De La Asociación Internacional de Abastecimientos de Agua, Paseo Bajo de la Virgen Del Puerto, 3, Madrid 5, Spain.

Courses

The new session of the inter-regional course on training of sanitary engineers at the CIGS, Rabat, Morocco, will begin on about the 15 February, 1980. This specialized advanced course will be held for French speaking engineers who wish to obtain the state engineer diploma in sanitary engineering. Holders of a civil engineering or a chemical engineering diploma, obtained after at least four study years following secondary schooling, can apply for direct admission to the CIGS. The length of the course is 3 terms; thus the February 1980 course ends in June 1981. Scholarships may be granted by the World Health Organization to applicant governments, and by the Moroccan Government in the context of bilateral cooperation between Morocco and the respective countries of the candidates. Further information: Mohammadia School of Engineers, P.O. 765, Rabat, Morocco.



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newsletter

Newsletter No. 101 - August 1979

Bangladesh

DEVELOPMENT OF SIMPLE PVC HAND PUMP

A simple PVC hand pump is being developed in Bangladesh by the Mennonite Central Committee with CARITAS and UNICEF assistance. The pump (tentatively called the "Rower" pump) is inclined at an angle of approximately 30° from horizontal. This enables the piston rod to be pushed and pulled directly; no pins or levers are required. The piston valve consists of a rubber disc secured in the centre, and sealing on a perforated metal disc. The foot valve has a rubber flap closing a 1½ inch (4 cm) diameter opening. The pump is being tested for durability and further improvement. Initial results indicate that the "Rower" pump enables a man to lift water at a rate about 50% higher than with a No. 6 (MOSTI) pump, commonly used in Bangladesh, at a suction lift of 4.5-6 m. Further information: Mennonite Central Committee, Box 13, Noakhali District, Bangladesh.

Canada

WATER QUALITY SOURCEBOOK

The Inland Waters Directorate of the Water Quality Branch, Ottawa, Canada, has published the *Water Quality Sourcebook: a guide to water quality parameters*. The authors, R.N. McNeely, U.P. Neimanis and L. Dwyer discuss the water quality parameters that are monitored on Canada's major surface waters for a number of years and stored on NAQUADAT the data processing system of the Water Quality Branch. Further information: Inland Waters Directorate, Water Quality Branch, Burlington, Ontario, Canada.

India

REPAIR KITS FOR HAND PUMPS

The IRC has recently received two reports on repair kits for hand pumps from D.S. Ravi Kumar, Hyderabad, India. They are: excerpts from the project report *Tooling for Deepwell Hand Pump Repair*, submitted to the Department of Mechanical Engineering, M.S.R. College of Engineering, Bangalore, India and *Report on Repair Kits for the India Mark II Pump*. The first report identifies the problem of repair in a general manner i.e. maintenance and repair, the requirements of low cost tooling, and the type of tooling suggested (portable tripod stand, automatic clamp, efficient hoist). The emphasis is on reducing the number of workmen and to replace the traditional vice with an automatic clamp to eliminate manual interference and accidents. The aspect of recovery kits has been mentioned only to state the importance of the problem. The second report provides descriptions and drawings of a portable tripod stand, two types of clamps (pipe holders or vices, one automatic and self-locking and the other semi-automatic and self-locking), and a recovery tool with external grip on the pipes. It has been described in the report how to make tools for both the 1½ inch and 1¼ inch drop pipe. Further information: Mr. D.S. Ravi Kumar, 3-6-369-A/11, St. No. 1, Himayatnagar, Hyderabad, India.

ION REMOVAL IN LOCAL MATERIAL

Serpentine is a yellow or green mineral found in Andhra Pradesh which contains magnesium hydroxy silicate. It was observed that the mineral has appreciable adsorptive capacity to retain heavy metals. Experiments are described in which iron, manganese, copper, arsenic, lead and cadmium are removed when test waters containing these ions were passed over a column of crushed mineral. Reference: *Indian Journal of Environmental Health*, Vol. 20, No. 4, 413-419, 1978.

Sudan

NATURAL WATER COAGULANTS

A traditional water coagulant in rural areas in the Sudan is the powdered seed of *Moringa oleifera* Lam. The properties of this coagulant are compared with those of alum, powdered root of *Maerua pseudopetalosa* and a mixture of *Hibiscus sabdariffa* L. seeds and soda. In the April 1979 issue of *Water SA* (pp. 90-96), S.A.A. Jahn and H. Dirar report on a study of natural water coagulants in an article entitled *Studies on Natural Water Coagulants in the Sudan, with Special Reference to Moringa Oleifera Seeds*. Moringa seeds act as a primary coagulant and

compare favourably with alum with respect to rate of reaction and decrease of turbidity of the treated water. Some preliminary studies on the identification of the coagulating principle are also discussed. Moringa seeds are in use as a folk medicine and as a food, so it is unlikely that they contain any toxic substances. There exists evidence that Maerua pseudopetalosa is toxic although this needs further investigation. The total bacterial count of the raw water was initially reduced after coagulation with Moringa seeds, but increased subsequently. The results of the use of the seeds are also compared with those obtained with coagulants of clay origin. Reference: *Water SA*, Vol. 5, No. 2, April 1979.

United Kingdom

WATER RESEARCH PROGRAMME

In its 1979/1980 research programme, the Water Research Centre (United Kingdom) will reassess conventional water treatment in relation to its performance for the removal of health related contaminants. Of particular importance are the removal of hazardous trace organics and the removal of natural colour, a trahalomethane precursor, from low turbidity waters. In the Centre's disinfection programme, all possible disinfectants and the manner of application will be examined in the search for a disinfection system that minimises the production of health-related chemicals. A survey will be conducted to determine the extent of the small source disinfection problem. An assessment of commercially available products will be made and, where necessary, the development of suitable equipment will be initiated. Further information: Water Research Centre, Medmenham Laboratory, P.O. Box 16, Marlow, Bucks. SL7 2HD, United Kingdom.

World Bank

SOLAR POWERED PUMPING STUDY

The World Bank has been appointed Executing Agency for a project on Testing and Demonstration of Small-Scale Solar Powered Pumping Systems, financed by the United Nations Development Programme. In this U.S. \$1.1 million study, which will last two years, as of June 1978, small solar-powered water pumping systems designed to irrigate small farms up to one hectare in size, will be tested in India, Mali, Sudan and the Philippines in photo-voltaic electric and solar thermal systems in the 200-300 W and 1-2 kW range respectively. Besides field testing and demonstration, market surveys and feasibility of manufacture will be investigated. While water provided by these systems is still high in costs, it is expected that the cost of solar collectors which can represent more than 90% of the total cost would go down with increased efficiency. Further information: World Bank, 1818 H. Street, N.W., Washington, D.C., 20433, U.S.A.

New Publications

NTIS SEARCH ON SEPTIC TANKS AND HOUSEHOLD SEWAGE

The National Technical Information Service (NTIS) of the U.S. Department of Commerce has published a bibliographic search entitled *Septic Tanks and Household Sewage Systems, Design and Use*. The search covers the period 1964 to May 1979. All citations are extracted from the NTIS data base. Further information: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, U.S.A.

Meetings

The Water Research Centre (United Kingdom), in collaboration with the University of Manchester Institute of Science and Technology (UMIST), is organizing an international conference on Biological Fluidised Bed Treatment of Water and Wastewater to be held in April 1980. Contributions have been invited from leading experts in the United Kingdom, U.S.A., Canada, Australia and South Africa. The latest work at WRC and UMIST will be described and there will be opportunity to visit one or two large pilot plants. Facilities for poster papers will be provided at the conference. The conference programme will include papers on: removal of nitrate and ammonia from water; treatment of sewage in fluidised beds; workshop on basic principles of fluidised beds; treatment of industrial wastewater; process economics; denitrification of concentrated industrial wastes. Further information: the Conference Organizer, Water Research Centre, Medmenham Laboratory, P.O. Box 16, Marlow, Bucks. SL7 2HD, United Kingdom.



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newsletter

Newsletter No. 102 - September 1979

Caribbean

During the 9th Annual Caribbean Water Engineers' Conference held in September 1978, the Montserrat Water Authority (MWA) demonstrated a simple floating chlorinator which has been successfully used in their country for several years. Furthermore, a new training job manual entitled *Installation, Operation and Maintenance of a Floating Chlorinator*, compiled by K. Lewis (Montserrat), was announced. This manual, one of about 20, developed under the joint venture PAHO-CIDA Caribbean Basin Water Management Project, has recently been printed and shared with 9 other countries participating in the said project. Because of the dearth of instructional materials for the Caribbean waterworks industry the development of appropriate training job manuals and job aids has been set as a top priority activity for the Project. The author hopes that users of the manual will provide feedback on their experience with the manual and/or floating chlorinator. Further information: Pan American Sanitary Bureau, Regional Office of the World Health Organization, Office of the Caribbean Programme Coordinator, P.O. Box 508, Bridgetown, Barbados.

Kenya

DESERTIFICATION

An Inter-Agency Working Group on Desertification has been established to coordinate the activities of the U.N. agencies and organizations in their work for the Plan of Action to Combat Desertification. Further information: United Nations Environment Programme, Desertification Unit, Mr. J. Högel, Chief, P.O. Box 30552, Nairobi, Kenya.

U.S.A.

IRON IN GROUNDWATER SUPPLIES

Engineers commonly describe the iron precipitate in water treatment plants as ferric hydroxide ($\text{Fe}(\text{OH})_3$) but have also considered the possibility of ferrous carbonate (FeCO_3) in certain cases. Research carried out at Iowa State University and reported by Dr. R. Bruce Robinson in his doctoral dissertation, showed that $\text{Fe}(\text{OH})_3$ does not exist under any conditions. No evidence for FeCO_3 under normal conditions was found either. Rather, the precipitate seems to be small crystals of lepidocrocite, γ - Fe OOH , at low silical concentration (< 7 mg/l at pH 7 with an iron concentration of 10 mg/l). The precipitate becomes amorphous at higher silicate concentrations. An interesting conclusion of this research is that there are probably enough variations amongst the iron oxyhydroxide precipitates to account for differences in treatability of various groundwater sources. Further work is recommended to develop this knowledge of the precipitation of iron and manganese into design practice for groundwater treatment plants. Further information: Dr. R. Bruce Robinson, Department of Civil Engineering, Iowa State University, Ames, Iowa 50010, U.S.A.

Water Research Centre

SEPTIC TANKS AND SMALL SEWAGE TREATMENT PLANTS

In March 1979, the Water Research Centre (United Kingdom) published a new report in their Technical Report Series (number TR107) entitled *Septic Tanks and Small Sewage Treatment Plants* prepared by Dr. H.T. Mann. The report aims at providing guidance to those responsible for the provision and maintenance of septic tanks and small sewage treatment plants. There exists a wide range of sewage treatment and disposal systems for small communities; from simple septic tanks to more complicated systems employing biological filters or activated sludge processes. The report compares most of the characteristics of the various systems. All treatment works need some inspection and maintenance. The work can be reduced by installing automated plants. This needs some extra capital cost, and often entails much greater running costs. At smaller works, this often appears to be a big problem that is quite often neglected. One of the conclusions of the report is that most problems that occur result from a lack of information, particularly in respect to maintenance requirements. Another conclusion is that old works often can be reconditioned and their capacity increased, often at relatively low cost. Older systems, such as percolating filters, have a high durability, and they are usually more flexible than more sophisticated package plants. Further information: Water Research Centre, Medmenham Laboratory, P.O. Box 16, Medmenham, Marlow, Bucks. SL7 2HD, United Kingdom.

New Publications

SANITATION WITHOUT WATER

The flush toilet cannot solve the problem of excreta disposal in developing countries. It cannot even be considered as an alternative since the majority of the world's population has no access to piped water. However, dry sanitation systems do not have the high transport costs of sewerred systems (up to 80% of the total costs of flush toilet systems goes to collection networks). In the long term, bucket latrine systems are even more expensive. The alternative of the septic tank and aqua privy has a relatively high failure rate and also requires special soil conditions for absorption of effluent. Uno Winblad has prepared a book on the design and construction of individual household sanitation systems, in particular compost latrines and improved pit latrines. The book, entitled *Sanitation without Water* is illustrated by K. Torstensson and is intended for health officers, sanitarians, medical auxiliaries and village technicians, in East Africa. However, the background information and examples given should also be useful to readers outside of East Africa. The first part of the book contains two chapters: one on the relation between sanitation and disease (prepared by W. Kilama) and one on the composting process. The second part describes ten different dry excreta disposal systems in all parts of the world. The third part is presented as a manual. The latrine components are systematically presented. With the information given it should be possible to design latrines for a variety of situations. Other chapters of the third part give information on operation of sanitation systems. An appendix deals with fly control in dry latrines. Comments would be appreciated by Uno Winblad, P.L. 2205, S 68200 Filipstad, Sweden. The publication is distributed by SIDA, Population, Health and Nutrition Division, Birger Jarlsqatan 61, 10525 Stockholm, Sweden.

Meetings

The Institution of Water Engineers and Scientists (United Kingdom) will organize a symposium on The Water Treatment Scene - the Next Decade on 5 and 6 December, 1979, in London. Attendance at the symposium is not restricted to members of the Institution. Special attention will be given to the problems of the designer, manufacturer and operator of treatment works. There will also be a contribution on research, which will review progress made in the 1970s and attempt to anticipate future developments. Registration (not later than 15 November 1979) with: The Secretary, The Institution of Water Engineers, 6-8 Sackville Street, Piccadilly, London W1X 1DD, United Kingdom.

