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THE WORLD WATER AND SANITATION DECADE: WHO'S SHARING THE COST? WHERE'S THE MONEY COMING FROM?

The 1970's saw a rise in both domestic and external investment for new drinking water supply and sanitation systems. Annual average investment rose from some US\$ 3,000 million in the years 1971 to 1975 (in 1973 dollars) to an estimated \$ 6,000 to \$ 7,000 million in 1979 (in 1979 dollars). With allowance for inflation, the real increase was between 20 and 40 per cent.

By comparison, the least-cost figure for reaching the goals set for the 1980's is \$ 30,000 million a year - four to five times the 1979 investment. Mobilizing additional internal and external funds is thus still a major challenge, but not impossible when the multiple sources to be tapped are added up and analysed. The internal sources comprise government development budgets, user financing, and self-help whereas the external sources are international development banks, bilateral and multilateral donors, and non-governmental organizations.

On the average, about two-thirds of the financing has been coming from domestic sources, and the remainder from external funds, with significant variations among regions: international aid in 1979 was an estimated \$ 2,400 million, or about 35 per cent of total spending. The percentage contribution came from the following sources: World Bank (43), Regional Banks (17), OECD bilaterals (23), OPEC countries (7), UN Organizations (6) and Non-governmentals (4).

WORLD BANK AND REGIONAL BANKS

Development banks would like to expand their financing of rural water supply and sanitation projects. However, because the national institutions responsible for rural programming tend to be weaker, the emphasis has been on loans for urban water supply

and sanitation. The banks have generally relaxed their criteria for funding of rural projects to encourage more of them, but they definitely still expect users to contribute significantly towards maintenance and operation costs.

The 1979 figures showing 43 per cent of external financing from the World Bank are based on its \$ 900 million in water supply/sanitation loans that year - an exceptional year involving almost three times the average lending of the previous five years. In the period 1980-1983, the World Bank expects to commit an average of \$ 700 million a year to water supply and sanitation - or about 34-35 per cent of total external financing at current rates.

The World Bank's commitments have been disproportionately for urban areas. Increasingly, its urban focus has been on the urban poor, and more attention is to be paid to rural areas in the future. Recent loan totals from development banks have been as follows: World Bank - \$ 700 million (1980), African Development Bank - \$ 80 million (1978), Asian Development Bank - \$ 178 million (1979) and Inter-American Development Bank - \$ 25 million (1975-1979 annual average).

OECD BILATERALS

The information made available by bilateral donor governments of the OECD countries indicates that their allocations for drinking water supply and sanitation are not based on specific targets for the Decade. (Organization for Economic Cooperation and Development = Western industrial + Japan). Almost all of them state that the priorities of the recipient countries influence the distribution of bilateral resources among sectors, though some donors indicate their preference for rural water/sanitation projects. Some donor governments are now providing support on a grant basis to the least developed countries. Some, and particularly the Scandinavian countries, only provide support to water supply/sanitation projects that are rural, and only on a grant basis.

OECD countries provided bilateral aid totalling \$ 550 million for water supply and sanitation in 1979 - 23 per cent of the global total. Of this amount, the Federal Republic of Germany supplied the most (26 per cent), followed by the United States (25 per cent). The combined contributions of Sweden, Canada, the United Kingdom and Australia made up another 24 per cent, the final one-quarter coming from other OECD-nations.

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WASH

In 1980, the United States created a special advisory and steering group for its bilateral assistance, called the "Water Supply and Sanitation for Health" (WASH) project. WASH is a consortium of five specialized consulting organizations which are now assisting 38 countries with advice on technical, planning and environmental health matters as well as services in training, technology transfer and related institutional development.

OPEC COUNTRIES

Complete figures are not available, but it is estimated that about \$ 160 million per year comes from OPEC countries for water supply and sanitation projects. Almost half of this amount is from the Arab Fund for Economic and Social Development, and nearly one-fifth from the Kuwait Fund for Arab Economic Development.

UNITED NATIONS TECHNICAL ASSISTANCE

The two main donor organizations of the UN system in water supply and sanitation are the United Nations Development Programme (UNDP) and UNICEF.

UNDP estimates that its 1980 expenditures were \$ 22.6 million for 155 water supply and sanitation projects. The cost to UNDP of all current projects, upon completion, amounts to some \$ 120 million. In addition, UNDP chairs the UN system "Co-operative Action" committee for the Decade, and UNDP Resident Representatives are the Decade focal points for the UN system at country levels. Since the mid-1970's, UNICEF has become a major donor for rural water supply and sanitation projects, increasing its commitments five-fold to the \$ 53 million level in 1980. In 1981 UNICEF commitments are expected to be about \$ 50 million, and plans are to reach \$ 75 million a year in 1983. Its assistance mainly takes the form of equipment and supplies, plus some advisory assistance.

The UNDP-administered UN Capital Development Fund (UNCDF) devoted about \$ 8.5 million in 1980 (17 per cent of its total) to rural water supply and sanitation.

WHO is also very active in Decade projects and programmes, mainly as an operational and technical assistance rather than funding agency. It serves as the Secretariat for the Decade Steering Committee. A project/programme information system developed by WHO enables countries to identify and seek external assistance for their projects/programmes.

DONOR CONSULTATIONS

Regular donor consultative groups exist for 21 individual countries and for the Caribbean region. For 19 of the countries, the World Bank convenes an annual meeting of representatives from the recipient governments and involved bilateral and multilateral donor organizations. The country presents its overall development strategy and priorities, and its specific external assistance needs for the coming year. Countries that identify water supply and sanitation as an important priority in these forums have a greater chance of obtaining assistance in the sector.

The World Bank-organized meetings are of three types: (a) Consortium Meetings (for India and Pakistan) where hard pledges are

anticipated from high level donor officials; (b) Consultative Meetings (for 13 developing countries) with slightly lower expectation of hard pledges; and (c) Aid Groups (for Bangladesh, Burma, Nepal and Sri Lanka) with the lowest degree of immediate donor commitment. Two other consultative groups exist, for Turkey under OECD auspices, and for Indonesia under Netherlands chairmanship.

In addition, for countries not part of such consultative mechanisms, the UNDP Resident Representative is in a position to convene in-country meetings of donors if the Government wishes. As the Decade country-level focal point for the UN System, the Resident Representative can seek inclusion of water supply/sanitation needs in such consultation.

(February's Newsletter will focus on the role of non-governmental organizations in the Water Decade. Many thanks to Development Forum for this material.

The November 1981 Development Forum has a four-page special on the Water Decade! Published 10 times a year by the United Nations in English, French and Spanish and free to subscribers in developing countries. Please write to Development Forum, DESI/DPI, Palais des Nations, CH-1211 Geneva 10, Switzerland).

COMMUNITY PARTICIPATION IN WATER AND SANITATION: ASIA

(See the November 1981 Newsletter for Community Participation in Latin America; the December '81 Newsletter for Africa).

Existing programmes

In Asia, a variety of service levels and community participation traditions and initiatives is found. Manpower arrangements include technicians trained for community organization (Republic of Korea), health supervisors trained for technical and socio-educational tasks (Malaysia), multi-agency government staff for community organization and local management training (Philippines) and the integration of rural handpump programmes in the primary health care programme (Thailand). The socialist forms of economic organization in The People's Republic of China and in Vietnam allow the use of communal institutions for water development.

The needs and potential for community participation development and evaluation are therefore discussed in the same way as for Africa. Thereafter two more general issues pertinent to the Asian situation, type of participation and sanitation, are briefly dealt with.

Drilled well and handpump programmes

In India, community participation in handpump programmes is limited to maintenance in the so-called three-tier system. After successful pilot testing in Tamil Nadu the programme is now expanded to other states. Monitoring data are accumulated at the national level by UNICEF, so that evaluation of cost-effectiveness is possible. For a greater health impact participation in planning and additional arrangements for health education could probably be developed.

A similar programme exists in Bangladesh but with additional participation in allocation, siting and financing of construction.

In Thailand, government staff of all levels

have attended workshops to train them to involve the community (and especially the women) in number and siting of wells, financing and caretaking. The integration of handpump installation on existing wells in the national Public Health Care programme is tried out in a pilot region.

Again there is room for evaluation of these programmes and for possible development in the direction of incorporating health education, more recognition of the needs of weaker sections of the community and greater involvement of women.

Rainwater storage programmes

Two interesting rainwater storage programmes with community participation exist in Indonesia (West Java) and Malaysia. Such programmes also exist in Africa and Latin America (e.g. in Botswana, Kenya, Brazil and Colombia) but the Asian ones are particularly interesting because they have been going on for some time, were organized by an outside (government) agency, and have a specific participation component which is relatively successful. A specific reason for studying such programmes is the potential of this type of supply for small communities and groups of households, which is as yet not fully utilized.

Piped water supply

Two programmes in Malaysia and the Republic of Korea have successfully combined the community participation and technical tasks of their decentralized manpower. In both programmes, the community participates in allocation, financial decision making, construction, maintenance and administration. There are also interesting differences, however, e.g. regarding health education and financing. Both programmes present interesting cases for evaluation on the consequences of CEP procedures for the agency and the community.

Nepal has a programme for self-help labour in piped supplies. Indonesia has a regional pilot programme which includes participation in planning and in operation and maintenance (West Java).

In India, a national evaluation survey of rural water supplies is carried out, which includes some questions on participation and health education. It is expected that this evaluation will lead to a national initiative for community participation and education programmes in the state programmes for rural water supply.

Types of community participation

In most Asian policy documents mentioning community participation emphasis is laid on the reduction of agency costs in construction and management. The attention for its role in the achievement of general success, an improvement in public health, a combined household and economic use of water and the emancipation of the weaker sections of the society appears to be much less, especially at field level. As a consequence of this preoccupation with cost reduction the risk exists that in mixed systems (piped supplies with a more or less equal percentage of the population served by paid house connections and free standposts) the standposts are limited to an unrealistic small number and not properly maintained because they only cost

money and keep people from taking a paid house connection. Of the total 17% of the rural population served with piped water in Pakistan, for example, the 15% with a house connection are likely to belong to the rural elite.

Sanitation

The linkage of sanitation to drinking water supply is a need in many African and Asian countries, where environmental conditions are very poor. A number of programmes exist but there are serious organizational and socio-cultural constraints (e.g. religion, settlement patterns). In Bangladesh, the 1972 campaign was not successful but a new programme with health education has been set up.

In India, there are a number of government and voluntary agency initiatives for participatory sanitation programmes, but overall they have not yet a great impact. The participatory programme, started in Bihar in 1973, for bucket latrine conversion in unsewered urban areas is now expanded to various Indian states. There are also university projects of a research and pilot nature. In rural Sri Lanka and the Philippines there are also successful NGO latrine programmes. In the Republic of Korea, total coverage has already been achieved. A participatory urban fringe programme for sanitation and drainage exists in Java, Indonesia.

(For more information, please write to IRC).

NEWS FROM IRC

IRC'S ROLE AND APPROACH IN THE WORLD WATER AND SANITATION DECADE

* The International Drinking Water Supply and Sanitation Decade (1981-1990) has been declared as an urgent commitment of all countries to develop national programmes for improving community water supply and sanitation. During the next 8 years, IRC will primarily contribute to the necessary action in the developing countries in that context.

* IRC aims to contribute to the development of such national programmes and facilities which are in support of water supply and sanitation development and which ultimately should lead to enhanced capacities in the short term and self-reliance in the long term.

* The main functions through which IRC fulfills its aim are the generation, transfer and application of relevant knowledge, experience, technology and methodology (sometimes collectively referred to as "information").

* IRC promotes international cooperation. It operates closely with WHO as well as with the World Bank, UNDP, UNICEF and other members of the Decade Steering Committee, as appropriate. Alignment is sought with Decade efforts by these agencies in the developing countries.

* The most essential cooperation is with partners in the developing countries. Through the various actions, working relations are developed with (and among) national and local authorities, the national action committees, operating agencies, research and development institutes, user groups and individuals in these countries.

IRC is an independent non-profit foundation. This allows for unprejudiced and effective

expenditure of project funds, and flexibility in the execution of projects.

IRC FOUNDATION'S NEW GOVERNING BOARD AND ADVISORS

IRC's new status as a foundation under Dutch law has brought organizational changes reflecting both the history of IRC and the new demands of the World Water and Sanitation Decade. This has led to the creation of a Governing Board and initiating the formation of an Advisory Council to ensure that IRC's role and approach is consistent with developing countries' needs and the aims of the Decade.

Governing Board

The Water and Sanitation Centre's 9 member Governing Board is composed of 5 representatives from Dutch ministries that are the major source of IRC funding, and four from the UN agencies most active in the World Water and Sanitation Decade. This Dutch Ministry/UN agency representation extends the international outlook of IRC which was founded in 1968 upon the initiative of the World Health Organization and the Dutch Government.

The Dutch component of the Governing Board includes: Mr. P. Santema (chairman); Mr. P.J. Verkerk (secretary) and Mr. D.J. de Geer (treasurer) of the Ministry of Public Health and Environmental Protection; and Mr. H. Gajentaan, and Dr. K.G. Wit of the Ministry of Foreign Affairs (Development Co-operation).

The international component of the Governing Board consists of representatives of three United Nations agencies: Mr. J.M. Kalbermatten of the World Bank, Dr. M.G. Beyer of UNICEF, and (to be yet named) participant from UNDP. WHO is considering representation.

Advisors

In addition to the Governing Board, the new IRC foundation will establish an Advisory Council to give practical guidance on IRC's role and approach. In 1981 four Advisors were invited from developing countries and have a strong background in water and sanitation: Prof. Albert M. Wright of the Faculty of Engineering at the University of Science and Technology in Ghana; Dr. P.K. Chatterjee, Director General of the Calcutta Metropolitan Development Authority, India; Mr. Alfonso C. Zavala, Director General of Sanitary Engineering of the Ministry of Public Works in Peru; and Mr. Luis Jaurequi, President of the Argentine section of AIDIS, Argentina. The fifth Advisor is Head of the Research Division of the OECD Development Centre in Paris, Mr. Brian van Arkadie.

IRC'S GOVERNING BOARD AND ADVISORS APPROVE PROGRAMME PLAN FOR 1982

Recently in The Hague, IRC's Governing Board and Advisors met for the first time and approved in principle the IRC programme proposals for 1982. Prior to that, on October 8-9, 1981, the IRC Director and professional staff met with the Advisors who, in addition to receiving the 1982 proposals, also made specific recommendations. After these discussions, the 1982 plan was presented to the Governing Board. Specific Advisor recommendations for possible IRC investigation include:

- exploring alternative power sources for water pumping such as wind and solar energy.
- studying in depth the financial/operational aspects of standposts for cost recovery and user charges.
- investigating manpower development schemes for successful approaches to organization and management, especially training.
- examining the financing of developing country sanitation programmes.

One main weak link in the community water and sanitation field according to the Advisors was the lack of hard data on costs related to operation and maintenance.

All Advisors took part in this discussion except Mr. Luis Jaurequi who couldn't attend because of family illness. Active observers in the framing of the recommendations were Dr. P. Bourne (UNDP), Mr. J. Freedman on behalf of Mr. J. Kalbermatten (World Bank), and Mr. S. Unakul, WHO.

(See the following IRC Newsletter for IRC's Planned Work for 1982).

PERSONNEL CHANGE AT IRC

Paul Kerkhoven has left IRC as of December 31, 1981 to join a Dutch consulting firm. Mr. Kerkhoven managed the POETRI programme, and until December 1, 1981 was also programme officer for IRC's Community Education and Participation programme which is now under the supervision of Dr. Alastair T. White. We at IRC wish Paul the best of luck with his new job.

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

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

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

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EDITOR'S NOTE

In January's Newsletter the role of UN agencies as funders of the World Water and Sanitation Decade was discussed. The minimum cost of the Decade is estimated at US \$ 300 billion, to bring safe water and adequate sanitation to all by 1990. This figure assumes a maximum use of low-cost technologies and of community self-help.

UN agencies and Non-Governmental Organizations (NGO's), with loans and grants, are meeting about one-third of proposed costs; the remainder is being paid by developing countries themselves.