IWSA AFRICA '80

Representatives from 25 African countries, together with water supply experts from Europe, the Middle East, Australasia, India, other Asian countries, and the United States will be taking part in the first African Water Supply Conference and Exhibition being organized by the International Water Supply Association in Abidjan, Ivory Coast, 4-8 February, 1980, in conjunction with the inaugural meeting of the new African Union of Water Suppliers (UADE). Subjects of the Conference will concern the problems and needs of African water supply organizations. Sessions will be devoted to an examination of the existing systems of tariffs, water treatment processes, water supplies for small towns and villages in rural areas, optimisation of networks in distribution systems in rapidly developing areas, and there will be a special session devoted to the United Nations Water Decade in relation to African plans and needs. Amongst the speakers are a number of international experts from the World Health Organization, the World Bank and IWSA Standing Committees as well as many prominent national officials from African, European, Indian, and other Asian water authorities. There will be a simultaneous translation in English and French throughout the Conference. Further information: IWSA, 1 Queen Anne's Gate, London SW1H 9BT, United Kingdom.

WASSER BERLIN '81

WASSER Berlin '81 will be held from 30 March to 5 April, 1981 in the International Congress Centre in Berlin (West). The organizers aim to provide an overall event made up of numerous component parts to inform those active in the water industry, politicians, scientists, those in practical work and those in administration, about the existing state of information and technology in the field of water supply and to discuss future developments. The focal point of WASSER Berlin '81 is a five-day congress, offering a complete survey of all aspects of water, active in which will be a range of national and international organizations. It is intended, amongst other things, to cover the following subjects: International Drinking Water Supply and Sanitation Decade 1981-1990; Water Resources and their Continued Availability; a Dam Symposium; Economics of Water Supply and Distribution and Hydraulic Engineering in Developing Countries. Further information: AMK Berlin, Postfach 191740, Messedamm 22, D-1000 Berlin 19 (West), Germany.



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Newsletter No. 103 - October 1979

News from the IRC

POMPES A MAIN

Two years ago the IRC published a comprehensive manual entitled *Handpumps for use in Drinking Water Supplies in Developing Countries* (IRC Technical Paper No. 10) under the joint sponsorship of the United Nations Environment Programme (UNEP) and the World Health Organization (WHO). This publication has been in continuous demand ever since. It is used by government departments and organizations in developing countries concerned with rural water supplies and by the international and bilateral agencies providing technical and financial assistance to water supply programmes. In order to better serve the requirements of the French speaking countries, IRC has now published a French version of the handpump manual, entitled *Pompes à Main*. The French translation has been prepared by the Institut du Génie de l'Environnement at the Ecole Polytechnique Fédérale at Lausanne, Switzerland. Further information: IRC, P.O. Box 140, 2260 AC Leidschendam, the Netherlands.

U.S.A.

The National Water Well Association (NWWA) is looking for people interested in receiving training materials related to appropriate technology for rural water supply and sanitation in less developed countries. NWWA is working on a research project with the U.S. Agency for International Development, the result of which will be a package of appropriate technology training materials. Further information: A.E. Simmons, NWWA, 500 West Wilson Bridge Road, Worthington, Ohio 43085, U.S.A.

U.S. AID FUNDING FOR NON-GOVERNMENTAL ORGANIZATIONS (NGOs)

The U.S. Congress has authorized the support of foreign non-profit voluntary agencies in development programmes abroad where U.S. voluntary agencies are not available. Voluntary organizations wishing to apply for assistance must first be registered with the Agency for International Development (AID) Advisory Committee on Voluntary Foreign Aid. For an organization headquartered outside the U.S., registration is accomplished through the U.S. AID Mission in that particular country or region. International governmental organizations apply for registration to the Assistant Administrator, Bureau for Private and Development Cooperation, Agency for International Development, Washington, D.C. 20523. When a non-U.S. or international voluntary organization has been registered, it is eligible to apply for an operating programme grant. These are funded through AID's geographic bureaus or overseas missions and a grant of up to U.S. \$500,000 for the duration of the grant can be made directly by a U.S. AID Mission. Application for a grant should be made to the U.S. AID Mission in the country or countries where the project for which assistance is being sought will operate. Further information: Mr. T.H. Fox, Director, Office of Private and Voluntary Cooperation, Agency for International Development, Washington, D.C. 20523, U.S.A. (in: *From the UNICEF Waterfront*, September 1979).

International Water Supply Association (IWSA)

The International Water Supply Association's journal *Aqua*, which has appeared bi-monthly up until now in English and French, will be remodelled into a monthly journal, starting January 1980. Apart from news on the Association and its members, articles will be presented on new developments or experiences in the practice of public water supply and on technical and scientific advances of direct importance to or application by water supply experts. Information on the journal can be obtained from IWSA's Secretary General, 1 Queen Anne's Gate, London SW1H 9BT, United Kingdom.

United Nations Conference on Science and Technology for Development (UNCSTD)

For those interested in the outcome of the United Nations Conference on Science and Technology for Development (20-31 August, 1979), the NGO Committee is preparing an UNCSTD Information Packet. It will include 10 issues of *Report*, the NGO daily conference newspaper; a special post-conference issue (available only on a subscription basis), interpreting for those not there what happened at the Conference; and the UNCSTD Declaration and Programme of Action as adopted. Available three weeks after the conference ended, the packet costs U.S. \$15.00 (airmail included) from: NGO Committee on Science and Technology for Development, 122 East 42nd Street, New York, N.Y. 10017, U.S.A. Cheques should be made payable to NGO Committee for UNCSTD.

News from WHO

SOCIAL AND ECONOMIC ASPECTS OF TROPICAL DISEASES/RESEARCH PROGRAMME

A new research programme for tools to control diseases in tropical countries seeks relevant research proposals from social scientists and economists. Methods to control many of the major infectious diseases of the tropics are notably inadequate and WHO's Special Programme for Research and training in Tropical Diseases intends to promote research on the social and economic aspects of the control of six such major public health problems: malaria, schistosomiasis, filariasis (including onchocerciasis or river blindness), trypanosomiasis (both African sleeping sickness and the American form called Chagas' disease), leishmaniasis and leprosy. Sponsored by the United Nations Development Programme (UNDP), the World Bank and WHO, the programme has two aims: through research and development to seek new and better tools to control tropical diseases and through training and strengthening of institutions, to promote self-reliance in research in the affected countries. Scientists from any country may submit research proposals which, in the area of social and economic sciences includes: human behaviour and disease transmission; community awareness of disease and acceptance of disease control measures; community role in disease control; cost-effectiveness of disease control measures; manpower analysis for disease control campaigns; prediction and prevention of disease transmission in relation to social and economic development; management of disease control programmes, including resource allocation within and between programmes. Research institutions in the affected countries may apply for assistance to develop their facilities for training. Training grants are also available to individuals from these countries. Further information: Office of the Director, Special Programme for Research and Training in Tropical Diseases, c/o World Health Organization, 1211 Geneva 27, Switzerland.

Meetings

13TH INTERNATIONAL WATER SUPPLY CONGRESS AND EXHIBITION

The International Water Supply Association (IWSA) will organize their 13th International Congress and Exhibition on 1-4 September, 1980, in Paris, France. General reports will be presented during the Congress on water quality and health, as well as on water use and consumption. Furthermore, reports on special subjects such as optimization of water resources, energy saving, models to optimize water supply systems, new developments in removal of organics, will be delivered and a large number of group discussions will be organized. Further information can be obtained from IWSA, 1 Queen Anne's Gate, London SW1H 9BT, United Kingdom.



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newsletter

Newsletter No. 104 - November 1979

INFORMATION ON TECHNICAL COOPERATION AMONG DEVELOPING COUNTRIES (TCDC)

As one response to the call from the UN Conference on Technical Cooperation among Developing Countries (TCDC) - which took place in August 1978 in Buenos Aires - for intensive information support for TCDC, the Division of Information of UNDP (United Nations Development Programme), in cooperation with the TCDC Special Unit, has started the regular production of a periodical, entitled *TCDC News*. The objectives of this very informative bulletin are: to spread the news of action in cooperation among developing countries; to clarify what such technical cooperation is and why it is now perceived as a major new dimension in all international cooperation for development; to provide information on the supportive and promotional role of UNDP and the United Nations development system in TCDC; and to ventilate unfolding issues and problems in this major development within the search for a new international economic order. *TCDC News* is published in English, French, Spanish and Arabic. Further information on the bulletin is available from: *TCDC News*, Division of Information, United Nations Development Programme, 1 UN Plaza, New York, N.Y. 10017, U.S.A.

DIRECTOR SPECIAL TCDC-UNIT APPOINTED

Mr. Hussein Raffay Idris has been appointed, effective 15 August, 1979, as Director of the Special Unit for Technical Cooperation among Developing Countries (TCDC) of the United Nations Development Programme. As Director of the Unit, Mr. Idris will be responsible for the promotion and strengthening of TCDC, a concept that is likely to be of high importance to the possible success of the International Drinking Water Supply and Sanitation Decade. The functions of the aforementioned unit will include: assisting governments, at their request, in developing plans and organizing focal points for TCDC activities; research and studies to identify, analyze and evaluate TCDC activities and to determine means of overcoming constraints to TCDC; developing proposals for specific financial arrangements for TCDC and mobilization of financial resources for specific TCDC activities; coordination of TCDC activities within the UN development system; promoting wider use of developing countries' capacities within programmes and projects supported by the UN development system. Further information: TCDC Special Unit, United Nations Development Programme, 1 UN Plaza, New York, N.Y. 10017, U.S.A.

UNDP GUIDE TO NATIONAL COORDINATING CENTRES FOR TCDC

The Special Unit for TCDC of the United Nations Development Programme has published a Directory of National TCDC Focal Points. Information on this guide, which provides data on the organization for TCDC activities in 150 countries - as collected by UNDP's Resident Representatives - can be obtained from TCDC Special Unit, United Nations Development Programme, 1 UN Plaza, New York, N.Y. 10017, U.S.A.

GROUNDWATER EXPLORATION AND DEVELOPMENT

A review of the world-wide United Nations Groundwater Exploration and Development Programme in Developing Countries has been prepared by the UN Department of Technical Cooperation for Development (UN/TCDC). This review was recently published in the Natural Resources/Water Series (No. 7, New York, 1979). Earlier publications under the UN/TCDC Programme are: *Large-scale Groundwater Development* (1960); *Groundwater in Africa* (1973) and *Groundwater in the Western Hemisphere* (1976). The groundwater exploration and development activities of the UN have expanded continuously since their inception. In the period 1962-1977 some 100 projects and short-term surveys were carried out in some 50 countries. These activities are partly financed within the UN Development Programme. Additional support has been received from UNICEF, as well as from various bilateral agencies and non-governmental institutions. The present report attempts to identify significant trends in groundwater exploration and development in developing countries over the 15 year period 1962-1977. It appears, that many of the UN groundwater projects will increasingly be oriented towards rural areas, primarily for the provision of permanent and safe water supplies for underprivileged rural populations. This trend was confirmed by the UN Water Conference, which gave a high priority to water resources development for potable water supply in rural areas. It is hoped that the present report will be followed in the not too distant future by a more comprehensive analytical study which will draw on the experience of all groundwater projects executed by the various organizations in the UN system, as well as the bilateral agencies. Further information: UN Department of Technical Cooperation for Development, United Nations, 1 UN Plaza, New York, N.Y. 10017, U.S.A.

New Publications

ANALYSIS OF SEWAGE SLUDGE, SOLID WASTES AND COMPOST

The International Reference Centre for Wastes Disposal has recently published a manual on *Methods of Analysis of Sewage Sludge, Solid Wastes and Compost*. Analysis is an essential tool for research and development in most technical and scientific fields: analytical techniques enable one to tackle a problem more successfully and the application of the same methods makes it possible to compare the results and usefulness of individual investigations. Solid waste is a rather young but nevertheless rapidly developing field of interest. To fulfil the need for analytical techniques these simple "Methods of Analysis" have been compiled. They are specifically suited to the more common waste problems: except for atomic absorption spectroscopy, the laboratory equipment and techniques are quite simple. There is no need for sophisticated analysis of high accuracy, since the starting material - waste - is so heterogeneous that good sampling is usually more difficult than the subsequent analysis. Part I of the manual, which covers the analysis of sewage sludge, is based on the final report of the Management Committee of the COST Project 68 (European Cooperation and Coordination in the Field of Scientific and Technical Research). Part II deals with solid municipal waste and compost; this part was prepared by the Solid Waste Department of the Swiss Federal Institute for Water Resources and Water Pollution Control (EAWAG). EAWAG published - in cooperation with the International Solid Wastes and Public Cleansing Association (ISWA) - a similar manual in 1970; a third edition, including more sophisticated methods, is planned for 1979. Further information: International Reference Centre for Wastes Disposal, Ueberlandstrasse 133, 8600 Dubendorf, Switzerland.

ANNUAL REPORT 1978 WHO REGIONAL OFFICE FOR EUROPE

The Regional Office for Europe of the World Health Organization has published its Annual Report 1978 of the Regional Director. A quote from this very exhaustive report: "In the less developed parts of the Region major basic sanitation problems still exist. Water supply and wastes disposal facilities remain inadequate, particularly in many rural areas. A rapid assessment of the present situation has been carried out in connexion with the forthcoming International Water Supply and Sanitation Decade, and an expanded programme on technical cooperation with countries in the southern part of the region is expected to be developed in the next few years". Further information: WHO Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark.