February's Newsletter looks briefly at the funding role of NGO's and how developing countries are financing water and sanitation facilities by direct charges to users and cross-subsidization.

A third important means national governments can use for substantial savings of public revenues - community participation - was sketched briefly in the November, December '81 and January '82 Newsletters. The March Newsletter will outline UN agency and NGO thinking on the role of community participation.

HOW MUCH IS BEING SPENT?

- WHO estimates that in 1979 \$ 6-7 billion a year was being spent on water and sanitation in the developing world.
- International aid provided \$ 2.4 billion - around 35-40% of the total.
- The balance - \$ 3½-4½ billion per year - was spent by developing countries themselves, from their own resources.
- The current aid flow for water and sanitation in the Third World, about \$ 2.4 billion a year, is divided up as follows:
 - * 43% of this total in 1979 came from the World Bank;
 - * Another 17% also came as multilateral aid, from the other development banks;
 - * 23% came as bilateral aid, from the national aid agencies of Western countries;
 - * 7% came from OPEC agencies;
 - * 6% came from UN agencies (mainly

UNDP and UNICEF);

- * And 4% came from Western non-governmental (i.e. voluntary organizations);

- * No significant aid in this field comes from the centrally-planned economies.

- These totals may exaggerate the role of the World Bank, as its figures are for 1979 while other agencies often provided WHO with averages from 1975 onwards. Similarly, voluntary aid is certainly underestimated.

(Source: Earthscan: Water, Sanitation, Health - for All?).

FINANCING THE WATER AND SANITATION DECADE (CONTINUED)

NON-GOVERNMENTAL ORGANIZATIONS (NGO's)

A large number of non-governmental organizations - at least 60 - assist in drinking water supply and sanitation projects, mainly for rural community systems. The value of this assistance is between \$ 100-150 million per year.

Prominent among the international NGO's active in the sector are CARE, OXFAM, Save the Children, and Voluntary Services Overseas. CARE of Canada, for example, has allocated 41 per cent of its total funds for rural potable water systems in such countries as Bolivia, Cameroon, Colombia, Ecuador, Guatemala, Honduras, Jordan, Kenya, and Peru. Helvetas, a Swiss NGO, in 1980 spent about \$ 500,000 for digging boreholes and for holding a well-diggers' workshop in Cameroon.

In June 1981, Water Aid, a new voluntary agency specially devoted to the Decade, was launched in Britain. Formed by the British water industry and established NGO's working in the sector, Water Aid will be raising voluntary contributions nationwide to fund a number of small projects, workshops, and training/education programmes in developing countries. Established specifically to support the Decade, Water Aid will use British experts and technology to support its activities. Groups in other countries such as USA and Finland have expressed interest in establishing similar national bodies. A strong commitment to the Decade by governments of developing countries is vital since, ultimately, they need to raise between two-thirds and four-fifths of the total required funds from their own domestic resources. Using the lower estimate of \$ 30,000 million a year as the cost of meeting the Decade targets, that



amounts to approximately \$ 20,000 to \$ 24,000 million a year.

To generate internal investments at such a rate could require shifting current budgetary allocations from other sectors and also within the sector, for instance, from a higher level of services benefiting the urban minority to a lower level of services reaching the rural majority.

Many developing countries have already targeted larger portions of the government budget for water supply and sanitation. Brazil, Venezuela and Mexico each tripled spending between 1981 and 1978. India expects to triple its allocation for water supply and sanitation in its current National Plan period.

Investment costs in a given country can vary widely, depending on the strategies adopted. Type of technology, level of service, quality and quantity standards, economies of scale, integration of programmes and community participation - each of these elements has an effect on costs. For example: technology that is durable, standardized, locally adaptable and socially acceptable can minimize user rejection, reduce costly breakdowns and save scarce investment funds. As regards service levels, private house connections for water supply can be more than double the per capita cost of a well with handpumps, and a low-cost latrine can be as effective as a water-flush toilet at much less construction and operation cost. Also, economies of scale can be achieved, ranging in a Kenyan case from a five-fold increase in water-pipe carrying capacity at costs only 2.5 times higher, to a Tanzanian system whose per capita costs dropped 28 per cent when its population coverage tripled.

The sources and methods for domestic investment include:

Government direct charges to users

In many developing countries, full costs of community drinking water supplies are not recovered because drinking water is seen as a social service that should not be charged at full cost; because users consider water supply as a natural or social right; because potential users do not appreciate the benefits of improved water system, and are unwilling to pay; because poorer communities simply cannot afford to pay; and/or because metering of water supply systems is complicated and costly, if not actually impossible. Users tend to be more willing to pay for house connections than for communal systems. Where levies and charges are made for community water supplies, it has proven to be most effective to decentralize its administration and tailor it to local conditions. For example, Kenya has water vendors (water kiosk operators) in a number of rural villages who serve the multiple functions of collecting revenue for use of public taps, limiting water wastage, and protecting taps from vandalism. A licensed vendor pays a subsidized rate for the metered standpost water and sells it by the container (debe) at a fee slightly higher than he pays. Results of the switch to kiosks are that vandalism has been greatly reduced thus saving government funds, some revenue has been generated, and more people are applying for house connections (if you have to pay for water, it might as well be convenient water).

Cross-subsidization

Some governments avoid dependence on general revenue collection by charging more to urban water supply consumers and using the surplus to subsidize rural programmes. Costa Rica is one country whose National Water and Sewerage Authority cross-subsidizes rural water supply systems - up to 70 per cent of their costs - from the tariffs paid by urban consumers. In countries such as Brazil and Tunisia, entities that cover both cities and countryside have been able to extend cross-subsidization to benefit not only small rural towns but also the urban poor.

(Source: Development Forum, November 1981)

SCARCITY OF MONEY IS NOT THE MAJOR BOTTLENECK FACING THE DECADE

Experience shows that, for many developing countries, inadequate planning and weak infrastructure are the main hindrances to best use both of their own funds and external assistance. Helping governments create a domestic capability to plan their programmes for water supply and sanitation, and execute them efficiently, is at least as important an area for international co-operation as providing funds for projects. As of October 1981, 35 countries had initiated comprehensive national planning for the Decade.

Critical to the Decade will be the training of adequate support staff - from administrators and managers, to hydrologists and drillers, to "pump caretakers" who will keep community water pumps in working order. Calculations are that, for global Decade targets to be achieved, an estimated 100,000 people will have to be trained annually over the ten years. The first permanent training centre for water staff in Zaire has trained 2,000 personnel in its initial few years - including plumbers, pump maintenance people, water treatment specialists, statisticians and accountants, as well as 44 instructors; through 1985, plans are to train 1,500 more, including water station chiefs, with UNDP/ILO assistance.

Properly organized and supervised, community self-help can significantly reduce the costs of construction, operation and maintenance of new facilities. In Guatemala, for instance, contributions by the community in the form of cash, loans, labour and materials amounted to 75 per cent of the total cost of new facilities in the Agua del Pueblo water supply programme.

Source: Decade Briefing, UNDP Division of Information.

IRC PLANNED WORK FOR 1982

(Approved by IRC's new Governing Board and Advisors; see January's Newsletter)

1. POETRI: PROGRAMME FOR EXCHANGE AND TRANSFER OF INFORMATION

Technical Cooperation at Regional and Global Levels

Regional
Where possible and appropriate POETRI Regional Focal Points (RFP's) are being

designated.

RFP's will perform the following main functions:

- * Regional Reference Centre for sector information.
- * Focal Point for regional liaison.
- * Focal Point for liaison with other regions and international centres and systems.
- * Executive agency for POETRI at regional level.

RFP's are designated in Latin America where POETRI is integrated with the Regional Information Network REPIDISCA, coordinated by CEPIS. A second POETRI RFP is assigned for West and Central Africa. Discussions are being held with potential RFP's in South East Asia and the Western Pacific.

Global

POETRI Regional Focal Points and IRC have two basic tasks:

- * Technical cooperation with developing countries to build up their national information systems and services (including training courses and workshops).
- * Promotion of regional and international networking and information exchange.

POETRI Information Services

POETRI Phase II will promote the implementation of a number of information services at regional/global levels aimed at all developing countries.

These services include:

- * selective dissemination of Decade documentation and a "standard source library" for community water supply and sanitation;
- * distribution of a Decade newsletter and provision for a special review/abstracting service;
- * provision of a clearinghouse and reference services on Decade-related topics;
- * a journal on community water supply and sanitation in developing countries;
- * a publication service on request at cost price.

POETRI Products Available in the Course of 1982:

POETRI Reference Manual providing detailed guidelines on setting up specialized information systems and services for water supply and sanitation at the national level.

Subjects covered:

- * planning for information support systems and services.
- * a national inventory of sources of information on community water supply and sanitation.
- * user inventories and surveying user requirements.
- * design and setting up of information services.
- * guidelines on training and education for information.
- * guide for designing POETRI training events.
- * POETRI Thesaurus of community water supply and sanitation terms.
- * POETRI Guide for indexing and abstracting.
- * Directory of Information sources on community water supply and sanitation.

2. TECHNOLOGY DEVELOPMENT AND TRANSFER

A. Handpumps for water-supply use

* Consultant involvement and co-operation with bilateral aid agencies for assisting countries in the establishment/development of their handpump maintenance system. Also an "Assistance Package" for countries for production of handpumps.

* Publication of the International Catalogue of Handpumps, May/June 1981.

* A manual on handpump selection and development.

* Co-operating in an FAO project on water-lifting devices for small-scale irrigation.

B. Slow Sand Filtration

* Regional seminars in: India (NEERI/CPHEEO); Kenya (Ministry of Health); Thailand (Provincial Waterworks Authority); Colombia (Instituto Nacional de Salud) and Jamaica (National Water Authority). The seminars in Colombia and Kenya are planned for March/April 1982; in Jamaica and Thailand, the end of 1982.

* Publication of the final country reports of projects in participating countries during Phase II.

* Publication of a training manual for operation and maintenance.

C. Public Standposts Water Supply

(This is a new full-scale project for IRC; the appointment of a project manager is expected soon).

* Preparation of country workplans in selected countries.

* Establishment of a Project Management Committee (PMC) in each participating country.

* Preparation of guidelines on major programme components, such as:

- community education and participation.
- administration and finance.
- operation and maintenance.
- selection and testing of parts and equipment.
- local manufacturing of parts and equipment.
- low cost water distribution pipe networks.

* Preparation of Manuals (with other organizations) on operation and maintenance, low-cost water distribution pipe systems.

* Starting a Community Education and Participation programme component in selected countries.

D. Rainwater Harvesting

Further co-operation with UNEP in the project on Rainwater Harvesting, the field demonstration of selected techniques. Consultations are planned with selected countries for field demonstration of rainwater harvesting technologies. The IRC manual on rainwater harvesting systems for drinking water supply will be further developed.

E. Modules for Small Water Supplies

* Type Designs Manual

Draft manual for use and review in training seminars/design courses. A review of the compiled material by a consultant is planned.

* Design Manual

A draft manual for design of rural water supplies with guidelines and criteria for

training seminars as an example for preparing a national manual. Consultant to be contracted.

* Standard Designs

Cooperation will be sought with national programs, so that the use of standard design and components can be adopted.

* Design Course

Funding will be sought for a proposal of a series of regional seminars on design of drinking water systems. In co-operation with CEPIS, manuals on Water Treatment Plant Design will be developed in which technical developments in the last decade in Latin America will be incorporated. These will be an input for a first regional seminar in Latin America with CEPIS co-operation.

* Programme Design

Development of manuals and training material for technicians in planning construction and operation of rural water systems. A study into such programme design will be started by collecting case histories. A review by a consultant is planned.

F. Drinking Water Quality

Simple methods of disinfection

* Seeking funding for testing and developing locally made devices in 6-8 countries, e.g. Jamaica, Senegal, Yugoslavia, Sudan, Pakistan, India, Malaysia, Philippines and Indonesia.

* Developing and testing protocol and guidelines by consultant.

* Selecting testing sites, prepare agreements with participating institutes.

* Planned output: study results will be reviewed in a document with guidelines on "Simple methods of disinfection".

Local manufacture of hypochlorite

* Prepare data base information.

* Proposal for funding of a testing programme in 3 to 4 countries.

* Protocol to be drafted by consultant for a testing and evaluation programme of hypochlorite generators.

* Developing a unit with maximum local input of materials and skill.

G. Sanitation

* Consultants study to review agencies and institutes' activities on sanitation and identify areas for IRC study and action.

* Assess how research and development projects on simple sanitation can be integrated in current activities of IRC and bilateral donors.

3. **MANPOWER DEVELOPMENT AND TRAINING**

* In Indonesia the activities in 1982 will be determined by the Ministry of Public Works, Indonesia in consultation with IRC and assisted by the MDP-team. This project will form the basis for related IRC activities in Sri Lanka, the Caribbean,

and Tanzania.

4. **COMMUNITY EDUCATION AND PARTICIPATION**

Inter-regional project

The "brief appraisal" phase of the inter-regional project (mostly African countries) will be completed, comprising visits of up to about 6 weeks to some 10 countries. A start will be made on the earlier plans for the Tanzanian project for the field testing of the CEP models (in one or two regions); project evaluation and reporting to be completed by July 1982.

5. **PLANNING AND EVALUATION**

Publications and Guidelines

(largely by consultants to IRC)

- A literature study and selected and annotated bibliography.
- Publication of "Selected Readings" on the subject.
- A glossary of terms.
- Guidelines for evaluation of community water supply and sanitation.
- A "state-of-the-art" study and the preparation of a draft plan for collaborative action.

Proposal Preparation

- Preparation of proposals for country programmes.
- Preparation of a proposal for a series of national planning workshops.

6. **MANUALS AND MODULE DEVELOPMENT**

* Field testing of existing modules on water source selection, rainwater harvesting, water disinfection and others.

* Preparation of new modules on groundwater exploration, well construction technology, specification and selection of drilling rigs and water distribution network design.

* Supplementary instructional materials including a variety of teaching aids such as demonstration aids, graphs, tape-slide presentations and series of flap-over sheets.

* Instructional materials and teaching aids for training purposes will be developed.

EDITOR'S NOTE

IRC invites all organizations - UN, NGO's, voluntary organizations, bilaterals, multilaterals, development banks, consultant agencies, developing country agencies - to send us their plans for water supply and sanitation for 1982.

One consistent weakness of Decade literature is that too many people are unaware of who's doing what.

We would be more than happy to fill in this gap by letting IRC Newsletter readers know what your organization is doing in the Water and Sanitation Decade.

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

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

COMMUNITY PARTICIPATION Summary review of current and planned activities at the international level

This article summarizes briefly what is known by IRC concerning the activities of international and bilateral agencies in support of community participation in water and sanitation.

This review is based primarily on the written material which is available to IRC. There may be important gaps and mistaken emphases. Your reaction would be appreciated. (References on page 4 of this Newsletter are numbered as they appear in the text).

* * * *

Abbreviations frequently used within are:

UN Agencies:

WHO - World Health Organization
UNDP - United Nations Development Programme
UNICEF - United Nations Children's Fund
World Bank TAG - Technical Advisory Group

Other Agencies:

IDRC - International Development Research Centre (Canada)
CIDA - Canadian International Development Agency
SIDA - Swedish International Development Authority
DGIS - Directorate General for International Cooperation (The Netherlands)
GTZ - German Agency for Technical Cooperation (Federal Republic of Germany)
OECD - Organization for Economic Cooperation and Development (Western industrial nations + Japan)
SATA - Swiss Agency for Technical Assistance
USAID - United States Agency for International Development

* * * *

DEVELOPMENT OF GUIDELINES AND APPROACHES TO NATIONAL PLANNING

W.H.O.

Within the UN system, WHO is involved in technical cooperation with Member States for the planning and programming of national action in the context of the International Drinking Water Supply and Sanitation Decade. Community Participation is encouraged and promoted as one of the key elements of

National Decade programmes. Guidelines for this purpose have been prepared in cooperation with IRC: (1) and (3).

Document (1), the draft guide for the design of a national support programme on Community Education and Participation (CEP), is used by national and WHO staff during National Decade planning workshops that are being organized at present in the context of WHO projects supported by UNDP, GTZ and SIDA.

It is intended to further field test the guide and to publish a possibly modified version in the course of 1982.

SUPPORT TO PLANNING AND IMPLEMENTATION OF SPECIFIC PROGRAMMES AND PROJECTS

Other international organizations (UNICEF, World Bank, UNDP, bilateral donor organizations) assist national government organizations in the planning and implementation of specific programmes and projects. Most of these now have some kind of CEP component built in. Their objectives and the types of participation vary considerably, however. The greatest unanimity exists on the need for continued functioning of the water supply and proper use of water for an optimal health impact.

UNICEF

The problem of frequent and long breakdowns of handpumps made UNICEF concentrate initially on the training of community members for simple caretaking tasks. A three-tier maintenance system for handpumps was developed in India and Bangladesh. UNICEF also concentrates on participation in planning and in health education. Within the organization, regional workshops on CEP have been held (using among other things IRC's Literature Review, see reference at end of Newsletter). A report of the Bangkok workshop, at least, is published. It's called "A Communication Strategy for a Rural Water Supply Project in Thailand (39 pages, UNICEF, Bangkok, 1979). UNICEF has developed some other programmes in individual countries, including Pakistan (village promoters of sanitation and health education) and southern Sudan (village attendants) according to specific country circumstances. While there is an overall philosophy, there is not a single approach to its application. Consultants, social scientists, are engaged in relation to particular country projects (e.g. Annemarie Russell's report on the situation of women in



the target villages of the southern Sudan project, Bahr el Ghazal province).

UNDP and the World Bank

UNDP is supporting the World Bank TAG group, an expert group of consultants involved in the development of demonstration projects in low-cost sanitation options. Health education is emphasized in these projects. The participatory approach remains not very clear. The UNDP Division of Information is engaging Dr. Jane Bunnag to prepare a technical paper on CEP and agency-community communication systems based on an inventory of policies and experiences. Dr. Bunnag will also develop a training plan and recommendations for further actions in these fields.

For the World Bank an objective which has a high priority is the financial viability of Drinking Water Supply and Sanitation programmes. As a result the Bank puts great emphasis on financial contributions by the users, e.g. as deposits (in some Latin American countries communities are asked to compete with one another to get a higher priority according to the size of deposits made) and rate payments for every service level, including public standposts. This can lead to inconsistency with another objective: the fair distribution of burdens and benefits between communities and between individual households. To ensure an optimal acceptance of the design, the World Bank advocates social research. Participation in local planning can then lead to some minor adaptations. Promotion and health education should further motivate acceptance of the proposed project. Participation in construction (voluntary labour) and operation and maintenance (village organization) are only considered feasible under certain conditions and demand ad-hoc arrangements (4, 5, 6).

Bilaterals

Of the bilateral donor organizations involved in Drinking Water Supply and Sanitation, CIDA (7, 8), DGIS (9), SIDA (10) and USAID at least have supported or are supporting Drinking Water Supply and Sanitation projects with a CEP component. All agencies share the objectives of continued functioning and optimal use, contributing to a public health impact. Other objectives mentioned are related to agricultural development, local capacities for problem solving and concentration of settlement patterns. The projects of CIDA, DGIS and SIDA (in certain regions of Ghana, Guinea-Bissau and Ethiopia respectively) include participation in planning, construction (labour) and maintenance (paid or voluntary manpower) and sometimes allocation and evaluation. Tanzania is another country where several donor organizations are developing CEP components for their regional water supply projects. (Since IRC is directly involved there, fuller information is given in IRC project documents 11, 12, 13, 14.) The representativeness of the groups consulted is emphasized. All three agencies also helped organize a promotion service within the water agency and stimulate links with the primary health care system under development. The later USAID projects also have a health objective and health education; consultation on technologies and tariffs and local administration are now recommended (15).

EVALUATION ACTIVITIES

Since the appraisal study (16) new and additional information on evaluation of CEP by international organizations has become available. The OECD mailing survey in Mexico showed that the best examples of operation and maintenance were found in projects with labour and cash participation on construction. Community water committees were not so successful when used as the only form of participation in ensuring continuous operation, but better than projects without any participation at all (17).

The OECD mailing survey in Africa showed that participation in construction did not lead to a significantly better functioning, but participation in maintenance and the presence of a committee did. Also important for operational success was the existence of water regulations formulated by the project or the community (18). In general CEP thus contributed to the success of these projects although aspects like cost-savings, health impact and functions, composition and formation of local water organizations need more study. Field evaluations in Cameroon (SATA, 19) and Niger (EEC, 20) included the calculation of net-savings of 13% and 12% respectively by voluntary contributions to construction.

CIDA is carrying out field evaluations in two regions of Ghana (21, 22). Effects of the Drinking Water Supply and Sanitation CEP programme investigated include the successful organization of village level maintenance and source protection, water use patterns and hygiene behaviour, and longer term social and economic development impacts such as public health, the position of women, self-reliance, vegetable gardening, livestock management and migration. Finally, IRC is starting up field evaluations of the community participation practices of national rural water supply agencies. The evaluations are to be carried out as far as possible by the agencies themselves, and are directed to the extension and deepening of the participatory approaches used. The true costs of the programmes will be estimated. Development will focus on (a) maintenance (its improvement through local involvement), (b) health practices (their improvement through dialogue) and (c) coverage (especially its rapid extension to smaller rural settlements through the simplest technologies and self-reliant community action). A project is already underway in Tanzania, which is to include also field testing in one region of an extension unit approach to developing community participation.

WASTE DISPOSAL

International organizations are now paying increasing attention to non-sewered human excreta disposal facilities. IDRC and the World Bank are engaged in studies for the designs of low-cost technologies that are culturally acceptable. The World Bank study, Appropriate Technology for Water Supply and Sanitation, incorporates social research in seven Latin American areas, urban and rural. In a number of countries the design studies are part of a special installation programme, incorporating health education for promotion, use and maintenance. Most international agencies now add waste water disposal provisions to their drinking water supply programmes. The main gaps still found, however are:

- lack of provision for the disposal of waste water and grey (sullage) water when household or patio connections are provided for water supply;
- lack of provision for the maintenance of the drainage facilities which are more generally incorporated in the design of public water supplies - standposts and handpumps.

There is a need to integrate these provisions with community participation and health education programmes.

Other waste disposal problems such as animal excreta disposal could also be a focus of a participatory approach to modifying health-related behaviour: the community may make mandatory decisions on tethering or penning of animals. Such possibilities have not yet been specifically included in project designs nor has research been done on the trade-off between health and economic considerations.

PROGRAMMES FOR LOW-INCOME URBAN AREAS

UNICEF has carried out an appraisal of appropriate technologies in urban slum and fringe areas (23). The study includes a short discussion of the role of community participation and health education and presents case studies or relatively successful projects in Brazil, Cameroon, India and Indonesia. The integration of technical and social components is advocated. The technical options are however not accompanied by an equivalent presentation of socio-educational options.

Actual programmes are carried out by World Bank (e.g. many site and service projects) and UNDP (global projects). The different participation and education procedures and experiences have not yet been studied in detail.

In Tanzania, experimental and pilot work on latrines for urban fringe areas has been done by the Low-Cost Sanitation Unit, in cooperation with IDRC. This work is now supported by the World Bank, with a loan of US\$ 185,000. "The scheme was originally intended to be a self-help one with local households being given the materials to build their own latrines. But, simple as it is, the system is not an easy one to build, and there were fears that many of the poorer households would be tempted to sell off the cement" (24).

* * * *

PARTICIPATION AND EDUCATION IN COMMUNITY WATER SUPPLY AND SANITATION PROGRAMMES, REVISED EDITION, NOW AVAILABLE

The demand for Christine van Wijk's Literature Review on community participation has been so great that IRC is happily obliged to publish a second, revised edition.

First published in 1979, IRC Technical Paper 12 incorporates additional information obtained from the extensive documentation IRC has since received from many readers of the first edition.

The revisions mainly concern the chapters on

planning and evaluation, as well as the sections on economic conditions, manpower, the mass media, user education, delegation of authority and water rates, and on training. New annexes feature topics like educational inputs and manpower aspects of participatory water and sanitation projects.

Spanish and French versions of the revised edition are in preparation.

To order your copy, please write to IRC. Price US\$ 10,--. Please note that orders can only be handled after the amount due has been transferred to our bank account. Please enclose proof of transfer with your order. Our account number is: ABN, 51.421.8.428. The Bank's address is: Algemene Bank Nederland, In de Boogaard j. 32, Rijswijk, (Z.H.), The Netherlands.

If the above is not possible, please make payment by cheque or international money order, payable to IRC, quoting the above bank number.

Individuals and organizations based in and from developing countries may apply for a complimentary copy.

PARTICIPATION AND EDUCATION IN COMMUNITY WATER SUPPLY AND SANITATION PROGRAMMES, A LITERATURE REVIEW, Revised edition, December 1981. Prepared by Christine van Wijk-Sijbesma (IRC Consultant) and published by IRC. 222 pages.

* * * *

FILMSTRIPS FOR WATER AND SANITATION

A U.S.-based organization has produced a catalogue listing sources that produce/distribute filmstrips on water and sanitation, health and family planning, etc. These films are designed for village use and are made in, for and by developing countries.

The catalogue lists filmstrip titles, languages, black/white or colour, number of frames, the price and the distribution agency.

The catalogue is available from:

World Neighbours
5116 North Portland Avenue
Oklahoma City
Oklahoma 73112
U.S.A.

* * * *

WASH AND IRS TO PRODUCE COMMUNITY PARTICIPATION DIRECTORY OF SOURCES

WASH and IRC are cooperating to collate a Directory of Sources of all organizations which do now or will incorporate some aspect of community participation in water and sanitation. The Directory, about 100 pages in length, will be published by WASH (Water and Sanitation for Health, USAID) later this year. It will detail who's doing what, where, and how.

IRC is sending a questionnaire to water and sanitation agencies, health ministries etc. in developing countries. If your organization fits under the above category and you have not yet received the questionnaire (or if you would like more information), please write to IRC.

REFERENCES

(Please note: only IRC publications are directly available from IRC).

- (1) Anne V.T. Whyte, Guide for the Design of a National Support Programme for Community Education and Participation in Water Supply and Sanitation, International Reference Centre for Community Water Supply and Sanitation, final draft, Rijswijk (The Hague), April 1980.
- (2) Christine van Wijk-Sijbesma, Participation and Education in Community Water Supply and Sanitation Programmes, A Literature Review, Technical Paper 12, 2nd revised edition, International Reference Centre for Community Water Supply and Sanitation, Rijswijk (The Hague), The Netherlands, forthcoming.
- (3) Alastair T. White, Community Participation in Water and Sanitation: Concepts, Strategies and Methods, Technical Paper 17, International Reference Centre for Community Water Supply and Sanitation, Rijswijk (The Hague), The Netherlands, June 1981.
- (4) World Bank, Village Water Supply, Washington, D.C., March 1976.
- (5) World Bank, Socio-Cultural Aspects of Water Supply and Excreta Disposal, P.U. Report No. RES 15, World Bank, Washington, D.C., September 1978.
- (6) Heli Perrett, Social and Behavioural Aspects of Project Work in Water Supply and Waste Disposal, P.U. Report No. PUN 52T, World Bank, Washington, D.C., February 1980.
- (7) Budd Hall, D.O. Merriman, Recommendations on Upper Region Water Project, CIDA, January 1977.
- (8) Ted Jackson, Health, Water and Adult Learning, Strategies for Upper Region, Ghana, Ontario Institute for Studies in Education, Toronto, December 1978.
- (9) Jan Douwe van der Ploeg, A Activação Social dentro do Quadro do Asbastecimento de Agua Rural do Projecto de Agua em Buba e Tombali, Direcção Internacional de Ajuda Técnica/Comissariado de Estado de Recursos Naturais, Bissau, Guinea-Bissau, 1979.
- (10) Government of Ethiopia/SIDA/VIK, Findings and Recommendations from the 1979 Review of Rural Water in Hararge Region, Report of a Workshop held at Dire Dawa, 8-13 November, 1979.
- (11) International Reference Centre for Community Water Supply and Sanitation, Project Profile for the Development of a Community Participation Component in the Tanzanian Rural Water Supply Programme, 1st draft, November 1980.
- (12) Alastair T. White, Paul Kerkhoven, Report of a First Mission to the United Republic of Tanzania, 11 February-11 March, 1981, IRC, April 1981.
- (13) Alastair T. White, Summary Report of a Second Mission to the United Republic of Tanzania, 26 May-10 June, 1981, IRC, July 1981.
- (14) Alastair T. White, Interim Report of the Project for the Development of the Community Participation Component in the Tanzanian Rural Water Supply Programme, IRC, 1981, forthcoming.
- (15) D. Dworkin, Report of AID Workshop on Rural Potable Water Supply, 16-17 November, 1978.
- (16) Anne V.T. Whyte, Appraisal Study on the Relevance, Need and Feasibility of an Action Plan on "Extension and Community Participation in Water and Sanitation in Developing Countries", Institute for Environmental Studies, Toronto, September 1979.
- (17) F.L. de la Barra Rowland, Analysis of Experiences of Self-Help and Public Participation in Rural Water Supplies: the Case of Mexico, Occasional Paper No. 6, OECD Development Centre, Paris, June 1978.
- (18) T. Bennell, Planning and Design of Rural Drinking Water Projects, Results from Pilot Runs, Occasional Paper No. 8, OECD Development Centre, Paris, March 1979.
- (19) H.P. Müller, Die Helvetas Wasser Versorgungen in Kamerun, eine Ethnologische Evaluation, Zürich, February 1978.
- (20) Commission of the European Communities, Sectorial Evaluation (Ex-Post) of Urban and Village Water Supply Projects, Brussels, August 1978.
- (21) J.A. Norwood, R.C. Hughes, Evaluation Ghana Rural Water Supplies, Evaluation Study of Impacts of Improved Water Supplies, CIDA Evaluation Division, February 1979.
- (22) A.R.A. Consultants Ltd., Guidelines for the Evaluation of CIDA's Programme in the Upper Region of Ghana, Toronto, November 1979.
- (23) David Etherton, Water and Sanitation in Slums and Shanty Towns, (draft), UNICEF, New York, May 1980.
- (24) Roy Laishley, "Tanzania's Low-Cost Sanitation Unit", Water, September 1981.

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

UNDP-RURAL WATER SUPPLY HANDPUMPS PROJECT

The World Health Organization (WHO) and the World Bank have estimated that more than seventy-five percent of the over two billion people in the developing countries do not have access to adequate supplies of safe water and adequate sanitation facilities. The more than 1.5 billion who lack these basic services include 1.2 billion people in rural areas. People's Republic of China is not included for lack of data. (Report on Community Water Supplies for the UN Water Conference, World Health Organization and World Bank (1977)).

Recognizing the urgent need for improved water and waste management, the United Nations has declared the 1980's to be the International Drinking Water Supply and Sanitation Decade (IDWSSD). Among the activities of the Decade is the joint United Nations Development Programme (UNDP) and World Bank Global and Interregional Project for laboratory testing, field trials and technological development of handpumps.

The project is funded by the UNDP and executed by the World Bank. It will be conducted in two phases. The first phase, Laboratory Testing and Selection of Rural Water Supply Handpumps, is designated by the project number GLO/79/010. The second phase, Field Testing and Development of Rural Water Supply Handpumps, is designated by the project number INT/81/026. Execution of the Project began in January 1981, and is expected to be completed by the end of 1985.

Why Handpumps?

An ambitious goal has been established by the United Nations to provide drinking water to about 1,000 million rural people who presently do not have access to adequate safe water. Handpumps installed in wells where groundwater is easily available provide one of the simplest and least costly methods of supplying the rural population with water. Therefore, the program of the Decade has placed special emphasis upon handpump installation.

Despite research and development of handpumps already undertaken by manufacturers, governments, bilaterals and international agencies, a number of serious technological problems remain. These problems are manifested in poor design, unsatisfactory performance, shortened working life, and often in pump failure. There is also a lack of

reliable data on handpump performance and on the comparative performance of different handpump designs. This data is required to facilitate selection from among the array of available handpumps.