Meetings

The Environmental Engineering Division of the American Society of Civil Engineers (ASCE) is soliciting papers for the July 1980 national conference to be held in New York City. Abstracts of technical papers in the areas of drinking-water treatment and quality, wastewater treatment, water quality and water re-use will be reviewed for selection of participants. Those who are interested in participation should send five copies of abstracts as indicated above to Dr. Walter P. Saukin, Department of Civil Engineering, Manhattant College, Bronx, New York 10471, U.S.A.



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Newsletter No. 105 - December 1979

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

The United Nations Development Programme (UNDP) has appointed Dr. P. Bourne as coordinator at the Assistant Secretary General level for the development of UNDP's contributions to the cooperative action, undertaken by UNDP, WHO, UNICEF, the World Bank, FAO, ILO and UN in support of the International Drinking Water Supply and Sanitation Decade (1981-1990). Dr. Bourne will coordinate UNDP's internal plans for the Decade and act as liaison between UNDP and the other above-mentioned organizations and the Steering Committee and in particular with WHO's Global Promotion and Cooperation in Community Water Supply and Sanitation unit which serves as the Committee's secretariate, and will advise on the kind of organizational arrangements needed at various levels to ensure effective communication and coordination of activities among the parties involved. He will also maintain liaison with official bilateral development assistance agencies, intergovernmental organizations, development banks and non-governmental organizations for mutual exchange of information regarding their plans and programmes for the Decade and to stimulate their commitment of resources to the Decade. Furthermore, he will establish contacts with scientific institutions, professional associations and individual scientists in relevant fields to try and ensure the support of the scientific community for the Decade work. Dr. Bourne has recently visited four West African countries, as well as Thailand and Sri Lanka and in discussing the options to meet the Decade goals in these countries with high governmental officials, has met with considerable interest to strive after the fulfilment of the overall objectives of the Decade: clean water and adequate sanitation facilities for all people by 1990. Dr. Bourne also recently met with President Fidel Castro, Cuba, to encourage his support for the Decade among the non-aligned countries.

Solomon Islands

COCONUT CHLORINATOR

A coconut chlorinator was built to disinfect hand-dug wells. The cost is negligible since the coconut shell does not cost anything. The effectiveness of one charge lasts for 2 to 3 weeks (depending on the amount of water drawn), thus eliminating the need for repeated daily recharge with disinfectant. Its use when gastrointestinal infections are widespread in a community (e.g. epidemic typhoid, cholera, etc.) would permit the make-up with disinfectant of all wells on a fortnightly basis. One other use of this chlorinator was demonstrated in Gizo when the town chlorinator broke down: several coconut chlorinators were installed in the storage tank temporarily until the existing one was repaired. Source: *Appropriate Technology for Health*, No. 4, October 1979, pp. 375-376, *ATH in the Solomon Islands*. (*Appropriate Technology for Health* is published by the World Health Organization, 1211 Geneva 27, Switzerland).

Thailand

TESTING AND EVALUATION OF PVC HANDPUMP

To support the search for a low-cost, dependable and easily repaired handpump for rural water supply projects in Thailand, a programme of laboratory testing and evaluation has been carried out at the Mechanical Engineering Department, Faculty of Engineering, Chulalongkorn University, contracted by WHO in conjunction with the Department of Health, Thailand. Phase I of the laboratory programme had the objective of testing and developing a PVC suction type of handpump for use on shallow wells not exceeding 6 metres of depth. On the basis of the test results, the original design of the piston assembly was modified and the poppet discharge valve was replaced by a suitable flap valve. A brass foot valve was locally made to replace the original expensive PVC foot valve unit. The modified PVC pump proved superior in performance to the original pump. It should be suitable for shallow wells, and is expected to last more than 1 million cycles without repair or replacement of parts. Further information: B.J. Kukielka, Team Leader, WHO Community Water Supply Project, Department of Health, Devavesm Palace, Bangkok 2, Thailand.

New Publications

OZONE AND ULTRAVIOLET RADIATION DISINFECTION FOR SMALL COMMUNITY WATER SUPPLY SYSTEMS

Both ozone and ultraviolet light were found to be inferior to chlorination from the standpoint of operation and maintenance requirements and maintaining disinfection in the distribution system. A disinfectant residual was found to be necessary even in the small water distribution systems studied. Neither ozone nor ultraviolet provide a residual disinfectant. The main problem with chlorination in small community water systems is inadequate operation and maintenance. Inadequate operation and maintenance is a general problem of small community water systems, not limited to the disinfection aspect. Methods for improving operation and maintenance of small water systems need to be established. Recent studies have shown that chlorination can lead to chlorinated organic compound production. However, the association with cancer and the health hazard have not been completely determined; the level of haloforms can be greatly reduced by proposing modified treatment techniques for which other disinfectants are also used. Reference: *Ozone and Ultraviolet Radiation Disinfection for Small Community Water Systems*, Municipal Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio 54268, U.S.A.

Rural Progress, published by the Social Development Division, United Nations Economic Commission for Africa, is a quarterly bulletin intended for all those who are concerned with rural development in Africa. It has replaced *Rural Development Newsletter* and *African Women*. Further information: The Editor, *Rural Progress*, P.O. Box 3001, Addis Ababa, Ethiopia.

Meetings

SEMINAR ON HEALTH ASPECTS OF TREATED SEWAGE RE-USE

The World Health Organization Regional Office for Europe is organizing a Seminar on Health Aspects of Treated Sewage Re-use to be held in Algiers, 1-5 June, 1980. In dry areas WHO considers it acceptable to re-use treated sewage for irrigation, watering of parks and gardens, recharge of aquifers, industrial processes or replenishment of raw surface water resources, with relevant precautions to prevent health risks from bacteria, viruses or helminths. It is also regarded as acceptable to use some surface or ground water containing treated sewage for public water supply, subject to stringent safeguards. The purpose of the Seminar will be to draw the attention of Member States to the conditions applicable to each case of re-use of sewage and to the health monitoring requirements. The Seminar will be interregional in scope with participants from dry countries of southern Europe, western Asia and northern Africa. Further information: World Health Organization Regional Office for Europe, 8 Scherfigsvej, DK-2100 Copenhagen Ø, Denmark.



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newsletter

Newsletter No. 106 - January 1980

A PROSPEROUS 1980 TO ALL WORKERS IN THE WATER FIELD

The year 1980 promises to become an important year for all those who are concerned with water supply and sanitation. In November, the International Drinking Water Supply and Sanitation Decade will be officially launched. In order to contribute to the success of the Decade, plans and programmes are being prepared, in developing countries as well as by bilateral donors and international agencies. In addition many more governmental organizations, national institutions and numerous individuals are gearing their efforts to the challenge of the coming ten years.

The IRC too, will attempt to contribute to the improvement of the water supply and sanitation situation in developing countries. This year, for the first time, the IRC will operate as an official foundation. This will enable it even more than in former days to mobilize its resources effectively for the programme areas it concentrates its efforts on. The IRC will focus this year on 5 areas on which it will mobilize and transmit knowledge, experience and information through various vehicles. These programme areas will be: (1) the development of an international clearing house mechanism for information; (2) manpower development, including multi-country collaborative training projects (national training delivery systems) and the organization of training seminars and workshops; (3) appropriate technologies, including research, demonstration, workshops and publications on handpumps, slow sand filtration and standardization of equipment; (4) community education and participation and (5) evaluation activities. Through various vehicles the IRC hopes to keep all water and sanitation people around the world informed about the progress made in the preparations for the Decade.

The 17 members of the IRC crew wish all their friends and relations a happy new year.

Sri Lanka

EXERCISE IN NATIONAL PLANNING

As an exercise in national planning, students following a Master of Science degree course in town and country planning at the University of Moratuwa conducted a research study to design and formulate a National Water Plan for Sri Lanka. A report containing the main findings and conclusions of the group of 13 students who participated in the project has been published in two volumes. The study has attempted to provide a strategic plan in the supply of safe drinking water. The various elements that constitute the so-called "drinking water sector" have been linked. The group consisted of participants of differing academic backgrounds which factor proved valuable because of the necessity to develop a plan based on a multi-disciplinary effort. Volume one of the report, compiled by an editorial board appointed by the group, discusses the study in three substantial components: existing situation; magnitude of the problem; statement of strategy and identification of programmes. Volume two contains the technical annexes. Further information: M.Sc (town and country planning) Degree Course, Department of Town and Country Planning, University of Moratuwa, Katubedda Campus, Moratuwa, Sri Lanka.

Water Research Centre (United Kingdom)

The Water Research Centre (WRC) will hold 3 open days on 7, 8 and 9 May, 1980 at its Stevenage Laboratory. The work of the Laboratory will be open to inspection and major projects carried out at the Centre will also be presented. Further information: Water Research Centre, Stevenage Laboratory, Elder Way, Stevenage, Herts. SG1 1TH, United Kingdom.

New Publications

HUMAN VIRUSES IN WATER

Contamination of water and soil by wastewater and human faeces containing enteric viruses may pose real public health problems, even in those areas of the world where major water-borne bacterial diseases have been brought under control. Over a hundred different types of enteric viruses exist, all considered pathogenic to man. Bacteria used as conventional indicators to evaluate the safety of potable water have shown to be significantly less resistant than viruses to environmental factors and to water and wastewater treatment processes. As a result, enteric viruses may be present in water that manifests little or

no sign of bacterial pollution. In a number of cities, viruses have been detected in drinking water supply systems despite the conventional water treatment facilities such as filtration and disinfection that are in use. Methods capable of accomplishing effective virus removal and inactivation are now available, so that the conventional water treatment plants can be suitably modified to deal with the problem. These are a few of the main conclusions reported by a WHO Scientific Group in a publication entitled *Human Viruses in Water, Wastewater and Soil* (Technical Report Series No. 639). The report ends with a number of recommendations and contains 66 references. Further information: World Health Organization, 1211 Geneva 27, Switzerland.

Courses

SHARING BRITISH TRAINING EXPERTISE - A Programme for Training and Development Specialists from Beyond Britain

The Industrial Training Service (United Kingdom) in conjunction with the Institute of Personnel Management (United Kingdom) will be running another programme for training and development of staff consisting of a 3 month residential course (March 1980 - July 1980). The programme is aimed at training and development managers and advisers from both the private and public sectors and line managers who have a defined responsibility for training. The objectives of the programme are to help participants develop a detailed understanding of systematic training and its application in all fields of work activity, incorporating the contribution which it can make to the development of human resources. The programme will be conducted in English and prospective participants should be proficient in the English language. The 1979 programme was attended by senior training and development personnel from India, Bangladesh, Fiji, United Arab Emirates, Ghana, Kenya, Tanzania, Zambia and Egypt. Further information: Mr. J.B. Senior, Programme Director, Industrial Training Service, 43 Market Place, Wetherby, West Yorkshire LS22 4LN, United Kingdom.

CALENDAR OF COURSES ON WATER (U.K.)

A calendar of courses on water at universities and polytechnics in the United Kingdom is available from Mr. J. Pickford, Department of Civil Engineering, University of Technology, Loughborough, Leics. LE11 3TU, United Kingdom.



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Newsletter No. 107 - February 1980

News from the World Meteorological Organization (WMO)

The Eighth World Meteorological Organization (WMO) Congress, held in Geneva in April 1979, made several important decisions regarding the WMO Hydrology and Water Resources Programme. The most important of these was the approval of a proposal of the WMO Commission for Hydrology for the development, within the framework of the WMO Operational Hydrology Programme, of a Hydrological Operational Multipurpose Subprogramme (HOMS). HOMS is designed to organize the transfer of hydrological technology used operationally in network design, observation, collection, processing and storage of data and hydrological modelling and includes instrument catalogues, software packages, and general guidance and detailed manuals on the use of this technology under different conditions. HOMS will be implemented as a co-operative effort of WMO Member countries, with the direct co-operation of their national hydrological services and institutions. It is intended to evolve in response to the needs and to be in accordance with the accumulated experiences of these countries. It will be implemented in two phases. The first, 1980-1983, will concentrate on the basic structure of HOMS, according to the needs expressed by Members, and the pilot transfer of components and their application. The second phase is planned to cover operational application in all interested Member countries. Further information: WMO, Hydrology and Water Resources Department, P.O. Box 5, CH 1211 Geneva 20, Switzerland.

Courses

NINTH INTERNATIONAL POST GRADUATE DIPLOMA AND MASTER'S COURSE IN HYDROLOGY

The University of Roorkee's (India) ninth International Post Graduate Diploma and Master's Course in Hydrology will start on 16th July, 1980 for a duration of approximately 12 months. The course, sponsored by UNESCO and the Government of India, Ministry of Education, has been organized since 1972 by the University of Roorkee for students of hydrology particularly from the developing countries of Africa and Asia. Trainees from Afghanistan, Bangladesh, Burma, United Arab Republic, Indonesia, Iran, Iraq, Nepal, Philippines, Nigeria, Sri Lanka, Syria, Thailand, Uganda and the United Republic of Tanzania have participated in the courses along with the trainees from various Central and State Government Departments of India. Roorkee University was chosen to organize the course in view of its long standing reputation and tradition in irrigation and water resources engineering education and its location in the midst of several research institutions. The course has been designed to offer advanced education and training in the principles of scientific hydrology and to equip the trainees with sufficient competence in the collection, analysis and use of hydrological data for integrated and rational planning for water resources development. A Postgraduate Diploma in Hydrology is awarded by the University to those trainees who pass the examination and complete the requirements. While the Post Graduate Course is complete in itself, the University also has a provision to extend the course to Master's level for trainees who have completed the Post Graduate Diploma requirements and who are interested and able to continue their training to complete the additional requirements for a Master's degree in hydrology. Further information: Coordinator, School of Hygiene, University of Roorkee, Roorkee 247672, India.

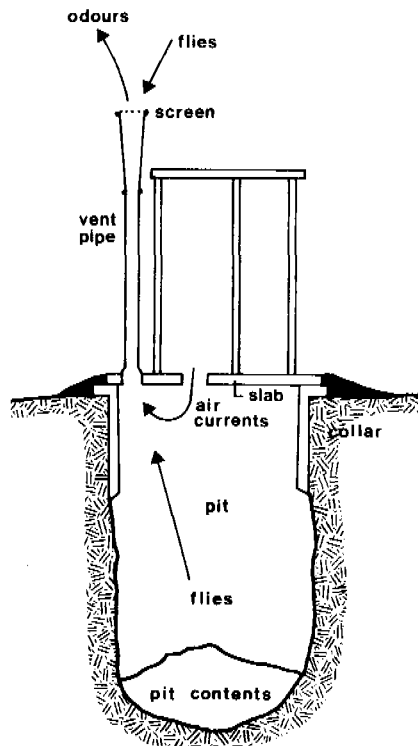
REFRESHER COURSES ON WATER TANK DESIGN

Refresher courses in Applied Design and Optimization of Water Tanks (Intze type) (30 June-12 July, 1980), Analysis and Design of Water Tanks (Rectangular type) (14 July-26 July, 1980) and Analysis and Design of Ground Service Reservoirs (28 July-9 August, 1980) are being organized by the Visvesvaraya Regional College of Engineering (Department of Applied Mechanics), Nagpur, India. The main objective of the course is to bridge the gap between the theoretical actual development of analysis and design of the construction of water tanks by exposing the participants to the modern theories and techniques of analysis and design of water tanks to achieve considerable economy not only in overall cost but also in consumption of scarce material like cement and steel. Further information: Dr. M.M. Basole, Head of the Department of Applied Mechanics, Visvesvaraya Regional College of Engineering, Nagpur 440011, India.

New Publications

A VENTILATED PIT PRIVY

Conventional pit latrines act as a perfect site for the transmission of fly borne disease, and in some cases these facilities are only one degree better than no sanitation at all. In Zimbabwe-Rhodesia, an attempt has been made to overcome the offensive odours and fly breeding associated with these latrines. A ventilation pipe system, the so-called Blair Ventilated Privy, has been tried and put into wide-spread use after a two year test period. The system provides an almost complete protection against flies and odours emanating from the pit without use of water or chemicals. The system partly depends on the aerodynamic properties of a flue pipe which is fitted on to a concrete slab over a sealed pit or tank (see figure) and the temperature difference between the inside and the outside of the pipe which causes a convection updraught, drawing air and gases from the pit and thus causing a down draught through the toilet aperture. Fly breeding is reduced as flies outside are attracted to the odours passing up the pipe and tend to avoid the interior of the privy. Flies emerging from the pit travel towards the greatest light source, and are attracted up the pipe. The system works well without water, but the privy could also be built over a septic tank or a seepage pit. These data are condensed from an article published in *Appropriate Technology*, Vol. 6 (1979) No. 3, pp. 10-11, entitled A Ventilated Pit Privy and written by P.R. Morgan of the Blair Research Laboratory. *Appropriate Technology* is published by Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN, United Kingdom.



ON-SITE WASTEWATER MANAGEMENT

The On-Site Wastewater Management Committee of the National Environmental Health Association (U.S.A.), under the chairmanship of Mr. C.E. Senn, has published a 1979 *State-of-the-Art Manual of On-Site Wastewater Management*. The manual, which concentrates on basic principles and methods, and which is not intended to substitute for an in-depth training manual, includes chapters on programme administration, training of personnel, legislation, planning, site evaluation, percolation tests, conventional soil adsorption systems, utilization systems, water conservation and maintenance of septage treatment and disposal. There is also a chapter in which future research and demonstration needs are formulated. The manual costs U.S. \$5.- and is available from the National Environmental Health Association, 1200 Lincoln Street, Suite 704, Denver, Colorado 80203, U.S.A.

Meetings

SYMPOSIUM WATER SUPPLY AND HEALTH

As a conclusion of the Drinking Water Pilot Study of the NATO-Committee on the Challenges of Modern Society (CCMS) the Netherlands' National Institute for Water Supply, Voorburg, has organized an International Symposium on Water Supply and Health at Noordwijkerhout (Amsterdam), The Netherlands, from 27-29 August, 1980. Co-sponsors of the symposium are the U.S. Environmental Protection Agency (EPA) and the U.K. Water Research Centre. Presentations will be made covering areas such as health effects of viruses, of inorganic constituents (calcium - hardness-, asbestos, sodium, lead) and of organic constituents (including present toxicological and epidemiological studies in the U.S.A., the U.K., and The Netherlands, taste and odour causing compounds). Based on recent progress in the health effects area the consequences for the application of chemical treatment processes (chlorine, ozone, chlorine-dioxide) versus physical-biological purification systems (artificial recharge, sand filtration, activated carbon adsorption) are presented and new strategies for the design of water supply systems from a health point of view are discussed. Recommendations will be formulated to minimize health risks associated with drinking water constituents. Further information: Symposium Water Supply and Health, c/o KIVI, P.O. Box 30424, 2500 CK The Hague, The Netherlands. Telex: 33641 kivi nl. Telephone: (0)70 - 646800. Telegrams: Koninsting - The Hague.



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newsletter

no. 108 - March 1980

News from IRC

EVALUATION FOR VILLAGE WATER SUPPLY PLANNING

John Wiley and Sons Ltd. have published - in association with IRC - a monograph on Evaluation for Village Water Supply Planning. The publication is also available from the IRC as Technical Paper No. 15. IRC recommends this book to all those involved in community water supply development in rural areas. It provides practical advice as well as substantial information on the various components of village water supply projects which should be taken into consideration during an evaluation study. It is hoped that this publication will stimulate the execution of monitoring and evaluation activities at local level, which could lead directly to better project planning in the field. Further information: IRC, P.O. Box 140, 2260 AC Leidschendam, The Netherlands.

India

Dr. John D. Skoda, UNICEF representative, New Delhi, India, inaugurated the Slow Sand Filtration Plant at Burujwada, 29 km from Nagpur on 20 November, 1979, the construction of which was initiated in cooperation with the IRC. Speaking on this occasion, Dr. Skoda congratulated the National Environmental Engineering Institute (NEERI, Nagpur, India) for extending the fruits of research and development in the form of concrete assistance to the people of Burujwada, a rural hamlet having a population of 700. He also praised the people for their pioneering effort of self help by contributing part of the construction cost from their own meagre resources and for undertaking the operation and maintenance of the treatment plant. The provision of good quality water will help improve the general health and environment of the village, he said. In India, the purification of municipal water supplies by slow sand filtration was first introduced more than a century ago in Calcutta for treating water drawn from Hooghly estuary. Similar installations were later on built for KAVAL towns of Uttar Pradesh and Delhi for purifying river water. Madras city was one of the places where the slow sand filters were installed to treat lake water. Many of these installations are in use even today. The advantage of slow sand filters are simplicity in operation and maintenance and reliability of the filtered water quality. No skilled supervision is necessary. Further information: NEERI, Nehru Marg, Nagpur 20, India.

ALL INDIA CHIEF PUBLIC HEALTH ENGINEERS' CONFERENCE AND NATIONAL WORKSHOP

About 125 milliard rupees will be required to meet the target of providing water of safe quality and basic sanitary facilities by 1990 in India. This was stated by Shri P.K. Chatterjee, Adviser, Central Public Health and Environmental Engineering Organization (CPHEEO), Ministry of Works and Housing, Government of India, while delivering the opening address at the All India Chief Public Health Engineers' Conference and National Workshop on "Research and Development Needs during the Drinking Water Supply and Sanitation Decade: 1981-1990", cosponsored by the World Health Organization, CPHEEO, and the National Environmental Engineering Research Institute (NEERI, Nagpur). The Conference urged the Chief Engineers to submit data on the status of water and sanitation facilities in their respective states to enable the Government of India to bridge the gap and plan the material manpower and financial requirements to meet the aspirations of the Decade 1981-1990 in India. Up till now only 53,000 villages out of a total of 150,000 problem villages in India and 83% of the urban population have been covered with regard to water supply. With regard to sanitation, only 34% of the urban population has access to a sewerage system whereas the facilities provided in the rural zones are very insignificant. Further information: NEERI, Nehru Marg, Nagpur 20, India.

Meetings

The Netherlands National Institute for Water Supply is organizing an international symposium "Quality of Groundwater" at Noordwijkerhout (Amsterdam, the Netherlands) to be held between 23rd and 27th March, 1981. The symposium is sponsored by UNESCO, the World Health Organization, the Commission of the European Communities, the International Association of Hydrogeologists and the International Association of Hydrological Sciences. The symposium - which will have general as well as specialized features - will primarily deal with problems concerning aquifers of unconsolidated sediments. Further information: ISQG '81, P.O. Box 30424, 2500 GK The Hague, The Netherlands. Participants intending to present a paper, or other contribution are requested to submit an abstract (in English, French or German) of no more than 300 words. This abstract should reach the above-mentioned address not later than 15th July, 1980.

METHODS AND STRATEGIES IN INTEGRATED
RURAL DEVELOPMENT

The Luxemburg University Foundation (FUL) organized an international colloquium on "Methods and Strategies in Integrated Rural Development" in September 1979. Man and Biosphere (UNESCO) supported the organization of the colloquium. Subjects discussed included: integrated development and environment; interdisciplinary approach; planning and strategy; the decision making process; project analysis; education and training. Proceedings of the colloquium can be obtained through FUL, 140 Rue des Déportés, 67000 Arlon, Belgium.

New Publications

SMALL SCALE IRRIGATION

Small Scale Irrigation, by Peter Stern (1979) is a recent publication from Intermediate Technology Publications Ltd. The book provides the basic information needed for developing irrigated agriculture on a small scale. It discusses the technological and social factors which need to be considered by a farmer planning to embark on irrigation, and describes the various irrigation systems and methods commonly in use, and some simple design of open channels, pipelines and water lifting methods. The appendices include information on methods for measuring for those working with farmers on development and extension in rural areas who do not have ready access to much of the technical know-how and paraphernalia usually available to professionally trained staff. Further information: Intermediate Technology Publications Ltd., 9 King Street, London WC2 8HN, United Kingdom.

DESIGN OF SLUDGE TREATMENT AND DISPOSAL PROCESSES

The Center of Environmental Research Information, Technology Transfer, of the U.S. Environmental Protection Agency's

Municipal Environmental Research Laboratory (Office of Research and Development) has published a revised edition of their Process Design Manual for Sludge Treatment and Disposal (EPA 625/1-79-011). The purpose of this manual is to present a contemporary review of sludge processing technology. This edition - the first edition was published in 1974 - incorporates chapters on design approach, disinfection, composting, transport, storage, sidestream treatment and instrumentation. Design principles are illustrated examples. Further information: Center of Environmental Research Information (CERI), Technology Transfer, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268, U.S.A.

Zambia

SEWAGE TREATMENT IN ZAMBIA

In an article in "Water Pollution Control", K.V. Ellis of the Loughborough University of Technology (United Kingdom) discusses several aspects of sewage treatment practices in Zambia. Although conventional methods, such as biological filtration and activated sludge treatment are used, the stabilization pond technique is most used in this respect. The author has the opinion that, only if convincing reasons for not applying stabilization ponds exist, then conventional processes should be employed, with sufficient consideration for the adoption of the design to the environmental conditions in which it will operate. Specific aspects to be considered are temperature and its influence on the biological activity, septicity of the received sewage, management, manpower availability, availability of an energy source, spare parts, fly nuisance, surface water infiltration into the system and health aspects. Further reference: ELLIS, K.V., Waste Water Treatment in a Developing African State "Water Pollution Control", 78(1979)3, pp. 409-412.



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newsletter

No. 109 - April 1980

News from the IRC

HANDPUMP TESTING AND EVALUATION

Testing and evaluation of handpumps is gaining extra interest because of the great number of handpumps that will be required for the rural water supply programmes in many countries. The results of handpump testing and evaluation are of relevance to national water supply authorities, international and bilateral development agencies, and their technical/economic advisers. Handpump testing and evaluation can assist the governments and development agencies concerned in making a judicious selection of pumps, or help them in the development of suitable designs. IRC Bulletin Series No. 15, now published, is the report of an international (33 participants) working meeting, held in June 1979 at Harpenden, United Kingdom. The meeting surveyed current handpump testing and evaluation procedures, and reviewed a draft manual containing contributions from several experts. This manual has been further developed on the basis of the results of the Harpenden meeting. Further information: IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

India

SOLAR WATER-HEATER

The Central Arid Zone Research Institute (CAZRI), Jodhpur, India, has developed a built-in storage type solar water-heater, which can supply 90 litres per day of hot water for bathing, cleaning and kitchen use. The device is cheap, efficient and suitable for both rural and urban areas. The new solar water-heater is an improvement over the existing model in that it is covered during the night with a reflector-cum-insulator arrangement, which ensures the availability of hot water early next morning. The device basically comprises a 90 litre galvanised-iron (GI) rectangular tank. The front face of the absorber-cum-tank is painted black to absorb maximum solar radiation. During three years of tests in India the heater provided hot water at 50 to 60 degrees centigrade on winter afternoons and 60 to 80 degrees centigrade on summer afternoons. If the unit was covered during the night with the reflector-cum-insulator, hot water at about 40 degrees centigrade was obtained in the early morning in winter when the tap water temperature was only about 15 degrees centigrade. The main raw materials required for fabricating the water-heater are plain GI sheet, plain mild-steel (MS) sheet, glass sheet, fibre-glass, aluminium, MS angle-iron, and GI fittings. No special plant or machinery is required and one sheet-metal mechanic can make one solar water-heater within three to five days. Reference: UNIDO Newsletter, Number 141,

January 1980. Further information: The Editor, UNIDO Newsletter, P.O. Box 300, A-1400 Vienna, Austria.