What the Handpump Project Will Do

The new UNDP/World Bank Global Project for laboratory, field testing and development of handpumps will address these problems. The main objective of the Project is to improve the dependability and reduce the cost of rural water supply systems that employ handpumps, so that the majority of people in developing countries can have access to safe drinking water. The ultimate objective of the Project is to provide the necessary technological basis for the development of new low-maintenance and cost-effective handpumps for installation in developing countries.

The first phase provides for laboratory testing for the selection and evaluation of a limited number of handpumps. Laboratory testing began in 1980 and will be concluded in 1982.

The second phase, started in 1981, provides field trials for a variety of handpumps, including those pumps and components found most promising in Phase I.

The Project will conduct extensive field trials in approximately fifteen to twenty countries throughout appropriate regions of the developing world with the testing of some 2,000 to 3,000 pumps. Each test site will encompass a defined area and include twenty-five to fifty pumps each of three to four different types, for a total of about 100 to 200 pumps per site. Handpumps will be installed and monitored by the project staff and the local project participants. Detailed data will be collected, analyzed and disseminated.

One of the main areas of Project research and development will be the Village Level Operation and Maintenance Pumps (VLOMP), which can be manufactured in the developing countries and repaired by trained village operators. Unlike the conventional pumps, these light, simple pumps can be repaired without incurring the delay and expense of employing heavily equipped, highly skilled mobile maintenance units.

Many International Agencies Will Participate

To provide maximum impact and to encourage continuing support for the project objectives, the World Bank, as executing agency, will cooperate with other international organiza-



tions such as UNDP, UNICEF, WHO, UNEP, UNIDO, the major bilateral agencies, and others. In particular, the Project will coordinate with the WHO/UNDP Water Supply and Sanitation Programs, the WB/UNDP Project on Low-Cost Water and Sanitation Techniques, and the UNICEF Rural Water Supply Programs.

Developing Countries Are the Beneficiaries

It is expected that the Project will make significant contributions to the programs for low-cost water supply in developing countries.

* The Project will develop a standard methodology for handpump testing leading to identification of effective pumps.

* The Project will provide local training and technical assistance to district-level handpump operation, maintenance and monitoring teams.

* Manuals will be prepared to assist in the selection, installation and maintenance of pumps. The Project also may promote and assist in the development and local manufacture of appropriately designed handpumps.

It is anticipated that the Project will enable governments to obtain greater benefits from funds available for rural water supply. Moreover, by improving the effectiveness of handpumps, the Project is also expected to encourage increased investment in rural water supply during the Decade and thereafter.

Initial contacts with governments interested in participating in field trials are underway.

For more information, please contact:

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* * * * *

HANDPUMP MAINTENANCE: PREREQUISITE TO SUCCESS By Ebbo H. Hofkes, IRC Programme Officer

Handpumps break down by the thousands in some countries even by the ten thousands, and remain unrepaired for long periods of time because of lack of adequate maintenance. It is necessary, probably even crucial that concentrated efforts are made to improve this situation. Wise pump design may prevent many difficulties, but regular and proper maintenance is the key to reliable pump performance.

Handpumps:

Water for Hundreds of Millions

The estimates of the worldwide requirements of handpumps are necessarily crude. A reasonable estimate indicates that, at present, some 250 to 400 million people are served by handpumps for drinking water. The rural water supply programmes envisaged in the developing countries to meet the targets set for the Decade would provide an additional 400-700 million people with

handpump water supplies.

In the same period handpumps serving some 100 to 200 million people would need replacement. Population growth probably would result in an additional 200 million people requiring a handpump water supply by 1990.

On the basis of these figures, the global requirements of handpumps may be estimated on the order of 8 to 10 million units, for an overall average of 100 persons per pump.

Unit costs of handpumps have a wide range, from \$ 20 or less for the simplest shallow well pump, to \$ 2000 or more for heavy-duty deepwell pumps. For an assumed weighted average cost of \$ 150 per pump, the required capital investment can be estimated at over \$ 1.2 billion.

The cost of a handpump as a percentage of the investment in the overall well handpump system varies widely, but typically is in the 10 to 15 percent range. A very rough estimate of the total investment depends on the proper functioning of handpumps worldwide, therefore, is \$ 8 to 12 billion. Maintenance, replacement and repair costs are additional. The above figures give an indication of the importance of the testing and improvement of handpumps for rural water supply.

The lack of well-conceived strategies and systems for handpump maintenance leads to serious problems that are evidenced by the poor performance record of installed pumps. Water supply development suffers also from the absolute lack of sufficient indigenous personnel.

No Perfect Handpumps

Every completed handpump installation will eventually require some form of maintenance. Ideally a pump and well, once installed, should continuously provide water for a lifetime, without need for any repair or inspection. However, such pumps have never been built and probably never will be. A certain amount of regular inspection and maintenance will always be required to ensure the proper functioning of a pump. Many handpump installation programmes will need an improved maintenance system, if their impact is to continue.

Maintenance Costs Frequently Neglected

The relationship between the provision of new handpump water supplies and their maintenance needs should not be neglected. A national handpump programme requires a long term commitment to maintaining the pumps and providing the spare parts needed. Whether the funds for new construction come from national or external sources, the relationship between construction and maintenance exists, and should be considered from the start. Otherwise, the investment is likely to be completely wasted. There are several reasons why maintenance requirements and costs are frequently not provided for.

* The organization responsible for the construction of water wells and the installation of pumps may not be the one that is responsible for the maintenance of the pumps.

* Too often, without any real justification, it is assumed that the local community will somehow maintain the water supply.

* International and bilateral agencies frequently offer funds for new construction but are not so readily prepared to finance maintenance, considering this to be a responsi-

lity of the recipient country.

* For their part, the countries receiving assistance have a legitimate need for additional water supplies but also find it difficult to make adequate provision for the maintenance of the existing ones. It happens therefore, that a new handpump installation is sometimes used to replace existing pumps which could have been rehabilitated at much less cost.

Costs of Maintenance

The costs of maintaining handpumps can be quite substantial, and there are even situations (e.g. long distances between pumps) where any attempt at centralized maintenance, however modest, would incur prohibitive costs. The key point is to avoid an accumulation of recurrent costs which cannot be financed within the regular budget.

The relative proportion of the installation costs of new handpumps installations, and their maintenance costs will vary considerably depending on the type of maintenance system used, the country's infrastructure, density of handpump installations, prices of fuel and spare parts, wage level and a lot of other factors, including the quality and vulnerability of the pumps.

Maintenance Costs: An East African Example

This is well-illustrated by actual maintenance costs and estimates for an East African country where a Netherlands-assisted programme for construction of shallow wells with handpumps has been, and is being carried out. The maintenance cost data are:

~~For centralised (Government) maintenance:~~
25% of initial installation cost/year; for decentralised (regional water district and village communities jointly): 12.5% of initial cost/year; for all maintenance exclusively by the villages: 6% of initial cost/year.

Provision for the eventual replacement of the pumps is not included in these estimates. The pump must be replaced eventually so the initial cost of installation is not the end of the financial commitment. In the range of 6 to 10% of the initial cost of each pump needs to be committed annually for their replacement. Therefore dependant on circumstances, between 12 and 35% of the initial cost would be required, and should be budgeted annually for maintenance and replacement!

Maintenance Costs A Heavy Burden

But many, if not most government agencies in developing countries have only a very limited or non-existent budget for meeting the maintenance costs of their programmes for handpump installations. It is a fact that developing countries can scarcely afford the costs of maintenance, whereas investment costs are often borne by donor agencies.

Find A Solution or Postpone New Installations

If no way can be found to adequately finance the maintenance of new and existing handpumps it would be better to reconsider and perhaps postpone major new handpump installation projects. Instead, attention should be focussed on the maintenance and repair of existing handpump supplies and on finding ways to finance the maintenance cost

using contributions from groups able and prepared to pay. Once the maintenance of existing pumps is satisfactory, emphasis may again be shifted to new installation.

The psychological impact of inoperative hand-pumps must be considered. In most areas where handpump water supplies are vital, the introduction of the well and pump frequently is a major event. To obtain the maximum benefit, health educational activities increasingly accompany the event. This involves information on health benefits, and the reasons for using safe water for drinking, cooking and washing. If the pump becomes inoperative and is not repaired, the chances of improving water use and hygienic habits would be lost. Furthermore, if the well has been constructed with contributions from the village community, they may view the pump's breakdown as evidence that their contribution was wasted. They may lose regard for the water supply agency and the government. The news of the pump's breakdown would spread to neighbouring communities, confidence will be undermined, and is likely to make it more difficult to expand the hand pump installation programme. These considerations may not be applicable in every case, but it is clear that a poor performance of installed pumps will have an adverse effect.

Inoperative Handpumps Are Costly!

There is also the point of the considerable economic loss that is suffered when handpumps break down and remain out of service. This is difficult to analyse, but a tentative assessment of the economic impact could be as follows:

A country may have some 20,000 handpump water supplies representing an average investment of about \$ 1,600 for each well fitted with a pump. If only 60% of the pumps are functioning, then 8,000 pumps are out of operation at any one time. Should an improved maintenance system result in the proper and continuous functioning of 4,000 out of these 8,000 pumps, this would be equivalent to a capital investment of \$ 6.4 million! Moreover, experience shows that pumps remaining out of order for more than a few days, are likely to suffer from pilferage and vandalism. Parts are frequently stolen from them. Therefore, not only the inconvenience and health hazards of inoperative pumps should be considered but also the loss of investment, equipment and parts.

Solutions for Financing Maintenance

There exist basically two lines which should be followed when searching for a solution to the serious problems that are experienced in all countries where handpumps are extensively used:

A. Contributions from the village communities served by the pumps.

B. Handpump designs that enable maintenance tasks and costs to be shared between the village communities and the government.

The financial burden from handpump maintenance is rapidly increasing in those countries which have undertaken rural water supply as a social service. It appears that raising of funds for at least the cost of maintenance at the local level is a necessity, or handpump water supplies will be going out of service almost at the same rate as they are being installed.

Especially when donor agencies carry the bulk of investment in handpump water supplies, it may be worthwhile to invest more in pump design and construction, and so arrive at reduced maintenance costs.

* * * *

HANDPUMP MAINTENANCE: ONGOING WORK AT IRC

IRC is presently working on a manual on maintenance of handpumps used in developing countries. This draft publication will be circulated for expert review during this year and will be published thereafter. IRC welcomes any relevant information on handpump maintenance you might send us.

* * * *

HANDPUMPS, IRC PUBLICATION IN THREE LANGUAGES

Handpumps for Use in Developing Countries, prepared by Dr. F. Eugene McJunkin, is an IRC publication in great demand. Published in 1977 in English under the joint sponsorship of the United Nations Environment Programme and the World Health Organization, it is also available in French, Pompes à Main, and in Spanish, Bombas de Mano.

Description:

A state of the art report. Topics discussed include rationales for use of handpumps, history of handpumps, description of various types of handpumps (including reciprocating, diaphragm, rotary, helical rotary, bucket, chain, windlass, and various traditional low lift, slowmoving water lifting devices used since ancient times).

The principles of operation; nomenclature; hydraulic, structural, and energy analysis; and the design of each component of reciprocating handpumps are described with examples. Also administration of handpump programmes with emphasis on installation and maintenance practices. Recent handpump research and indigenous pumps manufactured with plastic, steel, wood, and bamboo components. A final chapter describes manufacture of pumps in foundries, machine shops, and using intermediate technology.

Please note that only the English and French editions are available directly from IRC. Bombas de Mano (Spanish edition) should be ordered from CEPIS, Casilla Postal 4337, Lima 100, Peru.

Price: US\$ 10.

Please register orders by writing to IRC.

Orders can only be handled after the amount due has been transferred to our bank account. Please enclose proof of transfer with your order. Our account number is: ABN, 51.421.8.428. The Bank's Address is: Algemene Bank Nederland, In de Boogaard J. 32, Rijswijk (Z.H.), The Netherlands. If the above is not possible, please make payment by cheque or international money order, payable to IRC, quoting the above bank number. Non-commercial organizations as well as individuals in developing countries can apply for a complimentary copy.

OBITUARY: DR. R. G. ALLEN

It is with regret that we have to inform our readers of the death of Dr. R.G. Allen on 23 December 1981.

We at IRC, and many of our readers, have known him as Director of the Water Research Association in the United Kingdom, a position he began in 1955.

Later, after the re-organisation of the water industry in England and Wales in 1974, Dr. Allen continued his career in the water field as Director of the Water Research Centre (WRC). His achievement during his career brought him many awards of merit and elections to many posts of authority.

During his 26-years of activity in water affairs, Dr. Allen also fostered exchanges between organizations concerned with water technology both in the U.K. and internationally. He served at various times in a variety of governing bodies of associations in the U.K. and established links with the Testing and Research Institute of the Dutch Water Works (KIWA) and with the American Water Works Association. In 1973, AWWA awarded him the status of honorary membership.

Dr. Allen was very keenly associated with the World Health Organization's Community Water Supply Programme, which is directed to the development of safe water supplies in developing countries. His experience was also drawn upon through his membership in the WHO Expert Advisory Panel in Environmental Health.

Dr. Allen was also a strong promotor in the creation and development of IRC. The establishment links between the WRC and IRC was one of his personal interests, and has led to the close cooperation between the two Centres today.

The IRC is very grateful for all Dr. Allen did to make it find its place and role in the international water world and the enable it to develop its programmes with many collaborators in and outside the developing world.

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

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

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

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

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HUMAN RESOURCES DEVELOPMENT (HRD) AND THE WATER AND SANITATION DECADE

The UN Interagency Task Force on Human Resources Development for the International Drinking Water and Sanitation Decade met for the first time in Geneva 11-12 March to review HRD actions in progress and to map out a future course on HRD in general and for the Task Force in particular.

Composed of representatives of FAO, ILO, UNESCO, WHO, UNICEF and the World Bank, the Task Force gathered with individuals from official donor agencies and other interested parties to study the Task Force's "Basic Strategy Document".

The participants recommended, among other things, that the "Basic Strategy Document" be presented to and adopted by the Decade Steering Committee (next meeting: Washington DC, 15-16 April 1982) as a guide for international and national agencies in the development and application of HRD approaches to achieve Decade aims. If adopted, this Document will be widely distributed by the Chairman of the Steering Committee to participating and other interested agencies, and to governments and country-level agencies through the Resident Representatives of the UNDP (RRUNDP). In each country the RRUNDP should convene national action committees to assess the Document's implications and formulate appropriate plans.

Agencies are urged to apply the Task Force's conclusions and recommendations in their own ongoing and planned project activities, and to explore possibilities for individual and joint programming at country and global level on the priority project activities and requirements listed in the Document. Another summary recommendation is that the Task Force remain constituted and that WHO as convener and secretariat serve as a clearing house for accumulating experience of Decade HRD. Finally, it was urged that through the secretariat of the Steering Committee, in liaison with RRUNDP, country-level activities be monitored to facilitate assessment of the impact of agreed HRD strategies and the consequent extent and focus of ongoing activities.

The following summary from the "Basic Strategy Document" outlines the aims and activities of this two-phase strategy.

A Two-Phase Strategy

Activities during the first phase will aim to continue, adapt and extend existing programmes, and develop new Decade-related approaches. This is expected to last three years. Agencies would prepare and disseminate information and guidelines of general application, help some countries meet their pressing HRD needs, and help a small number of these to test and apply relevant approaches.

The second phase would cover the remainder of the Decade, when proven approaches would be applied more widely.

A two-phase approach allows agencies to gain experience in preparing and executing inter-agency support at the country-level. Countries will have time to review longer-term needs. Resources are already fully committed to many existing projects over the next few years. Existing programmes can be reviewed and new projects presented in an expanded second phase.

General priority will be given to the least developed countries. Countries well prepared for the Decade can offer an opportunity to test relevant approaches. Participation of countries will also depend on their expressed interest and commitment.

Strategy Phase I:

Some activities will be non-country-specific: establishment of international machinery, development and dissemination of information and guidelines, conduct of workshops and consultation. Other activities will be country specific, to meet identified priorities and

field test or evaluate approaches.