Inventors' Newsletter

The Swedish Inventors' Association newsletter is aimed at describing and stimulating ideas on solving global development problems. Focussing on the areas of water, energy, forestry and industrial processes, the newsletter offers inventors the chance to present their technical designs for promoting growth in these four key sectors. In the water area, for instance, ideas on systems for water storage, desalination methods and pumps powered by local energy sources are invited. Further information: Swedish Inventors' Association, Munkbron 7, S-111 28 Stockholm, Sweden.

Peace Corps

LOW-COST WELL CONSTRUCTION

Published in the Peace Corps's Appropriate Technology for Development Series is a 284 page Manual on Well Construction. This manual is intended for field workers involved in the construction of wells, but with no or little experience in this area. Practical information on hand dug well construction and low-cost drilling techniques is provided. The manual is mainly a "how-to" book for local extension workers as well as Peace Corps Volunteers. In limited supply, it is available to other individuals than Peace Corps staff working in developing countries. For further information: Peace Corps, Information Collection and Exchange (ICE), Office of Programming and Training Coordination, Washington, D.C. 2025, U.S.A.

Water Research Centre (United Kingdom)

The Water Research Centre is the national centre for water research in the United Kingdom with a total staff of over 500 and two long established laboratories at Stevenage, Hertfordshire and Medmenham, near Marlow in Buckinghamshire. The Centre is now setting up an Engineering Unit on underground technology and instrumentation in Swindon, Wiltshire. The Unit will concentrate on one of the major problems facing the water industry today which is the collapse of old sewers, many of which date back to the Industrial Revolution, and leaking and deteriorating water mains which result in waste as well as discoloured water. Further information: Water Research Centre, 45 Station Road, Henley-on-Thames, Oxon., RG9 1BW, United Kingdom.

New Publications

BIOLOGICAL CONTROL OF RESERVOIRS BY FISH
Mr. H. Leventer, Reservoir Biologist of the Israel National Water System, is the author of a publication entitled "Biological Control of Reservoirs by Fish", published by Mekoroth Water Co. He reports on his experience, gained from 1970 onwards, in open reservoirs with biological treatment by different species of fish. This option of biological control is rather slow and its effect can only be ascertained after a long period of several months or even years. It can be viewed as preventive control, primarily intended to reduce the quantitative part of biological activity in the reservoir. In most reservoirs where biological control by fish is carried out, the water is used for drinking. When supplied to consumers it must be free of coliform bacteria and have no colour, turbidity, taste or odour. A conclusion is that, provided the fish population is under control, drinking water reservoirs could be populated with fish to control biological activity. Further information: Mekoroth Water Co., Jordan District, Central Laboratory of Water Quality, Nazareth Elit, P.O. Box 610, Israel.

WASTEWATER TREATMENT AND RESOURCES RECOVERY
The International Development Research Centre (IDRC) has, for the last three years, supported the Primary Production Department of the Republic of Singapore in a project that is demonstrating the functional use of high rate algae ponds for treating piggery wastes. This project is about to enter its second phase which will focus on harvesting methods. The algae which grow in these ponds using waste nutrients and solar energy can be used as a protein rich component in livestock feeds. Recently the developments in Singapore and elsewhere have demonstrated the technical viability and potential of the high-rate algae pond for water reclamation and resources recovery. Entering the second phase of this project, IDRC, in collaboration with the Primary Production Department organized an international meeting to bring together scientists from nine countries, so that there could be a free exchange of ideas. A report of the discussions and presentation held at this meeting has been prepared with the title "Wastewater Treatment and Resources Re-

covery; report of a workshop on high-rate algae ponds" to consolidate and disseminate the findings of current efforts aimed at fully developing the high-rate pond process. Further information: Health Sciences Division, International Development Research Centre, P.O. Box 8500, Ottawa, Canada K1G 3H9.

WIND ENERGY APPLICATION IN DEVELOPING COUNTRIES

The School of Mechanical Cranfield Institute of Technology has conducted, on behalf of the United Kingdom Overseas Development Administration, a feasibility study investigating the performance of wind turbines, water pumps and electrical generators in eight nominated territories: the Caribbean, India, Zambia, Sudan, Kenya, Upper Volta, Yemen and Tristan da Cunha. The territories were divided into two groups using the prevailing wind regimes, required energy application and geographic location with respect to the tropical belt as criteria. The study shows that wind driven pumps have a wider application than as aerogenerators. It is also expected that in regions where wind speeds are above 2.0 m/sec, locally built water pumps costing £1,000,- are economically feasible, assuming an oil price of £0.15 per litre and a discount rate of 8%. The report, entitled "Low Cost Wind Turbines for Application in Developing Countries, a feasibility study" (reference 061386/26), by R.E. Peacock et al, can be obtained from: School of Mechanical Engineering, Cranfield Institute of Technology, Cranfield, Bedford MK43 0AL, United Kingdom.

Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS)

Eng. Odyer Sperandio, Director of CEPIS, has been transferred to World Health Organization (WHO) headquarters in Geneva, Switzerland (effective 1 April, 1980), where he has assumed the function of Manager of the Programme for Global Promotion and Cooperation for Water Supply and Sanitation. This unit is of special relevance for WHO contributions during the International Drinking Water Supply and Sanitation Decade. Eng. Alberto Florez has been named to succeed Eng. Sperandio as CEPIS Director. He has a long record of service with the Pan American Health Organization, most recently with the Environmental Health Protection Division.



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newsletter

No. 110 - May 1980

News from IRC

Public Standpost Water Supply System

Recently IRC has finalized a study for the World Bank on Public Standpost Water Supply Systems in Developing Countries. The major findings of this study are presented in two new publications:

Technical Paper No. 13: Public Standpost Water Supplies;

Technical Paper No. 14: Public Standpost Water Supplies, a Design Manual.

Both publications are available from IRC upon request.

As a follow up of the study IRC is now preparing a programme covering a number of demonstration projects and related studies on various aspects of public standpost water supply in developing countries. The general objectives of the programme is to develop appropriate strategies, methods and techniques for the planning, implementation and management of public water supply systems which include a considerable number of public standposts in rural and urban fringe areas. In developing the programme special attention will be given to:

operation and maintenance; administration and financial management; design and construction; simple water distribution pipe systems; economic aspects; selection and testing for parts and equipment; local manufacture; training; community participation; and public information.

Three special subject projects will be started: the compilation of a bibliography on various aspects of public standpost water supply systems; the development of a manual on administration and financial management, including items such as financial policy, estimation of costs, tariff structures, revenue collection and administration; the preparation of guidelines for the selection (including comparative testing) of taps, valves, etc., suitable for application in public water supply systems.

Any information on the above-mentioned subjects would be most welcome, whether in the form of books, reports, personal notes or

whatever. Those interested in receiving Technical Paper 13 and/or Technical Paper 14 and/or in participation in the demonstration projects or in the special subject studies are kindly requested to send a letter indicating their interest to the IRC, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

DECADE BROCHURE

IRC has recently published a concise brochure on the International Drinking Water Supply and Sanitation Decade. The brochure pictures the global situation in the water supply and sanitation field, summarizes a number of national and international Decade actions and lists addresses of the UN-agencies involved. Free copies of the brochure - at present only available in English - can be obtained from IRC, Information Section, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.

U N D P

DECADE BROCHURE AND DECADE "NEWSBRIEF"

The United Nations Development Programme (UNDP) has also published a Decade brochure, entitled "Clean Water and adequate Sanitation for All by 1990". It is available free in English, Arabic, French and Spanish from: International Drinking Water Supply and Sanitation Decade, United Nations Development Programme, One UN Plaza, New York, N.Y.10017, USA.

UNDP also issues a newsbrief - entitled "WATERMARK" - of activities in support of the Decade. Further information on this bulletin can be obtained at the above mentioned address.

Indonesia

VILLAGERS OPT FOR BAMBOO CEMENT RAINWATER TANKS

To overcome an annual 3 to 4 months draught period, villagers in the hilly Gunung Kidul regency of Yogyakarta special province are very much in need of rainwater tanks. The technology was developed by DIAN DESA a non-governmental organization of university graduates which carries rural development with community initiative in its banner.

IRC IS MOVING (effective August 1, 1980) TO:

J.C. van Markenlaan 5, 2285 VL Rijswijk (The Hague).

Our mail address will be: P.O. Box 5500, 2280 HM Rijswijk,
The Netherlands.

Further useful data for reaching IRC:

Telephone : (070) 949322

Telex : 33296

Cables : worldwater the hague

Devaluation of the national rupiah in 1978 increased the price of import products such as chicken mesh essential for ferrocement water tanks until then the established technology for rural areas. Bamboo has a tensile strength comparable to mild steel. Low bond strength was improved by matting the bamboo for the framework in which the well-prepared cement mortar was rubbed in and plastered to a wall thickness of 3-4 cm. A water-cement ratio of 0,4 was found to be critical for the ultimate strength of the structure. The construction was adapted to the capacity of the villagers. 3 - 4 village technicians can build a 4,5 or 9 m³ water tank required for 1 or 2 dwellings in 2 days. They work on a "food for work" basis with food provided by the house owners. Traditional clay slate roofs need only to be provided with a gutter to collect the water. Villagers interested in having a water tank near the house rather than a kilometer walk to the polluted village pond apply for supervisory assistance to DIAN DESA and for the required cement and not available sand, leaving half of the cost to be defrayed by their own labour. High acceptability and catch-on by the villagers led to the construction of some 1000 water tanks, now a familiar sight in Gunung Kidul. Further information: DIAN DESA, P.O. Box 19, Bulak Sumur, Jl. Kaliurang Km. 7, Yogyakarta, Indonesia.

Courses

INTERNATIONAL POST GRADUATE COURSE IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY

The International Institute for Hydraulic and Environmental Engineering (IHE, The Netherlands), in cooperation with Delft University of Technology and Netherlands Universities Foundation for International

Cooperation (NUFFIC), is organizing an International Post Graduate Course in Environmental Science and Technology. The course programme is primarily designed to provide more specialized knowledge of those chapters of chemistry and biology that are relevant to the environment. Hence, environmental chemistry, biology and ecology are core subjects from which a thorough understanding of the biospheres and its subsystems will be developed. Man both causes and experiences environmental problems in these systems; this dual role is illustrated in the lectures on pollutants and their effects, man and resources, public health and demography. Emphasis is being placed on analytical tools and principles of engineering solutions in the subjects, chemical and biological engineering, water, air and soil quality management. In view of the absolute necessity to apply, as much as possible, quantitative approaches to environmental problems, a common mathematical background has to be created among the participants from the beginning. This is provided by a workshop and by lectures and exercises in statistics, computer programming and simulation modelling. Special attention will be paid to relevant segments of the social sciences like economics and law, providing an insight into factors governing decision making in the environmental field. The course will take place in Delft, The Netherlands, from October 1980 until September 1981. Participants must hold a degree in biology, chemistry, chemical engineering or a related branch of study. They will have to have at least three years of practical experience in a relevant field. Details of possibilities for sponsorship/scholarship and further information and prospectus are available from: The Registrar IHE, NUFFIC, P.O. Box 90734, 2509 LS The Hague, The Netherlands.



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newsletter

No. 111 - June-July 1980

News from IRC

APPOINTMENT OF TRAINING MANAGER

On the 9th June, 1980, Mr. Gareth Howell took up appointment as Programme Manager, Manpower Development and Training at IRC.

Though based in The Hague, Mr. Howell will co-ordinate IRC's worldwide training programme for employees in the water supply sector. From management and organization development to operator training, information concerning successful national approaches will be published in the IRC Newsletter. By profession a lawyer, Mr. Howell has specialized in training since leaving Ford Motor Company in 1968. After working as a training consultant in Wales and other parts of the United Kingdom, he carried out technical assistance assignments under the auspices of British bilateral programmes, the World Bank and the International Labour Organization (ILO). He has worked in Colombia, Venezuela, Switzerland, Pakistan and Bangladesh. He joins IRC from a head office posting at ILO Geneva.

Mr. Howell is 37 years of age and of British nationality.

~~He would be most grateful to receive news and contributions in his field from readers with experience or interest in the best ways of meeting sectoral skilled manpower requirements.~~

United Kingdom

WATER POWERED PUMP

The energy of the flowing water in a stream, under suitable conditions of flow and fall, can be utilized to drive impellers mounted on a rotating shaft in a turbine casing. A pump that uses this principle and flowing water as the only power source, is the Nel-Plata Pump. The rotating shaft is linked to the actual pumping unit through a reciprocating device. Depending on the available combination of flow and fall in the stream, the turbine-cum-pumping unit assembly can lift water up to 90 m and more. Indicative performance data of the Nel-Plata Pump Type PD model are: 4,5 m³/hr at 6 m lift and 0,45 l/hr at 90 m lift. Further information: NEL (Plata Pump), Foxleys Farm, Holyport, Maidenhead, Berkshire, United Kingdom.

World Bank

WATER TARIFF POLICIES

An article on the World Bank's policy regarding water tariffs has been published in Aqua, No. 2, 1980, pages 6 - 11, in both French and English. The author is Joseph Gilling, project economist with the Energy and Water Supply Division of the World Bank. Large investments will be required to meet the objectives of the International Drinking Water Supply and Sanitation Decade. Most

governments will not be able to finance these investments without adopting sound tariff policies based on the economic costs of supplying water to final consumers. Tariffs should (1) be sufficient to sustain replicability, that is, the maintenance of existing services and the expansion of the system to serve new consumers; (2) contribute to overall economic efficiency within the framework of the national economy; and (3) support social equity in terms of promoting widespread access to service, affordability to all income groups, and enforceability which permits the billing and collection from all users benefiting from the service. Social objectives of providing water to meet the basic needs for water of all income groups can be met by introducing tariffs with a progressive price structure so that the basic needs up to, say 20 litres per capita per day are charged at a price lower than average cost while discretionary consumption above 20 litres per capita per day is billed at a higher price. The article explains how government attempts to subsidize water consumption while denying access to low income groups in direct contrast with government social policy objectives.

In relation to this, reference is also made to a recent statement by John Kalbermatten, the Bank's Senior Water Advisor: "My choice, and I think it ought to be the Bank's choice, is to emphasize a reasonable level of services to as many people as possible, rather than provide a high level of service to fewer people. Given that there will always be financial constraints, I think it makes some sense to reach as many people as we can before we participate in providing luxuries".

Renewable News

Friends of the Earth, whose environmental coverage goes back to 1972, is publishing a newsletter, Renewable News, to review and analyse the process leading to the UN Conference on New and Renewable Sources of Energy, to be held in Nairobi in August 1981. Renewable News first came out in April 1980, with Friends of the Earth's appraisal of the potential usefulness of the conference, and examined the various ways in which Non-Governmental Organizations (NGOs) could contribute, given that renewable energy sources are a subject of considerable NGO technical expertise and on-site experience. Friends of the Earth is inviting NGOs to consider various options for influencing the conference in ways other than the traditional parallel forums. For its part, Friends of the Earth plans, in addition to the newsletter, to publish articles in its bi-monthly Soft Energy Notes, to produce a conference newspaper (ECO) as it has done for previous

events, and to monitor US Government preparations for the Conference. Further information: Friends of the Earth, 124 Spear St., San Francisco, CA 94105, U.S.A., for the attention of David Chatfield or John Fore).

Courses

QUANTATIVE METHODS IN GROUNDWATER DEVELOPMENT
A post-graduate course on "Quantative Methods in Groundwater Development" will be held between 6 - 10 October, 1980 in Konstanz, Switzerland. The course is coorganized by the DVWK Deutscher Verband für Wasserwirtschaft und Kulturbau e.v., the University of Hannover and the University of Konstanz. Further information: Prof. Dr. H.W. Holz, University of Hannover, Bürgermeister-Stahn-Wall 9, D-3070 Nienburg, Federal Republic of Germany.

Forthcoming Events

WATER INDUSTRY '81

Water Industry '81, an international conference and exhibition, will be held at Brighton, United Kingdom, from 15 - 19 June, 1981. Themes for the conference will include: water resources; water supply; water and health; water treatment and distribution; and sludge treatment and disposal. Potential lecturers should submit an abstract of their paper (200 - 300 words) before 31 October, 1980. Further information: Secretariate Water Industry '81, 26 Albant Street, Edinburgh EH1 3QH, United Kingdom.

U.S.A.

WATER WELL DRILLING SCHOOL

The National Water Well Association of the United States has made available information on a new well drilling programme at Edmonds Community College, Lywood, Washington, U.S.A. The first two-year course started in

September 1979. Admissions are for new students as well as for people currently working in this field. Curriculum: geology, hydrology, welding, design and construction, business management and public relations, maintenance and repair of equipment. Both classroom and field training are included. Further information: Lindsay Packwood, Edmonds Community College, Lywood, Washington, U.S.A.

GROUNDWATER INFORMATION LEAFLET

A leaflet containing facts about groundwater - the "hidden" principal reserve source of fresh water - has been published by the U.S. Geological Survey, Department of the Interior, and is available for public distribution. Written in non-technical terms, it was prepared to help clarify confusing concepts related to the nature, occurrence and quality of groundwater, and how it is located, developed and used. Although the leaflet is in non-technical terms it provides an excellent illustration of how technical information and a technical science can be presented to planners and decision makers in order that concepts of groundwater development be kept in perspective. Single copies of the 23 page illustrated leaflet, entitled Ground Water, may be obtained free upon request from the U.S. Geological Survey's Branch of Distribution, 1200 South Eads Street, VA 2202, U.S.A.

New Publications

Water, the Basis of Life is a booklet on the importance of water to the human and natural environment. The text is written for children in the upper elementary grades and a teacher's guide is also available. Further information: Soil Conservation Society of America, 7575 Northeast Ankeny Road, Ankeny, IA 50031, U.S.A.



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newsletter

No. 112 - August 1980

News from IRC

MANPOWER DEVELOPMENT AND TRAINING

IRC is currently executing several manpower development and training projects. It also assists governments and international agencies in identifying external consultants to support national and multi-country training development projects.

IRC is assembling a roster of specialists in different aspects of manpower development for water supply and sanitation programmes. We should like to hear from qualified people interested in being considered for inclusion in this roster. They are asked to submit a resumé of their qualifications, professional experience, and likely availability for short consultancies or long training assignments, to:

Gareth Howell, Programme Manager, Manpower Development, International Reference Centre for Community Water Supply and Sanitation, P.O. Box 5500, 2280 HM Rijswijk, (The Hague) The Netherlands.

It is our pleasure to announce that Mr. Martin Beyer (not only UNICEF's Senior Drinking Water Adviser, but also editor of "From the WATERFRONT") and the editor of the IRC Newsletter now has an information exchange agreement. Mr. Beyer has already provided us with valuable information for this Newsletter and IRC will certainly try to do the same for its 'colleague bulletin' WATERFRONT.

BOGS FOR TREATMENT OF SEWAGE

Peat bogs are being used to treat sewage in Drummond, Wisconsin (U.S.A.) in an effort to help the community meet water standards. The bogs remove nitrogen and phosphorous compounds from effluent as it filters towards stream. Water News, a bulletin published by the Virginia Water Resources Research Center (617 North Main Street, Blacksburg, Virginia 24060, U.S.A.), announces this treatment method, calling it the "first operational use of a bog for treating sewage in the United States."

CLIMATIC CONSTRAINTS AND HUMAN ACTIVITIES

Climatic Constraints and Human Activities is a study of the most recent advances in the knowledge of the relationship of climate to specific aspects of physical and social systems. An overview of climate and public policy is presented from both economic and political standpoints, the relationship between climate and crops is examined, and a method for estimating longer-term patterns of climatic change is proposed. The study also includes case studies and examines the differences in research methods of both short-term climate variability, particularly drought, and of longer-term climatic change, such as might be associated with increasing atmospheric carbon-dioxide. The study is

published by Pergamon Press Ltd. on behalf of the International Institute of Applied Systems Analysis, Laxenburg and is available from Pergamon Press offices.

VITA

Volunteers in Technical Assistance (VITA) is initiating a comprehensive programme to assist the rural poor by supporting the development, transfer and diffusion of alternative energy technologies in the Third World. The focus will be on smaller-scale, low-cost technologies utilizing renewable sources of energy: solar, wind, micro-hydro, methane, biomass, wood fuel, etc. This programme will (1) expand VITA's existing technical assistance mechanisms; (2) promote and develop a global alternative energy network; and (3) support, through a well planned project implementation fund, the ability of local implementation organizations to carry out successful rural energy efforts. To accomplish these objectives, VITA is bringing a wide range of time-tested resources into action: an Alternative Energy Documentation Centre housing a collection of ~~over 10,000 reports, pamphlets, articles,~~ plans, case studies, and other written materials; an Energy Consultants Roster listing over 800 technical experts and development specialists having specific expertise in the development and practical utilization of alternative energy applications in such fields as: agriculture, housing, food technology, water supply and sanitation. Further information: Energy Programme Coordinator, VITA, 3706 Rhode Island Avenue, Mt. Rainier, Maryland 20822, U.S.A.

New Publications

BEUDOT, Françoise: Éléments de Bibliographie Sur la Sécheresse au Sahel/Elements for a Bibliography of the Sahel Drought. Mise au jour/up-dating No. 4, References 1635 - 2217, March 1980, 138 pages. Further information: OCDE/OECD Centre de Développement/Development Centre, 94 Rue Chardon Lagache, 75016 Paris, France

COMMUNICATION WITH RURAL DWELLERS

The name Communication with Rural Dwellers has been given to a new programme at Cornell University. Plans have been made to include activities such as the following in the programme:

- 1) polling operations, including needs assessment and attitude surveys;
- 2) communication research pertaining to agricultural and rural development;
- 3) action oriented projects both in the United States and in 'lesser-technology' countries;
- 4) training sessions, workshops and conferences.

Further information: Dr. Robert Crawford, Director or Christine Hollis, Assistant to the Director, Programme for Agricultural and Rural Communications Research (PARCR), Department of Communication Arts, Cornell University, 640 Stewart Avenue, Ithaca, New York 14850, U.S.A.

WELLS

Wells Construction. Hand Dug and Hand Drilled, by Richard E. Bush, is a 282 page handbook with many practical details for the village worker in the field. Clear illustrations and an annotated bibliography are given. The manual forms part of the Peace Corps Appropriate Technology for Development Series, in which so far 9 manuals and 33 reprints have been published. Further information: Peace Corps, Information Collection and Exchange, 806 Connecticut Avenue, N.W., Washington, D.C. 20525, U.S.A.

Water Supply - Ethiopia: An Introduction to Environmental Health Practice,

by Gabre-Emanuel Teka, Head of the Planning and Programming Department of the Ministry of Health (Addis Ababa) describes the basic principles of environmental health and the construction of low-cost water supply projects based on the experiences from Ethiopia. Published in 1977, this 235 page report is available at a cost of U.S. \$4.75 from Addis Ababa University Press, P.O. Box 1176, Addis Ababa, Ethiopia.

TRAINING COURSE IN HYDROLOGIC TECHNIQUES

The United States Department of the Interior, Geological Survey, Water Resources Division, National Training Centre, Denver, Colorado, is planning a training course in hydrologic techniques for international participants, to be held in Spring 1981. The course will be intensive and enrollment will be limited to approximately 25 persons. All lectures and discussions will be in the English language. Further information: Office of International Hydrology, U.S. Geological Survey, 470 National Centre, Reston, VA 22092, U.S.A.

Botswana

The Ministry of Education, Botswana, has published a report entitled Lesedi la Puso, A Radio Learning Group Campaign in Western Botswana. It gives a very detailed description of an attempt to organize a mass communication campaign in a decentralized, participatory manner; an analysis of the impact of the campaign is included as well. According to the report, knowledge about the benefits of water supply is quite extensive and increased even as a result of the campaign. However, people were not so well informed about planning and design of village water systems; to this, they added that the campaign had increased their confidence about reporting faults in their local supply. The knowledge on the sanitation aspect of keeping water supplies clean did not increase, being limited to about 20 per cent of the respondents. The use of latrines was not mentioned in the study guide and only 1 per cent gave this as a possible solution in a follow-up survey.

DEVINDEX GETTING IN SHAPE

In 1974 the Development Science Information System (DEVSI) was initiated by the Canadian Government, the International Development Research Centre (IDRC), with the support of several UN organizations. In 1976, IDRC published the first DEVINDEX as an 'access publication' within the DEVSI framework. The first issue contained references to Canadian material on economic and social development in the developing countries only. Later the Federal Republic of Germany (FRG) joined in as a source of information.

The recently published fourth issue embraces Canada, the Federal Republic of Germany, Indonesia, Morocco, the Netherlands and the USSR; Pakistan, the Philippines and Thailand have published a national index to their literature independently, but using a similar methodology.

Initial issues of DEVINDEX may be obtained free-of-charge, but a subscription charge will be made for future ones.

Further information: IDRC, P.O. Box 8500, Ottawa, Canada K1G 3H9.



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UNICEF

UNICEF has a new "goodwill ambassador": world famous actress Liv Ullmann. Apparently, Ms. Ullmann will have an open eye for sanitation problems in developing countries. When she was presented to the press in her new capacity, Ms. Ullman reported on a visit she recently made to a village in Bangladesh, which had just received its first public toilet.

Ms. Ullman: "When I looked at that hole in the ground, I had to think of a toilet I once saw in Hollywood and which was decorated like a throne."

Thailand

EVALUATION OF RURAL WATER SUPPLY PROJECTS
UNICEF's "From the Waterfront" reports on a 1978 publication which they have just received from Thailand.

National authorities are increasingly making their own evaluations of rural water supply programmes. A 178 page report, prepared by the National Institute of Development Administration, gives amongst other things a detailed account of achievements, problems, possible solutions and indications for strategies to finally bring safe water to everybody. By the year 1990 there will be 250.000 water sources to be maintained with 500 mobile maintenance teams and a total of 1.000 maintenance officers. This is one of the many aspects highlighted by this report. Further information: UNICEF, Drinking Water Advisor, UNICEF, New York, N.Y. 10017, U.S.A.