Indirect and direct activities will include:

- (1) Introduction of the Decade approach into existing programmes to help redirect them to meet immediate priority needs;
- (2) Priority encouragement of country-level activities with a long-term perspective;
- (3) Continuing evaluation (by survey) of HRD experience to identify current country programmes useful to Decade HRD, whether they are existing projects justifying and requiring extension or programmes capable of adaptation for use elsewhere;
- (4) Establishment of an information exchange system;
- (5) Development of guidelines to support country-level actions including: (a) Guidelines on methods of estimating Decade HRD requirements, (b) Guidelines on work studies for Decade HRD, (c) Guidelines on "crash" training for the Decade, (d) Guidelines for non-formal education and training for community and voluntary workers;
- (6) Training/teaching/learning modules for Decade HRD;
- (7) Expansion of information in the "Donor Catalogue";
- (8) Country-level activities to meet pressing needs: (a) Strengthening the focal point institutions, (b) Identifying national priorities, (c) Improving health and hygiene education;
- (9) Evaluation of Phase I.

Strategy Phase II:

Detailed proposals for this Phase will be part of the evaluation of Phase I. Institutional strengthening is likely to be important.

The term "human resources" is intended to include youth as well as adults, women as well as men, providers of services as well as consumers, paid employees as well as volunteers. It includes decision makers and managers, planners, technicians, scientists, researchers, clerical and accounting staff, skilled and unskilled labourers. It includes not only those who help to create facilities, but those who operate and maintain them and those who support, monitor and control the quality of the services. It includes a variety of types of educators and trainers. It includes people working in other programmes which support the water supply and sanitation sector.

The term "human resource development" (HRD) means more than the education and training of people. It includes their employment, supervision, continuing education and training, and occupational welfare. The Decade HRD process should embrace planning, skill development and training, and human resource management, with all three harmoniously geared to the achievement of specified goals.

First Meeting of the Interagency Task Force On Human Resources Development for IDWSSD

List of Participants

Dr. W.D. Maalouf, FAO; Mr. D. Christov, ILO; Mr. J. Wallace, ILO; Mr. G.L. Silva, ILO; Mr. M. Idoux, UNDP; Mr. M. Potashnik, UNDP; Mr. W. Gilbrich, UNESCO; Mr. M. Beyer, UNICEF; Mr. H.W. Barker, World Bank (Vice-Chairman); Mr. J. Zaadhof, Netherlands, Ministry for Development Cooperation, Direction for International Organizations; Mr. B.M. Grieveson, Overseas Development Administration, United Kingdom;

Dr. J. Austin, USAID (US Agency for International Development) (Rapporteur); Mr. F. Rosensweig, WASH/USAID; Mr. E. Skoffeland, NORAD (Norwegian Agency for International Development); Dr. A. MacKinnon, CIDA (Canadian International Development Agency); Dr. K. Erbel, BMZ (Federal Ministry for Economic Cooperation), GTZ (German Agency for Technical Cooperation); Mr. T.K. Tjiook, IRC (International Reference Centre for Community Water Supply and Sanitation); Dr. A. Mejia, WHO; Mr. S. Unakul, WHO (Chairman); Mr. N. Carefoot, WHO; Mr. D. Steele, WHO; Mr. G. Howell, WHO; Mr. P. Lowes, WHO/UNDP.

Source: Human Resources Development for the International Drinking Water Supply and Sanitation Decade, Basic Strategy Document, March, 1982.

For further information, please contact: Global Promotion and Cooperation for Water Supply and Sanitation/Division of Environmental Health/World Health Organization, 1211 Geneva 27, Switzerland.

Editors Note

Several IRC Newsletters will feature ongoing and planned HRD programmes of UN agencies, donor organizations and NGO's. Please write us about what your organization is doing. Of special interest to our readers would be HRD related activities of water supply and sanitation agencies in the developing world.

WATER QUALITY GUIDELINES FOR THE DECADE

Scientists from 18 countries, experts in epidemiology and toxicology and associated fields met in Geneva late March to draw up new Guidelines for Drinking Water Quality which will supersede the existing WHO International and European Drinking Water Standards.

This meeting sees the culmination of two and a half years' intensive work by scores of individual scientists in all parts of the world. During that time they have reviewed the available information on contaminants in drinking water and their possible effects on human health; their findings form the basis for the guidelines, which cover various microbiological and biological organisms, inorganic and organic chemicals and other constituents.

The fact is, despite considerable investment in drinking water supply in the developing countries, many people drink unsafe water, and the resulting impact on health and the economy is considerable. Water-borne diseases are among the most frequent and most deadly ones in the developing countries, and many industrialized countries too are well aware of the risks of disease outbreaks.

The prime objective of the International Drinking Water Supply and Sanitation Decade (1981-1990) is to secure adequate and safe water supply for people in all countries in the world. The development of WHO's guidelines on drinking water quality forms an important element of this programme with regard to the protection of public health. When published later this year, the new Guidelines will include extensive reviews of the medical and scientific rationale on which the guideline values are based, as well as proposals for practical measures which must be planned and funded so as to assure safe

drinking water quality.
Source: WHO, Division of Public Information,
1211 Geneva 27, Switzerland.

THE USE OF ANAEROBIC PROCESSES IN DEVELOPING COUNTRIES

The International Reference Centre for Wastes Disposal (IRCWD) in Duebendorf, Switzerland has recently initiated a state-of-the-art review on the integrated use of anaerobic (no oxygen) processes in developing countries. This review is being partly funded by the UNDP through its Global Project on "Research and Development in Integrated Resource Recovery", and will be completed by July 1982. The objectives of this review are to:

1. consolidate the latest formal and informal literature on the use of anaerobic processes for sanitation/waste treatment, energy production and nutrient recycling in developing countries with respect to both technical and socio-cultural aspects.
2. develop specific design criteria for anaerobic processes based on the various required objectives i.e. sanitation, energy, nutrient recycle.
3. identify key problems which would need further research.
4. publish the above information in a form suitable for widespread dissemination to interested parties.

Information pertinent to these objectives is being sought, especially unpublished reports, field data, and literature not normally accessible through conventional means. Comments, criticisms and suggestions are also being sought with respect to the scope of this project. Information and comments should be sent to: Dr. D. Stuckey, IRCWD, c/o EAWAG, Ueberlandstrasse 133, CH-8600 Duebendorf, Switzerland.

Any reader interested in receiving the final review should indicate this on any submitted article, or write to the above address.

INFORMATION WANTED ON SANITATION PROGRAMMES IN DEVELOPING COUNTRIES

IRCWD (see above) is also sponsoring a review of the experience of social, cultural and institutional aspects of environmental sanitation programmes in developing countries. The issues to be addressed include: (a) Factors which inhibit usage of latrines; (b) Methods of extension, payment, management and maintenance; (c) The history, experience and institutional design of environmental sanitation programmes in developing countries.

Would any reader with documentary evidence or field experience on any of these issues in a developing country please write to the above address.

ASBESTOS FILTERS: HAZARDOUS TO HEALTH?

While airborne asbestos fibers are generally conceded to constitute a health hazard, the effect on human health from ingested asbestos is not conclusively known. Research is continuing both with animal feeding studies and epidemiological studies of human populations exposed to asbestos through drinking water. The initial results from animal studies being conducted at the U.S. National Institute for Environmental Health Sciences did not show any adverse effects on the test animals from asbestos in their diet. Asbestos-cement, whether used for water pipe or roofing, can

be eroded by aggressive water, and the release of fibers can result.

The Office of Drinking Water, U.S. Environmental Protection Agency, recommends that, pending further clarification of the role of ingested asbestos on health, the intake of asbestos fibers be minimized. In the case of drinking water obtained from roof collection systems, filtration and disinfection are the recommended treatment. Filtration reduces asbestos fibers, and the more retentive the filter, the greater the degree of fiber removal. Disinfection is necessary to prevent infection caused by pathogenic organisms that may be present in the roof collection system.

For further information: Dr. Joseph A. Cotruvo, Director, Criteria and Standards Division, Office of Drinking Water, U.S. Environmental Protection Agency, Washington, D.C. 20560, U.S.A.

PAPER FROM WATER HYACINTHS

The Regional Research Laboratory (RRL), Jorhat, India, has completed research and development work involving the possibilities of using water hyacinths (*Eichhornia carssipes*), which are famous for their menacingly high rate of growth and which have been considered unsuitable for productive use for different varieties of paper and board. The results have established water hyacinths as a potential raw material for paper and board making and led to the development of a process which could be of interest to countries lacking in conventional raw materials for paper. Based on the finding of RRL Jorhat, a fully integrated plant for making paper and board has been established and commissioned at RRL, Hyderabad, India.

For further information contact: National Research Development Corporation of India, 61, Ring Road, Laipat Nagar 111, New Delhi 110024, India (LINK 124).

CHOLERA REMAINS ENDEMIC

The global cholera situation has not changed appreciably during the last ten years and the disease remains endemic in many countries with periodic exacerbations. In 1980, 40 countries reported 42,614 cases of cholera by comparison with 54,129 cases in 42 countries in 1979. There is gross under-reporting of cases but there is no reason to consider that the trend with respect to notification has changed much in recent years. The number of cholera cases notified as imported were slightly fewer in 1980 than in 1979. The disease however continues to be the principal subject of comment with respect to the functioning of the International Health Regulations.

The inevitability of the introduction of cholera is apparently difficult to accept by some health administrators and there is a tendency to resort to measures which have no epidemiological justification. Some countries take these measures on the basis of suspicion of cholera in another country and this attitude in some situations acts as a deterrent to notification by those countries which have a few isolated cases. The failure to notify, and excessive measures, constitute aspects of a vicious circle which can only be resolved in the short term by patient explanation and acceptance of the epidemiology of the disease.

Some developing countries have been able to

establish surveillance mechanisms with a minimum of personnel and financial resources which have enabled the early detection of cases and consequently have controlled transmission. These countries readily accept that reintroduction will occur but know that they can control the situation. It is believed that greater confidence in the management of cholera and other gastrointestinal diseases will follow the expansion of the Diarrhoeal Diseases Control Programme.

Source: WHO/Weekly Epidemiological Record, December 11, 1981, No. 49.

USE OF POLYACRYLAMIDE IN THE WATER SUPPLY IN DELHI, INDIA

An overall saving of 30% in the cost of chemicals used for coagulation was achieved recently according to a report from India.

Polymix which is Polyacrylamide Gel made cationic by a special process and conforming to International Standards, was used in conjunction with alum in the Delhi Water Works for about 9 months. It was found that the maximum dose required did not exceed 0.3 mg per litre of Polymix Gel (which contained about 4% polyacrylamide) and 10 mg/l of alum even in the rainy season when the river water was extremely dirty.

For further information contact Prof. R.C. Singh, Department of Civil Engineering, Indian Institute of Technology, New Delhi-110016, India.

WHO'S WHO IN SOLAR ENERGY

Solar energy obviously can have potential for pumping water in rural, small water supply systems. Under a UNDP project executed by the World Bank various small-scale solar-powered pumping systems have been evaluated in terms of technical performance and economic merits. In a proposed extension of the project, the study will be focussing on selected solar-powered pumping systems for an in-depth analysis of their suitability for small-scale drinking water supply systems. Everyone interested in this, and other possible applications of solar energy will welcome the "Solar Who's Who" directory recently published by the German Solar Energy Industries Association, representing the industrial sector which is involved in the development and technical application of solar energy. Further information: Bundesverband Solar Energy (German Solar Energy Industries Association) Kruppstrasse 5, D-4300 Essen 1, Federal Republic of Germany.

THE NATIONAL WATER WELL ASSOCIATION

The National Water Well Association is the trade association and professional society for the groundwater industry of the United States with many members from other countries. A large and growing emphasis in the Association's service is education and the

transfer of technical information. The NWWA already markets 26 technical manuals and texts, correspondence courses, films and other audio-visual materials, and participates in the production of three technical journals plus newsletters. The NWWA also sponsors the world's largest water well trade exposition. NWWA's advantage and value lies in the tremendous body of knowledge it has in its 8,200 company and individual members and the willingness of many members to share their resources. The NWWA professional staff is very interested in co-operating with other organizations in producing educational aids and instructional programs to assist in the education of skilled personnel and to set up the infrastructure necessary to support deep-well construction and well equipment maintenance. Despite its reputation as a high-technology, fuel and equipment-intensive industry, the techniques employed by the U.S. water well industry are adaptable to any level of technological and infrastructure sophistication according to the NWWA. This is especially true of practical hydrogeology and percussion drilling, for example.

Address: National Water Well Association, 500 W. Wilson Bridge Road, Worthington, OH 43085, U.S.A. Telephone: (614) 846-9355, Telex: 245488 INTL TRADE COL NWWA, Attn.: Education Program Coordinator.

A „WATER RESEARCH & TRAINING GROUP" AT IMPERIAL COLLEGE

World-wide there is a chronic shortage of trained engineers and other professionals which represents a major block to the attainment and sustainment of the goals of the Decade. In response a "Water Decade Research & Training Group" has been formalized in the Public Health (Environmental) and Water Resource Engineering Section (Civil Engineering) to provide a focus for related activities within the College and contacts with other organizations and institutes.

For further details contact: Dr. Roger Perry/Jeremy Lumbers/Paul Jowitt, Public Health and Water Resource Engineering, Imperial College, London SW7 2BU, United Kingdom, Tel: 01-589 5111 ext. 1330/1349/ 1328.

INDIA - REFRESHER COURSES IN:

1. Analysis, Design & Optimisation of Water Tanks (Reservoirs) (Intze type); July 5 to July 17, 1982.
2. Analysis, Design & Optimisation of Water Tanks (Rectangular Type); July 19 to July 31, 1982.
3. Analysis, Design & Optimisation of Ground Service Reservoirs; August 2 to August 14, 1982.

For more information, please write to the Coordinators: Prof. V.S. Mokashi, Dr. S.S. Kulkarni, Department of Applied Mechanics, Visvesvaraya Regional College of Engineering, Nagpur-440011, India.

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WHO GUIDELINES FOR DRINKING-WATER QUALITY

by Dr. H. Galal Gorchev and Mr. G. Ozolins
Division of Environmental Health
World Health Organization, Geneva

The last edition of the WHO International Standards for Drinking-Water was issued in 1971 and that of the European Standards for Drinking Water in 1970. These have now been revised and merged and will be published in three volumes in 1982-1983 under the title of "WHO Guidelines for Drinking-Water Quality" as follows:

- Volume I - Recommendations
- Volume II - Health Criteria
- Volume III - Sanitary Survey and Bacteriological Analysis for Rural Water Supplies.

The change in the title i.e. from "Standards" to "Guidelines" was made to reflect more accurately the advisory nature of WHO recommendations so as not to confuse these with standards for drinking-water quality which are established and enacted by the appropriate authorities in Member States. It is hoped that these guidelines will be widely used at country level whether in establishing new standards or in revising existing ones. The work on the preparation of guidelines was started in 1978 as a joint effort of the WHO Regional office for Europe and WHO Headquarters. A planning meeting was convened in December of 1978 in Copenhagen which developed the basic approach which was to be followed.

During the next three years, sections of the Guidelines dealing with the different aspects of water quality i.e. microbiology, inorganics, organics, etc. were developed separately and were finalized in each case by a task group convened for this purpose. In all, eight task group meetings were held as follows:

Microbiological aspects: 17-21 December 1979, Medmenham, United Kingdom; Organics,

selection of compounds: 18-20 March 1980, Leidschendam, Netherlands; Biological Aspects: 15-17 July 1980, Geneva, Switzerland; Inorganics, health-related: 22-26 September 1980, Copenhagen, Denmark; Organics, health-related: 18-25 November 1980, Ottawa, Canada; Aesthetic Quality: 2-5 February 1981, Copenhagen, Denmark; Application of Guidelines: 1-5 June 1981, Alexandria, Egypt; Radioactivity: 3-5 March 1982, Copenhagen, Denmark.

The draft sections of the guidelines prepared by these task groups were extensively reviewed by the focal points for the WHO Environmental Health Criteria Programme thus providing an important input from the national authorities concerned with safeguarding drinking-water supplies. Volumes I and II of the Guidelines were reviewed in their totality by a meeting of experts which was held in Geneva from 22nd to 26th March 1982. A separate meeting to finalize Volume III will be convened later in 1982.