WATER QUALITY DATA

Water Quality Surveys. A Guide for the Collection and Interpretation of Water Quality Data has been prepared by the IHD-WHO Working Group on Quality of Water, and co-published with WHO. It contains information on hydrological measurements and data needed in water quality surveys of rivers, lakes and impoundments, estuaries and ground water. It emphasizes practical and economic methods for conducting water quality surveys in developing countries. The book has four parts: an introduction to water quality surveys; a description of the factors affecting water quality; techniques for sampling, analyzing and data treatment; and, special features of water quality surveys in different types of water bodies. Bibliographies are included for each section. This volume, Reports in Hydrology, 23, is available for U.S. \$ 29.75 from UNIPUB, 345 Park Avenue South, New York, N.Y. 10010, U.S.A.

NEW PUBLICATIONS

Selected Water Problems in Islands and Coastal Areas is the proceedings of a 1978 seminar held in Malta by the Committee on Water Problems of the UN Economic Commission

for Europe. This book offers an overview of water resources management in areas where salt water incursions from the sea threaten the fresh surface and ground water resources or millions of people. The 522 page volume is available for U.S. \$68.00 from Pergamon Press, Maxwell House, Fairview Park, Elmsford, N.Y. 10523, U.S.A.

The WHO Regional Office for Europe has published a report on Health Effects of the Removal of Substances Occurring Naturally in Drinking Water with Special Reference to Demineralized and Desalinated Water. (Euro reports and studies No. 16)

Some research workers have suggested that the presence or absence of certain substances in drinking-water is directly associated with the differences in death rates from heart disease. Others have contended that water quality may be an indicator of other environmental conditions (e.g., climatic) and that it may be these that have a direct effect on heart disease. However, the Working Group concerned itself with the health significance of removing inorganic substances occurring naturally in drinking-water, an insufficiency of which substances might impair health. An important part of the discussion dealt with the relationship between mineral content and cardiovascular disease, and special reference is made to demineralized and desalinated water.

When food is boiled in water, there can be a sizeable extraction of minerals; some of these may be beneficial and their loss undesirable, whereas others (such as salt from preserved food and nitrates from some leafy vegetables) are potentially harmful and their elimination an advantage. Given these facts, it was considered necessary to re-evaluate the loss to man of minerals, which may occur during cooking in water of variable quality, and to prepare new balance sheets for minerals that take into account local conditions of water and food availability and preparation.

The discussions of the Working Group covered: water constituents and supply; water requirements, including the health significance of individual substances and the identification of potentially important magnesium and sodium in drinking-water in relation to cardiovascular disease. Elements selected for potassium, zinc, chromium, fluorine, silicon, and lithium. The report concludes with a number of general recommendations.

India

NEW NEWSLETTER: DROPLETS

The Bombay Chapter (over 900 people on roster !) of the Indian Water Works Association has recently started publishing a periodical news bulletin for its members,

called Droplets. The first issues have just been received at IRC and they certainly provide useful information. The Bombay centre has also started a water and sanitation library and would welcome - in terms of relevant reports and other publications - any contributions. Further information: Indian Water Works Association, Bombay Centre, Mr. S.P. Unvala (Chairman), Zarin Lodge, 103, T.P.S.IV, Bandra, Bombay - 400 050, India.

Forthcoming Events

The Belgian National Water Supply Association (NAVEWA) will organize a fair-named AQUA-EXPO on July 23 - 27 (incl.), 1981 in Brussels.

Exhibition themes will be: distribution, transport and treatment (biological, mechanical, chemical) of water, quality control of water (incl. waste water) and sludge treatment. At the same time, the Belgian Committee of International Association on Water Pollution Research (IAWPR) will organize a congress on "Micro-pollutants in the Environment". Furthermore, NAVAWA will organize several 'study days' (the subjects of which have not been announced yet). Further information: NAVAWA, Chaussée de Waterloo 225 - Boite 6, Brussels, Belgium.

Water Research Centre (United Kingdom)

The Water Research Centre (WRC) has now become the WHO Collaborating Centre for drinking water and water pollution control for the World Health Organization Regional Office for Europe (Copenhagen). The agreement between WRC and WHO Regional Office for Europe provides that WRC will undertake in work in areas of special interest to the WHO European Office. The following subjects are of special interest: drinking water quality, water treatment, groundwater pollution, tidal waters quality management and sampling and analysis of waters. Of these the highest priority will be given to health aspects of

drinking water quality. WRC will also prepare, on behalf of the Regional Office, a survey of the administrative structure of European water services, and will provide the office with access to information systems such as "Aqualine" and the data-base "Instab".

Further information: Water Research Centre, 45 Station Road, Henley-on-Thames, Oxon., RG9 1BW, United Kingdom.

BIOLOGICAL FLUIDIZED BED

Sewage treatment by the biological fluidized bed process has important potential advantages in comparison with conventional activated sludge, particularly reduction in size to 1/5 to 1/10 of plant volume, which is made possible by the high concentration of biomass that can be grown on the surface of fluidized sand particles. This leads to reduced capital cost, reduced land requirement and potential for uprating existing overloaded treatment plant in situ. Economic studies on small laboratory pilot plants have indicated that for carbonaceous and nitrogenous oxidation the new system is competitive with the activated sludge process. One of the factors which helps to make it competitive is the process of separation of excess biomass from the sand. Further research and development is now needed on larger scale equipment and a pilot plant to treat an average hydraulic load of 350 m³/day and deal with diurnal variations up to twice this average load is to be built at the Coleshill experimental plant on the site of the Severn Trent Water Authority's Coleshill Sewage Treatment Works. The plant has been designed jointly by Water Research Centre (U.K.) and the Dorr-Oliver Co. Ltd., whose North American experience with "Oxitron" pilot plants has provided the basis for the reactor design. The Coleshill plant will be commissioned later this year and will come on stream early in 1981. Further information: Water Research Centre, 45, Station Road, Henley-on-Thames, Oxon. RG9 1BW, United Kingdom.



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newsletter

No. 114 - October 1980

News from IRC

IRC has compiled for the World Health Organization (WHO) a draft 'Guide for the Design of a National Support Programme for Community Education and Participation in Water Supply and Sanitation'. Main author of the guide is Dr Anne White (Institute for Environmental Studies, University of Toronto).

The document has been prepared as a guide for WHO staff and consultants, to assist national governments in strengthening community participation in their planning for the International Drinking Water Supply and Sanitation Decade.

Before official publication, the document will be reviewed by a number of external experts in the field concerned. Subsequently, the guide will be field-tested in a limited number of countries where WHO is providing technical cooperation in planning for national Decade Programmes.

Further information: IRC, P.O.Box 5500, 2280 AC Rijswijk, the Netherlands.

New Publications

Studies on Rural Development: Vol. 1, Studies on Project Design, Implementation and Elevation, (143 pages) and Vol II Studies on Rural Water Supply Schemes (271 pages), edited by Duncan Miller, are new publications of the Organization for Economic Cooperation and Development (OECD). They are described as trans-disciplinary studies of the interwoven rural development and rural water supply programme and project activities in developing countries. Linkages between social and economic aspects, promotion, evaluation and project design are made. There are papers by Nicholas Imboden on planning and design of rural drinking water projects, and by T.I. Bennell (Chief Engineer of the United Kingdom Overseas Development Agency) on evaluations. The last three papers are analysis of self-help and public participation in small-scale irrigation projects in Senegal (Matam area - described as very successful) and from rural water supplies in Mexico. Further information: OECD Development Office, Informations-Publication Office, 94 Rue Chardon Lagache, 75016 Paris, France

American Water Works Association WATER RE-USE FOR GROUNDWATER RECHARGE/WATER RE-USE SYMPOSIUM

Droughts and increasing demand for water resources have intensified interest in the USA in groundwater recharge as a viable resource management tool. To this theme, the American Water Works Association (AWWA) has devoted a special issue of its AWWA Journal (vol. 72, no. 7, July 1980).

The issue includes descriptions of recharge operations in California, the Netherlands, Israel and along the river Rhine, which show that this technique can be successfully used to supplement existing supplies.

The same journal announces a one-week Water Resource Symposium which will take place in Washington DC in August 1981, organized by the AWWA Research Foundation. The announcement includes a call for papers (deadline December 15, 1980); in the selection of papers special consideration will be given to innovative approaches; new, up-dated, or unreported system design and performance data; practical applications as a conservation technique, or as an economical and energy efficient water supply alternative. Further information: AWWA, 666 W. Quincy Ave., Denver, Colo. 80235, USA. Symposium contact is Richard D. Heaton.

Los Angeles, USA

WATER RE-USE PLANS AND DEMONSTRATIONS

The Orange and Los Angeles Counties Re-use Study (OLAC) was created in 1978 by the major water and waste water utilities serving the region. Starting with reconnaissance data on 1,000 potential new re-use applications screening criteria were used to narrow down the market and compare alternate delivery systems. Assisted by local utilities, city officials and health authorities, delivery systems of varying extent were laid out amongst the most favorable routes to serve end users. Storage reservoirs, pump stations, pipelines and treatment facilities were sized and located to match user needs at least cost. Systems were sized and costed at both a minimum and ultimate extent to present the full range of options to elected officials and utility directors. In the fall of 1980, the study will propose a set of ten projects to be constructed over a ten year period and a regional/state financing method which incorporates water re-use into the California Water Plan. The Study's draft proposals are now being distributed for public review and comment and are expected to be refined during 1981 into a final plan of action. Further information: OLAC Water Re-use Study, Public Participation Coordinator, P.O.Box 54153, Los Angeles 90054, USA.

Organization for Economic Cooperation and Development (OECD)

FINANCIAL RESOURCES FOR DEVELOPING COUNTRIES

The volume of official development assistance (ODA) from DAC member countries rose by 2.3 billion US\$ to reach \$22.3 billion in 1979, according to preliminary data presented at a recent press conference by Mr. John P. Lewis, DAC chairman. DAC is the OECD-committee on Development Assistance, consisting of representatives of Australia, Austria, Belgium,

Canada, Denmark, Federal Republic of Germany, France, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Sweden, Switzerland, UK and the USA. Expressed as a share of members' GNP, this meant it fell slightly from 0.35 per cent in 1978 to 0.34 per cent in 1979. "The news is not really very good ... it was a mediocre year and I see little change for the near future," commented Mr. Lewis. According to the same data, total financial resources from DAC countries in 1979 were roughly the same as in 1978 - \$70.4 billion - equalling 1.09 per cent of their GNP. ODA flows from OPEC countries are estimated to have risen by \$400 million to \$4.7 billion, or 1.28 per cent of the GNP of OPEC donor countries.

Hawaii, USA
INFORMATION ON RESOURCES (water, energy, etc.)

The East-West Resource Systems Institute has reorganized its information facilities. Among the services now available are computerized literature searches of commercially available data bases. The Institute's own information collection - including unpublished articles and papers not routinely collected by libraries nor listed in standard bibliographies - concentrate on energy, raw materials, food and environmental issues, especially within the Asia-Pacific region.

Exchange programmes can be arranged with other institutions. A list of newly received materials is published periodically to announce latest advances and to help facilitate information networking with external interested organizations.

Further information: East-West Resource Systems Institute, East-West Centre, 1777 East-West Road, Honolulu, Hawaii 968 48, USA.

United Kingdom
MANUALS ON WATER POLLUTION CONTROL

The British Institute of Water Pollution Control is publishing a series of manuals dealing with all aspects of British practice in water pollution control. In producing individual manuals, different experts are invited to prepare separate sections, drawing upon published work and personal experience. Each manual therefore represents practical information based on the joint experiences of various authors and would seem very useful to those engaged in water pollution control and those studying for professional qualifications.

Titles include: *Glossary of Terms used in Water Pollution Control (£3.30)*Primary Sedimentation (£3.75)*Tertiary Treatment and Advanced Water Treatment (£2.25)*Sewage Sludge I: Production, Preliminary Treatment and Digestion (£4.)*Sewage Sludge II: Conditioning, Dewatering and Drying (publ. due in early 1981)*Sewage Sludge III: Utilization and Disposal (£3.50)*Manuals on 'Activated Sludge Process' and 'Biological Filtration' are in preparation.

Further information: The Institute of Water Pollution Control, Ledson House, 52 London Road, Maidstone, Kent ME16 8JH, United Kingdom.

New Publications

GOODMAN, L.J. and LOVE, R.N.,

Project Planning and Management:

An Integrated Approach. This book discusses in detail the sequence of activities that constitutes a development project, from identification and design through completion and evaluation. These tasks are integrated through the unifying framework of the Integrated Project Planning and Management Cycle (IPPMC) which organizes the life cycle of a development project into four interrelated phases, showing how integrated management of all projected activities is crucial to a successful project.

The first section of the book describes the basic concept of the IPPMC and discusses the managerial role in project development. The second section of the document deals with formulating, planning and conducting feasibility studies for a potential project. The third section describes the actual processes of selecting, approving and activating a project. The fourth section examines project implementation, supervision, control and completion. Finally, the concluding two sections present a discussion of project evaluation and refinement, along with a policy view of the project cycle. The book has been published by Pergamon Press, Maxwell House, Fairview Park, Elmsford, N.Y. 10523, USA and costs US\$ 30. (hardcover) and US\$ 11.95 (softcover).



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newsletter

No. 115 - November 1980

The Inauguration of the International Drinking Water Supply and Sanitation Decade (1981-1990)

The Decade was officially launched on 10 November 1980 in the United Nations General Assembly. The goal of the Decade is "clean water and adequate sanitation for all people by the year 1990." The general impression was that many developing countries and UN organizations are very serious indeed about reaching their targets for the Decade, according to an IRC observer.

Speeches to mark the launching were given by representatives from concerned UN organizations, seven regional representatives, and from 25 countries. We have summarized the speeches of Mr. Bradford Morse, Administrator, United Nations Development Programme (UNDP), of Dr. H. Mahler, Director General, World Health Organization (WHO) and of James P. Grant, Executive Director of UNICEF.

Mr. Bradford Morse, UNDP

Mr. Morse opened his speech with reference to the stark reality facing half the world's population who are denied safe water and adequate sanitation. He emphasized that the goals of the Decade are not only necessary, but also realistic: "Investment in water is investment in the human potential of the poor, one that is not only economically sound but one which we can achieve now."

The UNDP administrator pledged the full support of his organization in what will require an "unprecedented joint international effort". The UN Steering Committee has already begun this work. UNDP Resident Representatives in developing countries are now functioning as focal points for both inter-agency coordinations at the operational level and for the support of National Action Committees. Many representatives have been assigned Technical Support Teams from different UN Organizations for this purpose. While emphasizing the role UN organizations are playing in Decade goals, Mr. Morse spoke of participating governments and local communities as the prime movers in this process. "The local community", he said "... knows best its needs and can determine the most appropriate and effective way of meeting them." Governments and organizations should unite to stimulate full-scale community participation.

Praising the efforts of those developing countries which have already devised Action Plans and Action Committees, the UNDP Administrator urged all governments to follow their example. In addition governments should put more emphasis on water supply and sanitation in order to reach Decade goals.

Mr. Morse called upon developed countries to strengthen their bilateral programmes of assistance towards Decade goals, and to increase their contributions to multi-lateral Decade-related programmes.

Dr. H. Mahler, Director General WHO

Dr. Mahler began his speech to the UN General

Assembly with a call for action: "I need not remind you that in reality the highest barbed wire fences are those that exist between the 'haves' and the 'have-nots', the two billion or so of the earth's population who at present trapped in an endless cycle of poverty and disease." Lack of safe water supplies and sanitation is the common denominator of this cycle.

Ensuring safe drinking water and adequate sanitation for all by 1990 is an essential component of the strategy developed three years ago by WHO member states. The broader objective is to create a level of health that will permit all world citizens to lead a socially and economically productive life by the year 2000.

The WHO Director-General stressed that the Decade goals present a great challenge to mankind, and will cost at least US\$30/billion per year. But we now possess both the technology and the resources to accomplish these objectives. Most importantly, the success of the Decade will depend upon action for and by the people.

Dr. Mahler rejected the notion that a "universal water supply and sanitation model can be designed and imposed on the developing world. Instead, it has to begin with the countries themselves. Each national government must launch its own Decade, and take responsibility for it."

All this implies big, and uncomfortable changes at all levels of government and society. Vested interests, both in developed and developing countries, will be challenged.

Because safe water supply is the key factor in destroying the cycle of poverty and disease, Dr. Mahler suggested that the number of water taps per 1000 persons is a better indicator of health than the number of hospital beds.

He urged governments to open and continue a dialogue with the people: "Only in that way can frustration and inertia be overcome, and only in that way can the individual and the community be persuaded to accept that it is not our Decade but their Decade." This dialogue must show what can be done, how and why.

Developed countries will have to match the efforts of developing countries, and a reappraisal by countries involved in bilateral collaboration and by international organizations is necessary.

Dr. Mahler pledged the energies of WHO in helping developing countries to meet Decade goals and longer term objectives to improve global health standards. The testing of commitment to Decade goals should be specific and within a definite time frame. He said: 'For instance, the World Health Assembly, at the mid-Decade review in 1985, should be ready to ask governments some

pertinent questions: "Have you formulated a country-wide water and sanitation strategy and are you carrying it out?" "Can you show significant reorientation of national budget allocations for safe water supply and adequate sanitation?" "Have you instituted mechanisms to develop true community participation?" and similarly, ask itself: "Have we truly harmonized our policies and activities in order to maximize the immense potential that we represent?" and ask donors: "Have you increased your investments in the Decade?" "Have you also reoriented your approach to support self-sustaining development?"

Mr. James P. Grant, Executive Director, UNICEF

Mr. Grant emphasized how safe water and basic sanitation would radically improve the living standards of mankind -- particularly women and children.

He detailed UNICEF's commitment to Decade goals; it is the largest multi-lateral donor in rural water supply and sanitation. In 1979, for example, UNICEF spent over U.S. \$50 million in this field -- one out of every four dollars in its General Resources budget. By 1984, this figure will reach U.S.\$100 million. 90% of these funds purchase supplies and equipment, and UNICEF deploys 120 project officers in 40 countries in water supply and sanitation. The focus is on rural and semi-urban areas, where the need is the greatest.

Because the responsibility for Decade goals lie with the national governments, UNICEF in-country training programmes can be of great benefit to promote self-reliance in the pursuit of these objectives.

The Executive Director of UNICEF drew particular attention to the role of community participation, as the "essential vehicle and context for water supply and sanitation improvements. Since water is commonly a community priority, its supply is often the starting point for self-reliant local efforts". UNICEF insists upon the role of local people in decision-making in the widest sense: planning, installation, maintenance, and financing.

IRC Technical Paper 11 now available in Spanish

Under an agreement with IRC, the Centro Panamericano de Ingeniería Sanitaria y Ciencias del Ambiente "CEPIS" has completed the Spanish translation of the IRC manual on Slow Sand Filtration (Technical Paper 11): Filtración Lenta en Arena para Abastecimiento Público de Agua en Países en Desarrollo

Manual de Diseño y Construcción

Serie Documentos Técnicos 11 -

Organizations and persons actively involved in Community Water Supply and Sanitation in Latin America on a non-commercial basis can obtain a copy free of charge through CEPIS Sección de Información

Casilla Postal 4337
Lima 100, Peru.

Outside Latin America a copy can be obtained from IRC directly.

First regional POETRI workshop held in Lima, Peru

The Pan American Centre for Sanitary Engineering and Environmental sciences (CEPIS, Lima, Peru) organized, jointly with IRC, the first regional POETRI workshop, 11-13 November 1980. The work theme was 'the organization of national workshops on information support to water supply and sanitation'. Subjects also covered were.....

- planning for national information support programmes;
- inventories of existing information (re)sources; and
- assessment of information user needs.

National workshops will be held in the first half of 1981 in Peru, Argentina, Colombia and Ecuador, whose representatives participated in the regional workshop. Potential focal points in Bolivia, Brazil, Costa Rica, Chile, Guatemala and Venezuela participated as observers.

Other participants included representatives from focal points in two other regions: West Africa (Interafrican Committee for Hydraulic Studies, Upper Volta) and South East Asia (National Environmental Engineering Research Institute, India).

Direct cooperation was established with the Pan American network for sanitary engineering and environmental sciences (REPIDISCA), which also emphasizes 'water supply and sanitation' as subject scope.

Further information: CEPIS, Casilla Postale 4337, Lima 100, Peru.

CEPIS has a report on the meeting available in Spanish; English and French versions will be issued shortly by IRC.

UNESCO/IRC cooperation re: POETRI

Representatives of UNESCO, WHO and IRC held a 'Consultation meeting' on October 30, 1980 at UNESCO Headquarters in Paris.

Subject of discussion was possible input UNESCO's General Information Programme with POETRI. Specific proposals for cooperative projects are at present being formulated. Previous to the meeting UNESCO also officially joined the UN Steering Committee for the International Drinking Water and Sanitation Decade.



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newsletter

No. 116 - December 1980

News from IRC

MODULAR APPROACH SEMINAR

A regional seminar to explore the advantages of standardized modules in small water supply systems was recently organized in Jakarta by IRC and the Directorate General Cipta Karya, Indonesian Ministry of Public Works. Both these organizations have developed a design model which will be tested.

The seminar, 6-10 October, was part of an overall IRC programme to develop information and technical support in developing countries, and to promote international co-operation in community water supply and sanitation. Standardized pre-designed units (modules) storage reservoirs, pumphouses, filtration units, etc. - simplify construction work and allow for a much faster project completion. Standard material (steel or concrete) is used, procedure is repeated, and a smaller assortment of parts (which could be manufactured locally) is needed. Sub-professionals, trained in a relatively short time, could design and construct complete systems without relying on large numbers of professionals.

A number of recommendations were made by participating experts:

Planning -- New planning approaches were seen as prerequisites for the success of any modular programme. Pooling local expertise was underlined as essential. Design manuals should be developed within definite time limitations to stimulate a mass approach. Instead of providing maximum service to limited communities, developing countries were urged to reach more people with lower, but acceptable standards.

Administration -- Governments should play a leading role in coordinating related agencies and ministries, in integrating these programmes into an overall centralized development strategy. Planning and technical programmes are needed to train people who can be of service to local bodies.

Finance -- Water supply systems should be subsidized until small communities are ready and willing to pay. Local leadership in the community can play a key role in this transition. Governments should plough back revenue from water supply for future needs, and ensure equitable distribution of increasingly scarce safe water. Lending agencies should accommodate the financing problems facing developing countries, and establish more uniform lending procedures.

Research -- Further research is needed in the use of ferrocement and hydraulically powered systems, as well as in improving raw water quality through natural filtration. Public standposts require additional modifications for appropriateness.

Manufacturing standard components for

Modular (Steel) Water Treatment Plants -- The large scale and dispersed nature of the processes of manufacturing, constructing and operating of standard water treatment plants demands a supervisory body for coordination.

Maintenance -- New institutional structures are needed to remedy the all too often problem of breakdown. Modules should be simple in design for easier maintenance, and schemes are needed with the emphasis on preventive maintenance.

Community involvement -- Community participation is necessary for the acceptance of any water supply system, and in the long run to ensure continuous operation and maintenance of the system. Technology should be "appropriate" not only in the physical sense, but also sensitive to local socio-economic realities. Regular forums between various levels of government and local people are encouraged to prevent misunderstandings and to promote the use of safe water.

The participants proposed that international action be taken on their recommendations, particularly by organizations like IRC and the United Nations Development Programme.

The contributing experts to the seminar came from Australia, Bangladesh, Columbia, India, Indonesia, Malaysia, Nepal, Sri Lanka, The Netherlands, United Kingdom, U.S.A., and West Germany. Also involved were representatives from UNDP, WHO, UNICEF, U.S. AID, and the Asian Development Bank.

Proceedings of the seminar, as well as related material, will soon be published as an IRC Bulletin. If you would like a copy, please write us.

SLOW SAND FILTRATION (SSF)

People from around the world met recently in Nagpur, India to review the demonstration phase of the IRC and NEERI organized slow sand filtration project.

Slow sand filtration is a purification process that simultaneously improves the biological, chemical and physical characteristics of water by allowing it to slowly pass through a layer of sand.

Because of its simple operation and maintenance procedures, it is very well suited for rural areas in developing countries. Slow sand filtration provides safe drinking water at low recurrent cost.

Representatives from Columbia, Jamaica, Kenya, Sudan, India, and Thailand gathered at the National Environmental Engineering Institute, (NEERI), September 15-19.

In plenary sessions and workshops they focused on: the design and construction of SSF plants; their operation and maintenance; training of operators; baseline health sur-

veys; health education programmes; impact studies; and community participation. A report of the results of the SSF meeting will be published by IRC in the first quarter of 1981, and will contain recommendations as well as national summaries submitted to the meeting by representatives. The demonstration phase of the project will continue until all countries have completed it. Participating countries are keeping in close contact with each other by organizing national seminars, and by publishing national results as well as research findings.

THE DECADE LAUNCHING

The official launching of the International Drinking Water Supply and Sanitation Decade took place in the United Nations General Assembly on November 10, 1980. On this occasion spokesmen for concerned organizations, and developed and developing countries outlined the significance of the Decade within their respective contexts.

In this IRC Newsletter we are summarizing the addresses of H.E. Ambassador H. Scheltema of the Netherlands who spoke on behalf of the Group of Western and other States, and also of Mr. N.C. Parashar, Representative of India to the 35th session of the General Assembly. In the November Newsletter we summarized the addresses of spokesmen for UNDP, WHO, and UNICEF.

Ambassador Scheltema:

The Dutch ambassador to the UN remarked that the provision of a safe water supply and adequate sanitation for the Western nations is a relatively recent development. That it was accomplished is a reflection of the high priority which this provision was given, and of national self-reliance.

Similarly, developing countries are striving to raise the technical capacity at the national level. In this context "outside" help can be of assistance, particularly within the context of the UN family.

Mr. Parashar, Representative of India

Mr. Parashar said that India appreciates greatly the efforts of the UN bodies in water supply and sanitation programmes. He outlined the determination of India to join with these organizations to meet Decade goals. He explained that Decade activities in India are a continuation of self-reliant policies begun by Prime Minister Nehru in the First Five Year Plan in 1954. Within the next five years, thousands of "problem" villages -- without protected water sources -- will create safe drinking water supplies in co-operation with the government.

Though over 100 million Indians now have some form of water supply, this provision must be

improved and extended. Efforts to ensure adequate rural sanitation are of special concern, and an all-out campaign to fight water-borne diseases in the cities has been launched.

Training programmes and more emphasis on preventive maintenance are key elements in this struggle, according to Mr. Parashar. The India government, he said, has given this sector the high priority it deserves in the new 6th Five Year Plan.

PUBLICATIONS

CARIBBEAN BASIN WATER MANAGEMENT PROJECT

A Guide for Trainer-Consultants

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

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

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

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

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

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