Volume I of the Guidelines will give the recommended guideline-values for selected water contaminants/constituents together with a brief description of the scientific basis for them and how they should be applied.

Volume II will provide in more detail the health effects data on which the guideline-values are based.

The water constituents for which guideline-values are recommended are given in Table 1. They are to be applicable to all waters used for drinking purposes such as piped water supplies, community stand pipes, well-water and bottled water. Mineral water has been specifically excluded since it is regarded more as beverage than as drinking water in the normal sense of the word. While it is recognized that the primary purpose of the Guidelines is protection of public health, guideline-values have also been established for some substances affecting the palatability and appearance of drinking water since these too may, directly or indirectly, affect public health.

Some of the inorganic substances for which limits have been recommended are essential elements in human nutrition. No attempt has, however, been made to set minimum levels for these substances in drinking-water, the main reason being that, with the present state of knowledge, as far as relative intakes from food and water are concerned, it would be difficult to set minimal levels for certain beneficial constituents of drinking-water. It should also be noted that some substances for which limits are based on aesthetic/or-



ganoleptic considerations could present health hazards if present at much higher concentrations.

In some cases it was not possible to recommend a guideline value because of the unavailability of monitoring techniques (e.g. pathogenic protozoa and helminths) and/or inadequacy of available health-related data (e.g. nickel). Whenever possible, uncertainties in deriving the guideline values are clearly delineated. Such uncertainties may arise from several factors: (a) extrapolation of toxicological data from animals to man; (b) extrapolation from high to low dose range at which the shape of the dose-response curve is not experimentally verified; (c) intake from water relative to intake from food and air and (d) uncertainties in the analytical determinations.

The importance of microbiological and biological quality of drinking water is emphasized in the Guidelines as being of paramount importance for the greatest portion of the world's population. The hazards of infective diseases arising from drinking-water containing bacterial, viral, protozoan and helminthic pathogens are substantial and in many countries waterborne diseases are a major cause of high mortality rates in the population. Accordingly high priority must be given to protecting a water supply from faecal contamination, providing adequate disinfection where needed and monitoring of indicator bacteria such as coliform and faecal coliform organisms.

Work on the revision of the drinking water standards was made possible through resources provided by the Danish International Development Agency. The United States Environmental Protection Agency assisted in this work through secondment of staff.

Table 1

WHO GUIDELINES FOR DRINKING-WATER QUALITY

I. INORGANIC CONSTITUENTS OF HEALTH SIGNIFICANCE

Arsenic, Cadmium, Chromium, Cyanide, Fluoride, Lead, Mercury, Nitrate, Selenium.

II. ORGANIC CONSTITUENTS OF HEALTH SIGNIFICANCE

Benzene, Benzo(a)pyrene, Carbon tetrachloride, Chloroform, 1,2-Dichloroethane, 1,1-Dichloroethylene, Trichloroethylene, Tetrachloroethylene, 2,4,6-Trichlorophenol, Pentachlorophenol.
Aldrin/Dieldrin, Chlordane, 2,4 D, DDT, Heptachlor and Heptachlor Epoxide, Hexachlorobenzene, Lindane, Methoxychlor.

III. RADIOACTIVE MATERIALS

Gross alpha activity, gross beta activity.

IV. BACTERIOLOGICAL QUALITY

Faecal Coliforms, Coliform organisms.

V. AESTHETIC QUALITY

Aluminium, Chloride, Copper, Hydrogen Sulphide, Iron, Manganese, Sodium, Sulphate, Zinc, Total Dissolved Solids, Hardness.

Colour, Taste and Odour, Turbidity, pH.

For more information please contact: Dr. H. Galal Gorchev, WHO, Division of Environmental Health, 1211 Geneva 27, Switzerland.

THE STORY OF AGUA DEL PUEBLO

Agua del Pueblo ("People's Water") is a private, non-profit organization based in Guatemala which since 1972 has been involved in participating in water supply and sanitation projects.

Its director, Carlos Gómez Duarte wrote to us on the innovative training programme resulting from these projects: "During our eight years of field experience we have noted a shortage of manpower for motivation, design, construction and maintenance of rural water supplies. A gap exists between craftsmen such as plumbers, who do not have enough training to be able to design water supplies, and engineers, who are over-qualified and often unwilling to work in the rural areas and who have problems of communication with rural people. Moreover, there is not sufficient personnel trained in the methods of community organization and adult education, elements that are essential for a successful project implementation". Agua del Pueblo has therefore instituted courses to train an intermediate level of technician-promotor-educator, named "Técnicos en Acueductos Rurales" (TAR) in Guatemala, and Constructor-Promotor de Acueductos Rurales (CPAR) in El Salvador; in Honduras and Nicaragua similar intermediate level staff will be trained.

Candidates can be males and females (in the first course one woman was trained), are between 20 and 35 years old, have ca. 12 years' education, have passed a test of mathematical ability and an interview, have some experience in community development or groupwork, and are natives of the regions where they will work.

The course lasts 6 months (908 hours) and covers the following subjects: administration and methodology; initial investigation; community organization; design; basic survey; latrine construction; topography; drafting and distribution net; wells and handpumps; operation and maintenance, soil and water conservation; training of the village water committee; seminars.

The socio-cultural tasks of the rural water technicians include the organization of meetings with committees and groups and general assemblies, and the setting-up and support of local water committees.

The education tasks include: (1) education of the community on water use, hygiene, benefits and construction of latrines and cooling stoves, and reforestation; (2)

education of primary school students on hygiene, water use, and the arithmetics of the project; (3) education of mother groups, with additional training in treatment of dehydrated children; and (4) training of the water committee in health education, project planning and evaluation, community organization, bookkeeping etc.

Together with community leaders, headmasters and health promoters, integrated workshops are organized for village neighbours. Educational methods used include: films, plays and talks for the community;

educational games for committee school children and small groups, demonstrations for the committee and small groups.

After completion of the water supply the technicians contact the local committees every three months to go over the accounts. Once a year they organize additional training for the committee.

The director of Agua del Pueblo, Señor Carlos Gómez Duarte, also informed us about an educational aid which they use for the joint planning of a village latrine programme by the rural water technician and the village committee:

a. The Problem

The analysis of health problems at national, regional and local level has remained restricted to persons and/or groups which are outsiders of the community, and they formulate the alternative solutions that are implemented. The instruments for study and analysis as well as the mechanism for implementation are therefore inaccessible to the peasants who in the majority of cases are used, first to collect data, then to realize actions etc. The planning and programming of latrine campaigns are usually centralized processes within the health services. Thus the opportunity is lost to them to use these phases as a medium of conscientization and strengthening of the local organizations.

b. Objectives

The objectives of an alternative approach to the planning and programming of a latrine campaign are:

- develop in the members of the committee knowledge of, skills for and a positive attitude to a simplified process of planning, programming implementation and evaluation of local latrine campaign.
- modify incorrect knowledge, beliefs and practices of the local population on gastrointestinal and parasital diseases.
- promote the use of latrines as an adequate method for the disposal of human excreta.

c. Methods

For the programming of the campaigns, use is made of a series of drawings, each of which depicts one of the tasks that belong to a latrine campaign, and of a planning calendar made from a piece of material on which pockets are sown in which the drawings fit. The planning calendar has three columns: tasks, responsible person(s) and time. The drawings are distributed among the members of the committee and the cloth stretched between two stakes, prongs or similar implements inputs of the audience. The group discusses the sequence of the tasks, who will be responsible for each task, and the appropriate timing of each activity, and enter names and times decided upon on cards. The drawings and cards are placed in the pockets concerned of the planning calendar. The drawings are also used to generate a general discussion on related topics.

Once the plan is made, copies are made to assist in the diffusion of the programme to the community.

For more information: Agua del Pueblo, 3a Calle 6-352, Zona 4, Teléfono: 0391412, Chimaltenango, Guatemala.

COOPERATION BETWEEN TECHNICAL AND HEALTH AGENCIES: AN EXAMPLE

It is well-known that safe drinking water and health are related. It is also known that a good water supply alone is not enough. The supply must not only work and be used by everyone, but there must also be good hygiene. Therefore, in most cases technical projects have to be accompanied by health education programmes and programmes to improve drainage, waste disposal and personal hygiene facilities. This necessitates a close cooperation between technical, health and sometimes community development agencies which is not always easy to realize.

The following IRC experience is an example of what people with a broader vision than their immediate responsibilities can do.

Because the water quality of a small gravity supply system was getting below standard, the chief engineer of the zone concerned decided to propose building a slow sand filter to the village water committee that operated the system. The proposed project was introduced to the community by the agency's promotor. It was accepted and the filter was built and operated with the active participation (in labour, rate payments and administration) of its users. After completion it turned out that the local village health worker still told the women to boil their water, even though they were paying for its filtration and chlorination. No one had explained the slow sand filtration process to her and shown her the filters and the regular quality testing that took place. Improvement of local communications was soon effected. The operator would show the health worker the filters, explain their functioning and demonstrate his testing for residual chlorine. But when the chief engineer heard about this case his initiative went further. He went to see the regional head of the health department, who is in charge of the village health workers scheme. Together they arranged a closer cooperation between the two departments. The water department will take part in the training of the village health workers. Also the terms of reference of both health workers and promotor will be adapted. In future, the water promotors will contact the health workers as soon as a project is under preparation. The health worker will then be able to adapt her work to the coming project and prepare a follow-up programme.

ACTIVITIES OF THE INTERNATIONAL REFERENCE CENTRE FOR WASTES DISPOSAL (IRCWD)

Introduction

The "International Reference Centre for Waste Disposal" (IRCWD) was established in 1968, based on a suggestion by the "Scientific Group on the Treatment and Disposal of Wastes" of the World Health Organization (WHO). The Centre, a WHO collaborating centre, is located at the Swiss Federal Institute for Water Resources and Water Pollution Control (EAWAG).

Currently the staff of IRCWD consists of four people: a manager, a project engineer, a translator/documentation supervisor, and a secretary. In order to conduct specific research projects, IRCWD has been employing outside consultants with expertise in the respective field of study.

The IRCWD is subordinate to the Director of the EAWAG, although it is financially autonomous. Most of the funds are provided by the Swiss Government, while the remainder come from WHO. However, possibilities do exist to obtain funds from other multilateral and/or bilateral development agencies for specific research projects.

Since the establishment of IRCWD, its main activities have been in the following areas:

- A documentation centre for solid wastes offering processed documents (abstracts) selected from 30 different European and American periodicals and publications. A thesaurus composed of 484 scientific and technical terms in the field of solid waste management serves as a basic reference for information storage and retrieval.

- An annotated Bibliography on Compost, Compost Quality and Composting (1971-1977) was published. This bibliography contains 415 annotated references on compost from the solid waste documentation.

- Methods of Analysis of Sewage Sludge, Solid Wastes and Compost was published in 1978.

- An Information Bulletin (IRCWD News) containing a lead article, selected abstracts from the documentation centre, and news from WHO Headquarters was published periodically. In addition, IRCWD organised study trips for WHO fellows from all over the world to the EAWAG's highly sophisticated laboratories. However, in the last few years it has become clear that the need for a reference centre based on the old concept had decreased considerably. On the other hand, it is obvious that there is a widespread lack of information and literature on solid and liquid waste disposal technologies appropriate to the economic and socio-cultural conditions prevailing in developing countries. This is one of the reasons why most of the rural population in developing countries, and a sizeable fraction of the urban population lack access to safe water supplies and excreta disposal facilities. Thus, EAWAG has decided, in agreement with the World Health Organization, to concentrate the future activity of IRCWD on the problems of liquid and solid waste disposal in developing countries. Through IRCWD, the comprehensive scientific and technical knowledge within EAWAG is available to improve the prevailing situation in the Third World, not only with regard to hygienic aspects but also in terms of the long-term effects of different technologies on the environment. Therefore IRCWD will concentrate in the future on research, consulting and training in the fields of solid and liquid waste disposal, and in water protection in developing countries.

Research activities

In general, the research projects conducted or funded by IRCWD are directed towards finding:

- technologies most appropriate to given economic and socio-cultural conditions,
- the scientific bases of low-cost technologies, and the simplest ways of improving them and,
- the effects of low-cost technologies on surface and groundwater quality.

IRCWD's policy is to carry out whenever possible this research in developing countries and in close collaboration with local institutes and organisations as well as with European agencies experienced in tropical hygiene. Current research projects of IRCWD are summarized in the latest issue of IRCWD News, i.e. a Newsletter of IRCWD which is published biannually and which can be obtained free of charge.

Consulting activities

IRCWD acts as a consultant to multilateral and bilateral aid agencies concerned with the disposal and treatment of liquid and solid waste in developing countries. Also IRCWD directly assists governments of small Third World countries in the elaboration of national water protection policies.

Consulting activities in 1980 include:

- A consulting project on behalf of WHO to formulate waste disposal measures in Conakry (Republic of Guinea) hospitals.
- Participation in project studies concerned with the environmental sanitation problems in Dar-es-Salaam, Tanzania.
- Providing information to developing countries with regard to appropriate water supply and wastewater disposal technologies (partly in collaboration with the Swiss Centre for Appropriate Technology, SKAT).

Educational activities

IRCWD participates primarily in the training of Swiss personnel for developing countries (within the scope of the post-graduate programme for developing countries at the Swiss Federal Institutes of Technology). It also assists WHO fellows from developing countries in completing their practical training at the EAWAG (Institute for Water Resources and Water Pollution Control). In future, however, the training of experts from developing countries will gradually be transferred to Third World countries, where IRCWD is planning to participate in the creation of regional training centres for teaching professionals.

For more information contact the International Reference Centre for Waste Disposal, c/o EAWAG, Ueberlandstr. 133, 8600 Dübendorf, Switzerland.

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

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

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

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I INTEGRATED RESOURCE RECOVERY- -- WASTE RECYCLING

A Global Project of the United Nations Development Programme. The World Bank-Executing Agency (UNDP GLO/80/004).

The United Nations Development Programme, with the World Bank's Office of the Senior Adviser for Water and Wastes as executing agency, has undertaken a global project to examine integrated recycling of wastes and recovery of resources. Existing and potential methods of source segregation and direct recycling of waste materials are being investigated. Methods of recovering materials and energy from conversion of wastes are also being studied. The thrust of the project is integration --of compatible waste streams, compatible waste-conversion techniques, and compatible end uses-- as a means of enhancing the immediate cost-effectiveness of resource recovery in developing countries. There are five levels of government or community involvement in the resource-recovery project: Level I: dissemination and exchange of information; Level II: inclusion of data derived from the literature or from assessments of the state-of the art in World Bank projects and others; Level III: limited engineering surveys of existing waste-disposal and recycling practices and costs in some 30 selected communities; Level IV: extended multidisciplinary studies of waste disposal and recycling in 10 to 15 selected sites and cooperative synthesis and assessment of information gained from the World Bank project preparation, appraisal, or implementing functions; Level V: selection, design, and implementation of a technological or institutional demonstration project in 6 to 8 of these countries.

Findings on recovery and reuse of waste materials will be disseminated through a series of documents, seminars, and workshops and reports. Case studies, on existing integrated systems in developing countries will be published as they are developed. Special reports dealing with specific technical, economic, health and safety aspects of resource recovery will also be published as developed.

Initial contacts with host and donor governments interested in participating in the research have been made.

For further information, please write: Mr. S. Arlosoroff, UNDP Project Manager or Mr. C. Gunnerson, UNDP Senior Project Officer, The World Bank (TW), Office of the Senior Adviser for Water and Wastes, 1818 H Street, NW Washington, DC 20433, U.S.A.

THE WATER BUSINESS: SUPPLIES AND SERVICES

Fifteen countries are the leading suppliers of equipment and services for drinking water supply and sanitation, financed by the World Bank, UNICEF and UNDP. In 1980, these three organizations disbursed \$603 million for such procurement in the 15 countries --\$570.3 million from the World Bank, \$24.1 million from UNICEF and \$8.4 million from UNDP. France and the U.S. each accounted for about one-quarter of the procurement from these 15 countries, followed by Japan with 15 per cent and Federal Republic of Germany with 13 per cent. In these countries, World Bank loans were the main source of procurement funds.

One developing country, India, figures on the list of the top 15 suppliers. Orders totalling \$5.1 million were placed there in 1980, mainly by UNICEF.

The "top 15" in 1980 were as follows:

1. France; 2. U.S.; 3. Japan; 4. Federal Republic of Germany; 5. United Kingdom; 6. Italy; 7. Switzerland; 8. Netherlands; 9. Canada; 10. Austria; 11. Sweden; 12. Belgium; 13. India; 14. Denmark. 15. Australia.
- UNICEF's procurement from all countries totalled \$32.1 million in 1980. Of this amount, about 42 per cent was for drilling equipment, 21 per cent for hand pumps and motor pumps, and about 10 per cent each was for galvanized pipes/fittings and for polyvinyl chloride (PVC) pipes/fittings.

For more information: UNDP, Division of Information, One United Nations Plaza, New York, N.Y. 10017, U.S.A.



NATIONAL WASTE MANAGEMENT PLAN: LEBANON

A comprehensive national waste management plan has been drawn up for Lebanon with an estimated price tag of US\$ 700 million for the first phase between 1982 and 1990. It comprises 3 phases over a twenty year period. Before the recent military operation in Lebanon, a funding meeting was planned at WHO Geneva for Development Banks and Bilateral Donors. The plan studies, financed by UNDP and guided by WHO, are being undertaken by Camp Dresser & McKee Inc. (Boston, USA). A Lebanese consulting firm Shar and Partners, provided counterpart staff for the Lebanese Council for Development and Reconstruction.

Waste management services in Lebanon have not kept pace with the rapid development of urbanization, housing and industry. Inevitably, existing sewerage systems, solid waste disposal facilities and storm drainage conveyance are no longer adequate to accommodate the wastes being generated. Increased pollution of all water sources, environmental degradation, and increasing cases of typhoid and other waterborne diseases are the results of this incapacity. Instead of a piecemeal and crisis-handling approach, this comprehensive plan includes pre-investment studies and a strong role for institutional development. Civil strife and invasions have severely hindered such planning for the last eight years.

For further information: WHO, 1211 Geneva 27, Switzerland, Attention Manager ETS. Reference LEB 82-01.

WHO PROJECT AND PROGRAMME INFORMATION SYSTEM: UPDATE

The October 1981 IRC Newsletter (No. 125) carried details about the WHO Project and Programme Information System (PPIS) for water supply and sanitation. As a guideline WHO published a 25-page booklet that shows how to provide, speedily and in a concise style, information and data on projects/programmes for which external support is required. The system is supervised by the Unit for Global Promotion and Cooperation for Water Supply (GWS) at WHO, and GWS also functions as the secretariat for the Steering Committee for the Drinking Water Supply and Sanitation Decade. Since 1980 GWS has received hundreds of project data sheets, and they range from a national manpower and training plan for the Decade in Togo with an external funding component of US\$ 15,000, to the above-mentioned National Waste Management Plan in Lebanon with estimated external funding required at US\$ 336,000,000.

The following Project Data Sheets have been received by GWS in June 1982:

Country Projects and Programmes

GWS Ref.No.: MAL 82.01; Country and Title: Malaysia; 1. Leakage and Wastage Survey in Water Distribution Networks; External Component: US\$ 385,000.

ZAM 82.01; Zambia; 1. Water Quality Monitoring Scheme; US\$ 1,140,000.

LEB 82.01; Lebanon; 1. National Waste

Management Plan; US\$ 336,000,000.

YEM 82.01; Yemen Arab Republic; 1. Strengthening of the Department of Environmental Health Ministry; US\$ 4,752,000.

Inter Country Projects and Programmes

IC 82.01; Outline of Proposed Survey to Evaluate Human Resources Activities for the CWSS Sector in Developing Countries; US\$ 225,000.

IC 82.01; Programme on Exchange and Transfer of Information (POETRI) Phase II; US\$ 1,796,000.

In September or October a meeting will be held in Turkey to discuss the implementation of the 48 data sheets received from that country in the WHO Project and Programme Information System.

For further information on data sheets and investment requests please contact the Manager, GWS, Division of Environmental Health, WHO, 1211 Geneva 27, Switzerland. Telephone 913546; Telex 27821 OMS.

UNDP ASSISTANCE IN NGO SUPPORT

Experienced community-based non-governmental organizations are often highly effective in the mobilization of people (especially rural communities and neglected groups such as women) for community self-help programmes, and in the provision of locally-appropriate technical information and communication/education support. In addition, in some countries there are professional and voluntary associations which, if their interests are properly brought into play, have skills and resources that can help on specific development programmes.

The UNDP's Division of Information (DOI) staff missions can help in tapping such groups and in strengthening collaboration between them and UN system/Government programmes by:

(a) identifying and consulting with key NGO's involved in rural development to explore avenues of co-operation in national Decade activities and projects; (b) facilitating NGO consultative meetings and regular information exchange with members of the Government and development agencies for this purpose; (c) through these keys NGO's, seeking to encourage a larger network of NGO's to forge links among themselves and with Government and other development agencies for Decade purposes; (d) involve NGO's in action on water supply, sanitation and complementary development programmes, including local fund-raising and community construction activities; (e) drawing up work plans and budgets for longer-term consultative activities and two-way information exchange among NGO's/ Government development agencies, and when necessary, prepare communication plans and initial materials to encourage this dialogue.

For more information contact: United Nations Development Programme, Division of Information, One United Nations Plaza, New York, N.Y. 10017, U.S.A.

COURSES *** SYMPOSIA

SHORT COURSES IN WATER, WASTE WATER AND PUBLIC HEALTH ENGINEERING

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

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

SMALL TOWNS IN NATIONAL DEVELOPMENT: Toward Action for Rural-Urban Integration in Developing Countries.

This international symposium is to be held at the Asian Institute of Technology, Bangkok, Thailand, December 13-17, 1982. Topics to be discussed and for which papers are invited include among others: spatial development and rural-urban relationships; political economy especially of rural centres; evaluation of national policies on development of medium and small towns.

English will be the working language. For more information contact: Mr. Peter Swan/Symposium Coordinator/Human Settlements Division/AIT/G.P.O. Box 2754/Bangkok 10 501, Thailand.

TRAINING PROGRAMS IN CIVIL ENGINEERING FOR OVERSEAS APPLICATIONS

The Department of Civil Engineering at the University of Ottawa, Canada is prepared to deliver various short courses of two to three weeks' duration to overseas locations. These include: water supply and sanitation; irrigation and drainage in agricultural systems; applied topics in hydrology and hydrometeorology; flood control and drainage in urban watersheds. Terms would be negotiated by the host country and the training unit. For more information, contact: The International Activities Co-ordinator/Civil Engineering Department/Faculty of Science and Engineering/University of Ottawa/Ottawa, Canada K1N 9B4.

INTERNATIONAL WORKSHOP ON IMPACT OF WATER AND SANITATION PROGRAMMES

"The Evaluation of Measuring the Impact of Combined Water and Sanitation Programmes" is the focus of a workshop set for November 29-December 4, 1982, in Dacca, Bangladesh. Sponsored jointly by the International Centre for Diarrhoeal Disease Research, Dacca, and the Ross Institute, London, the workshop will define a common strategy for health impact studies for various cultural settings and review past and current information. Presentations on on-going field activities are also planned; following the workshop, the proceedings and recommendations will be considered for publication. Enrolment is limited to 15. For more information write: Dr. K.M.S. Aziz, Associate Director, Training and Extension/ International Centre for Diarrhoeal Disease Research, Bangladesh/ G.P.O. Box 128, Dacca-2, Bangladesh.

UNC OFFICE OF INTERNATIONAL PROGRAMS RELATED TO THE WATER AND SANITATION DECADE

The Department of Environmental Sciences and Engineering in the School of Public Health at the University of North Carolina at Chapel Hill in the United States offers a wide range of programs for graduate study leading to masters and doctoral degrees. Individuals with science or engineering backgrounds may apply for a program of study in some aspect of water quality management. If admitted, they may then engage in special studies in the International Programs of the department.

Amongst the specific projects being conducted are the Water and Sanitation for Health (WASH) project with which the University of North Carolina is associated as a member of CDMS.

UNC is also active in the Environmental Training and Management in Africa (ETMA) project in which UNC plans and conducts seminars, short courses, and workshops on all aspects of environmental quality with special emphasis on water supply and sanitation.

Interested individuals may write to: Dr. Daniel A. Okun, Department of Environmental Sciences and Engineering, School of Public Health 201H, University of North Carolina, Chapel Hill, North Carolina 27514, U.S.A.

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*** PUBLICATIONS ***

INTER PRESS SERVICE LAUNCHES WATER DECADE BULLETIN

A new weekly Bulletin on Water Decade-related issues has been launched by Inter Press Service Third World News Agency (IPS), with support from UNDP.

The Bulletin will carry an average of 2,500 words weekly on national plans and projects for drinking water and sanitation; the initiatives of the international community; and issues such as water-related disease, technology, and community participation.

The Bulletin, launched on 28 February 1982, is distributed worldwide by teleprinter in English and Spanish.

A subscription to the first 25 issues of the Bulletin costs US\$ 75 for subscribers in the industrialized countries, US\$ 50 for subscribers in Third World countries. The Bulletin will be delivered from the nearest IPS bureau, or by airmail from Rome.

Enquiries to: Vic Sutton, IPS, Via Panisperna 207, 00184 Rome, Italy. Tel. (06)485692. Telex 610574 IPSROM I.

INCLUSION OF NGO'S IN DECADE CATALOGUE OF EXTERNAL SUPPORT

The World Health Organization (WHO) is updating the Decade Catalogue of External Support.

It has been decided to develop a section of the Catalogue on operational NGO's in addition to sections on bilateral and multilateral donors, banks and funds.

A recent estimate is that NGO's have provided assistance worth US\$ 100-150 million annually for drinking water supply and sanitation projects. It is important, therefore, that NGO inputs be incorporated in the overall Decade strategy. Listing in the Catalogue

and subsequent participation in the "Project and Programme Information System" would be one way to facilitate NGO involvement.

Other avenues include contacts between NGO staff located in developing countries and the UNDP Resident Representatives who serve as the "focal points" for international support of national Decade efforts, as well as continuing collaboration with other UN system organizations involved in Decade activities that match NGO specialized interests.

For more information, contact: Mrs. Hilda Paqui, Information Adviser, Room DC-1936, United Nations Development Programme, One United Nations Plaza, New York, N.Y. 10017, U.S.A.

WATER QUALITY BULLETIN

Certainly one of the most relevant and interesting water and sanitation journals of special interest to developing countries is the *Water Quality Bulletin*. Edited by Dr. Silvio Barabas, the Bulletin is published in English and French editions by the WHO Collaborating Centre on Surface and Ground Water Quality, Canada Centre for Inland Water, Box 5050, 867 Lakeshore Road, Burlington, Ontario L7R 4A6, Canada. Recent issues have focused on waste water management in developing countries and water pollution control. Dr. Barabas is also the energetic organizer of training courses in developing countries on many topics related to water quality.

For more information, please write to Dr. Silvio Barabas at the above address.

HYDRAULIQUE VILLAGEOISE ET MOYENS D'EXHAURE

"Rural Water Supply Wells and Handpumps"

This is a French-language document which updates to 1981 the available information on the village well installation programmes in West Africa. The present situation is described, as well as the estimated needs to 1990. For the nine countries surveyed (Benin, Cameroon, Gabon, Ivory Coast, Mali, Niger, Senegal, Togo, Upper Volta) it is estimated that some 100,000 wells and pumps are needed, at a cost of CFA 400 billion (US\$ 1500 million). The conditions of use for various types of water well supplies are explained, together with a cost indication. A special point of interest is the cost of the traditional open well, calculated at CFA 2000 to 2500 per family per year. This amount would be sufficient to finance a maintenance system for handpumps installed on covered ("protected") wells. The experience with handpumps in the following countries is dealt with: Ivory Coast, Ghana, Upper Volta, Mali, Niger, Togo. It is written by A. Bénamour, Inter-African Committee for Hydraulic Studies (Comité Inter-Africain d'Etudes Hydrauliques), P.O. Box 369, Ouagadougou, Upper-Volta. 89 pages; several annexes; 76 bibliographic references.

CARIBBEAN BASIN WATER MANAGEMENT PROJECT HANDBOOK

If you haven't seen the handbooks coming out of the Caribbean Basin Water Management Project, then you're missing something! This PAHO/WHO group has produced an impressive number of handbooks on many topics related to water and sanitation, and they're bound to have a wide appeal. One particularly useful CBWM product is the *Accounting Department Handbook* by Lewis Sidwell. A World Bank training specialist has justly described it "to be clear, well written and simplicity itself to follow....". Subjects covered in 139 pages include: staff responsibilities; general accounting procedures; inventory procedures; billing and collection procedures; and budgets and management reports. For more information, contact: the CBWM Project Manager, Pan American Health Organization/ P.O. Box 508, Bridgetown, Barbados.

NEWS FROM IRC

IRC will publish shortly *GUIDELINES ON HEALTH ASPECTS OF PLUMBING*. Written by Floyd B. Taylor, Executive Secretary of the New England Water Works Association, and William E. Wood, formerly Chief, of the then Community Water Supply Unit, WHO, Geneva, it is directed towards developing countries. Its 160 pages feature many drawings and diagrams, and cover: Code of plumbing practice: the necessity for a code of plumbing practice; the principles of plumbing; formulation of a plumbing code; training and registration of plumbers; administration of the plumbing code; contents of the plumbing ordinance. Plumbing standards and regulations: general observations; capacities and quantities; single dwelling; multiple dwellings; multistorey buildings; hot water and other dual supply systems; stormwater drainage. Special conditions: industrial and other special purposes; protective devices; materials and workmanship; waste prevention and water conservation; intermediate and communal sanitation. Annexes: reviewers; disinfection procedure for plumbing systems; fixture unit calculation for multiple dwellings; rain-water intensity and roof drainage; bibliography. Price: US\$ 10. Bank-account no.: ABN, 51.421.8.428. Individuals and non-commercial agencies, based in and from developing countries may apply for a free copy. Bulk orders reviewed case-by-case.

The 1981 IRC Annual Report is now available in English and French editions, and is free upon request.

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

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EDITOR'S NOTE

As reported in the May '82 Newsletter (No. 132), the Interagency Task Force on Human Resources Development (HRD) for the International Drinking Water Supply and Sanitation Decade met for the first time in Geneva 11-12 March 1982. Composed of representatives of FAO, ILO, UNDP, UNESCO, WHO, UNICEF and the World Bank, the Task Force met with officials from external support agencies to finalize an outlined guide to Decade HRD strategies and approaches for national and international agencies entitled "Basic Strategy Document". This Guide was endorsed by the Decade Steering Committee on 15-16 April 1982 in Washington, D.C.

For more information about HRD and the "Basic Strategy Document" please contact the Division of Environmental Health/World Health Organization/1211 Geneva 27, Switzerland.

The following is an outline of World Bank policy related to Human Resources Development.

WORLD BANK (IBRD): HUMAN RESOURCES DEVELOPMENT FOR THE DECADE

Background and Policy

The Bank does not make a loan unless it is satisfied that the organization, management and staffing of entities with whom it is co-operating in the development process, are or can be made, adequate for the purpose of constructing and operating the facilities which it is proposed to finance. To this end it is the policy of the Bank to support project-related training (PRT) designed to:

- (a) ensure the availability of qualified manpower to implement and operate the project;
- (b) improve planning, finance and other management functions of the institution; and

(c) create a continuing capability within the entity to identify and meet manpower development needs beyond the project implementation period.

Neither project-related training, nor sector-related training which is more broadly aimed at providing necessary specialized skills for a sector, should duplicate the kind offered in schools or vocational training institutions. The Bank regards these different modes of training as being complementary. The Bank also recognises that a project-by-project approach to manpower development may not be sufficient to meet sector development targets. National training programmes can yield significant economy of scale and promote in-country cross-fertilization of experience. Loans/credits are therefore envisaged specifically for financing sectoral training projects. These will aim to establish longer term schemes of training and complementary education into which the needs of individual, or repeater projects would automatically be programmed. In relation to the water supply and sanitation sector, one example of this approach is the training component included in the Bank-financed Kenya Fifth Education Project. This sub-project will assist the Ministry of Water Development to develop a Water Resources Training Institute as a national training resource, with residential and training capacity for 400 trainees.

Bank Lending for Training

Since fiscal year 1975 the Bank has lent an annual average of US\$ 4 million in support of training in water supply and waste disposal projects. This sum represents about one per cent of Bank total annual lending for the sector. More than 70 current projects, covering 44 countries, contain a training component. A brief description of each component has been separately submitted as a contribution to the Task Force's information data-bank on HRD. Bank financed training components may include a mix of any or all of the typical training systems available depending upon the needs and the capability of the borrower. Analysis of training methodologies adopted in Bank projects over this period indicates a shift of emphasis from academic fellowships and study tours to the development of in-house training capability and the broader utilization of local training and education resources.

Emphasis for Future Lending

In the booklet "Water Supply and Waste Disposal" prepared by the staff of the Bank's Transportation, Water and Telecommunications



Department and published in September 1980, as one of a series on the subject of basic needs, emphasis is given to the role the Bank should play in the Decade. The Bank's long experience in the identification and preparation of projects and in institutional development in the sector, the evolution of its lending programme in many developing countries in the past, and its extensive work in carrying out and disseminating research in appropriate technology give it a critical place in the overall effort.

Commitments for the sector in 1979 dollars are expected to increase from an annual average of just over US\$ 300 million in the period 1974-78 to about US\$ 700 million in 1979-83, when they are expected to account for up to 7 per cent of total Bank lending. The 1980 review does not envisage that the thrust of current Bank policy in the water supply and waste disposal sectors needs to be changed, but rather will be reemphasized and to some extent organizationally reinforced in order for the Bank to fulfill what is expected of it in the Drinking Water Supply and Sanitation Decade. The review anticipates that in all aspects of its operations the Bank will further increase the attention given to the training of staffs in developing countries for improvement of water supply and sanitation -- not only technical and commercial personnel but also promotion, health and extension workers. Opportunities will be sought for providing financial support for broad national or regional water and sanitation projects as part of water sector loans or credits, or in separate operations.

The Bank recognizes that a much larger training effort is needed to secure better operation of many existing urban facilities but, for the rural areas, it represents the only real hope for large-scale improvement.

Relevant Activities in Relation to Decade HRD

Details were submitted to WHO in September 1981, for Task Force information, of current and proposed Bank activities that could contribute to Decade goals. These data include: (a) description of Bank financed training components currently being implemented; (b) reference to approximately 100 Bank projects in course of preparation for which training components will be considered for inclusion; (c) identification of existing or proposed country manpower and HRD survey data; (d) reference to the new, decentralised approach to water sector training now being developed by the Bank's Economic Development Institute (EDI); and (e) UNDP financed low cost technology projects with substantial training objectives, for which the Bank is executing agency.

Source: Human Resources Development for the International Drinking Water Supply and Sanitation Decade, Basic Strategy Document, March 1982.

For more information about World Bank policy contact: The World Bank, the Senior Adviser, Water and Wastes Advisory Group, TWT, 1818 H. Street, N.W. Washington, D.C. 20433, U.S.A.

OXFAM'S WATER SUPPLY PACKAGE FOR DISASTER RELIEF

A new water-supply package concept for

disaster relief, which is being developed by the UK-based relief agency Oxfam, was field-tested for the first time in June 1982 in an emergency refugee situation in Honduras -- and passed with flying colours.

Oxfam technical officer Jim Howard supervised supply and installation of a water storage and distribution system for 8-9,000 Nicaraguan refugees in a camp run by the UN High Commission for Refugees in Morocon. In a matter of 3 or 4 days, storage for some 130 m³ had been established, fed from a river source, and a ring distribution system set up using 75 mm plastic pipe. The idea of packaged modular water systems which can be transported quickly to places in need has been the subject of a two-year study carried out for Oxfam by Imperial College, London. The concept followed the principle already successfully pioneered by the well established Oxfam Sanitation Unit.

A number of different packages would be designed - anything up to nine varieties - comprising equipment and materials applicable for use in abstraction, treatment, and distribution of drinking water from as wide a range of sources as possible. The criteria used throughout the study were:

(a) that 5 gal (22.7 litres) per head per day should be available; (b) that a unit population of 5,000 would be served with multiplication of items for larger numbers; (c) that equipment should be interchangeable for different uses in different locations; and (d) that all items should be chosen for reliability, robustness, simplicity of installation, light weight, availability and low cost.

Jim Howard foresees this type of treatment unit being used not only in disaster situations but also in urban squatter areas and rural villages in the Third World. Following his experience in Honduras, he is now considering possible amendments to the two existing packages to make them more flexible. Why take 600 m of pipe if you only need 100 m? Are 6 m lengths practical for overland travel? are just two questions he will try to answer. Shortly he hopes to produce a questionnaire that will allow engineers in the field to assess quickly which modules they require and in what quantities.

Source: World Water, July 1982.

For more information please contact: Mr. J. Howard, OXFAM/274 Banbury Road/Oxford OX2 7D2/United Kingdom.

50 BILLION DOLLAR PRICE TAG FOR WATER DECADE NEEDS IN LATIN AMERICA AND CARIBBEAN

Some 50 billion dollars are needed to provide drinking water and sanitation services in Latin America and the Caribbean, according to the Pan American Health Organization (PAHO). In a recently released report, the PAHO says 20 billion dollars are needed for drinking water supply systems, with the other 30 billion going into sewage and drainage infrastructures. If that money is made available and is well spent, by the end of 1990, the International Drinking Water Supply and Sanitation Decade goals would be met: all 147 million rural dwellers and 338 million urban dwellers in the region would have those basic public services. Huge though the sum is, 50 billion dollars represents less than 10 per cent of annual

world arms expenditures.

Contaminated drinking water and inadequate sewerage and excreta disposal facilities are the largest cause of death and illness in the Third World. Over half the people of Latin America and the Caribbean suffer from one or more water-related diseases. But the urban situation is improving. According to the economic commission for Latin America (ECLA), in the past 20 years the percentage of the urban population in the region with ready access to potable water has grown from 58.7 per cent to 71.1 per cent. Sewerage services reached 40.7 per cent of the Latin American and Caribbean urban population in 1980, up from 28.6 per cent in 1961.

But rural people have much less access to those basic public services. Health education is cited as a critical lack by the PAHO study. Basic hygiene training would lead to increased awareness of the need for clean water and the proper disposal of wastes. Efforts over the past 20 years have been focused on infrastructure construction and expansion, but training on how to use and maintain the equipment has been minimal. As a result, the average loss rate for water supply systems runs between 40 and 60 per cent, and the quality of the water in new systems is not always as high as one would hope. According to the PAHO study, over 30 per cent of new water supply systems in small rural communities are in distress within two to three years of their construction, due to lack of maintenance and ignorance about how to operate them.

Source: Inter Press Service, Water and Sanitation Weekly Bulletin.

RAINWATER ON TAP

In Sierra Leone, environmental researchers are looking into the question of harvesting rainwater scientifically. The researchers from the Njala University College are studying rainwater collection and storage techniques and measuring the amount of rainwater available. Their aim is to be able to show how to make maximum use of this simplest of all water supply systems. The two-year study, which is supported by a grant from IDRC, will gather rainfall information, from towns and villages in different parts of the country and will examine traditional methods of collecting rainwater, as well as testing new ones.

From: The IDRC Reports, Vol. II, No. 2, July 1982.

For more information please contact: Communications Division, IDRC, P.O. Box 8500, Ottawa, Canada K1G 3H9.

CONFERENCES AND EXHIBITIONS

Arab Water Technology Exhibition '83, 6-10 March 1983, Dubai, United Arab Emirates

Following the overwhelming success of the first Arab Water Technology Exhibition in 1982, the organisers are delighted to be able to announce that arrangements for the second event, Arab Water Technology '83, have now been finalized. For more information: International Con-

ferences & Exhibitions Ltd., 6 Porter Street, London W1M 1HZ, United Kingdom.

African Water Technology Exhibition & Conference

A water exhibition supported by the Ministry of Water Development, Republic of Kenya, will take place in the Kenyatta Conference Centre, Nairobi, Kenya from 29th November - 3rd December 1982 and will show the latest technology in Water and Sewage treatment. A two day conference organized by the African Water and Sewage Journal will take place alongside the Exhibition and will cover many aspects of the complete water cycle from water resources to sewage treatment. Conference speakers will give 20-30 minutes updating resumés of their papers and will also be available to answer questions during the discussion period which follows each presentation. The conference language will be English and there will be simultaneous translations into French.

For more information please write: Miss Y. Ketley, African Water Technology Conference, African Water and Sewage Journal, Room 204, Queensway House, 2 Queensway, Redhill, Surrey, RH1 1QS, United Kingdom.

** PUBLICATIONS **

Surface Water Filtration for Rural Areas - Guidelines for Design, Construction, Operation and Maintenance

by N.C. Thanh and J.P.A. Hettiaratchi, and published by ENSIC.

The booklet describes a low-cost, easy-to-construct and simple-to-maintain surface water filtration system that is suitable for rural areas in developing countries.

The book is available at US\$ 7.00 per copy including surface-mailing charges. An additional US\$ 2.00 per copy is charged for air mailing.

For more information, please contact: Environmental Sanitation Information Center; Asian Institute of Technology; P.O. Box 2754, Bangkok, Thailand.

Proceedings on the Indo-US Workshop On Environmental Impact Analysis And Assessment, Now Available

These findings, almost 200 pages in length, of interest to professionals involved in a wide range of disciplines, include recommendations on environmental impact analysis with reference to methodologies, manpower requirements, information systems relevant to Indian conditions and identification of R + D projects. The proceedings should be useful to researchers and environmental managers at decision-making levels. The proceedings published this year reflect the findings of two joint Indo-US workshops held in 1980 at Nagpur, India, hosted by the National Environmental Engineering Research Institute (NEERI). NEERI's Director, Dr. B.B. Sundaresan, functioned as the Chairman of the Steering Committee which organized the workshops, and with Mr. V. Raman, also edited the Proceedings.

For more information please contact: Mr. V. Raman, Technical Coordinator/NEERI/Nehru Marg/Nagpur/400.020 India.

Rural Water Supply Handpumps Project Issues First Report

This joint UNDP/World Bank testing pro-

gramme has now issued its initial findings in the form of a 124-page report (See the April '82 Newsletter for background). The programme grew out of a response in 1977 by the Overseas Development Administration of the UK Government to growing criticism of field failures of hand pumps provided through development cooperation. ODA approached the independent Consumers Association Testing and Research Laboratories in Harpenden, U.K., which proceeded to test 12 types from 8 countries.

In 1979, IRC and CA Testing sponsored an International Conference on Testing and Evaluation of Handpumps, to which delegates from developing countries, external support agencies and the World Bank were invited. In 1980, the World Bank (following additional discussions with UNICEF and IRC) contracted CA Testing and Research to carry out further testing of 12 brands of deep and shallow-well pumps. Six brands are being additionally tested in the course of 1982.

This interim report focuses on the results of the testing of the 12 pumps, with various recommendations for improvements in performance, safety and durability. These recommendations will be strengthened when the final results of the present 200-day endurance test are completed and analyzed. A final report will be issued in November 1982. For more information please contact: Mr. S. Arlosoroff, UNDP Projects Manager, The World Bank, 1818 H. Street, N.W. Washington, D.C. 20433, U.S.A.

Rainwater Catchment For Water Supply

There exists an important gap in effective and practical information on rainwater harvesting for drinking water supply. Rainwater catchment systems are increasingly regaining the attention of water supply programme planners and engineers as a source of water for domestic supply.

With financial support from the Danish National Fund for Developing Countries, Mr. Erik Nissen-Petersen has prepared a most useful manual entitled Rain Catchment and Water Supply in Rural Africa, which is scheduled to be published, in September 1982, by Hodder & Stoughton Educational, P.O. Box 702, Dunton, Green, Sevenoaks, Kent TN13 2YD, United Kingdom.

This manual certainly can help fill the gap in much needed information on rainwater harvesting techniques, and so will make a valuable contribution to giving rainwater as a source of drinking water supply its place in the International Drinking Water Supply and Sanitation Decade.

NEWS FROM IRC

IRC's latest publication of interest to engi-

neers and technicians working in developing countries is: Practical Solutions In Drinking Water Supply And Wastes Disposal For Developing Countries.

Prepared by the WEDC-Group of Loughborough University of Technology (U.K.), Practical Solutions is based on an earlier IRC edition (1977) created as a response to a widely circulated questionnaire. Neither a textbook nor a comprehensive manual, it is a collection of solutions suggested by a number of people for the problems of providing drinking water and sanitation.

Practical Solutions uses a clear graphic format with many simple diagrams to illustrate sections on: 1. water collection from different sources; 2. water treatment (coagulation/flocculation, filtration, chemical dosing and iron removal); 3. water transport and distribution (pipes, simple pumps and waste reduction); 4. wastewater and solid waste disposal (pit latrines, composting septic tanks and aquaprivies).

Local materials and skills are promoted and where possible the usefulness and disadvantages are discussed. Also in this new edition are an index for easy reference and suggested further readings. To order your copy of Practical Solutions, please make out an international cheque or money order payable to IRC for US\$ 10.--, quoting bank-account number: ABN, 51.421.8.428. Non-commercial organizations and individuals based in or from developing countries may apply for a complimentary copy.

Bulk order prices are reviewed on a case-by-case basis.

Also recently available from IRC is the Status Report on Community Education and Participation, Activities and Recommendations.

This IRC Occasional Paper is of special interest to planners, decision-makers, and researchers involved in aspects of community participation in drinking water supply and sanitation in developing countries.

The Status Report summarizes in 85 pages the proceedings of a two-day meeting held in October 1981 of the IRC Advisory Group on Community Participation. Discussed were the current national and international activities in community participation and education; the major gaps and problems; and the most necessary studies and actions to promote and encourage community participation in drinking water supply and sanitation. The Status Report also summarizes ongoing and planned community participation activities of the organizations represented by the participants.

Prepared by IRC consultants, Dr. Alastair T. White, and Christine van Wijk-Sijbesma. The price of the Status Report is US\$ 5.--. For details of ordering please see previous IRC publication announcement.

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

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

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

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

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UNESCO AND THE DRINKING WATER AND SANITATION DECADE

The International Drinking Water Supply and Sanitation Decade's objectives have wide implications in major fields such as environment and management of natural resources, education, social sciences, information policies, which are covered by the United Nations Educational, Scientific and Cultural Organization's own programmes.

UNESCO can contribute to the IDWSSD's activities in the following programme areas:

Water Resources Assessment and Management

UNESCO conducts an intergovernmental programme - the International Hydrological Programme - which seeks to improve the understanding of hydrological processes and their interaction with human activities, to assess the hydrological parameters for water resources planning and project design, and to develop methodologies for the integrated management of water resources. Several themes included in the programme, relating to water resources assessment, to water quality protection and allocation of water resources, can provide inputs to the Decade. Within the water-related educational programmes and training courses sponsored by UNESCO more emphasis will be put on matters related to drinking water supply and sanitation aspects. The IHP National Committees established in about 110 countries will be encouraged to promote and participate in the International Drinking Water Supply and Sanitation Decade activities. UNESCO is developing three major regional projects (in Latin America, Arab States and Africa) on the rational management of water resources in rural areas, the purpose of which is to determine the most appropriate ways of developing and conserving water resources in order to meet the economic and social needs of rural communities. Drinking water supply

and sanitation will obviously constitute a central problem within these major projects.

Ecology and Management of Natural Resources

UNESCO's Man and the Biosphere programme is directed towards the quest for practical solutions to the problems of the management of natural resources, land development, rural and urban planning, taking into account both environmental and social aspects. Two major regional projects of research are being developed on the training and demonstration applied to the integrated management of humid tropical zones and of arid and semi-arid regions. The MAB programme as a whole and these two major projects in particular could provide valuable inputs to the Decade activities. UNESCO sponsored courses in the field of environmental sciences will be encouraged to give more emphasis to environmental health problems.

General Environmental Education

UNESCO's programme in this area is aimed at promoting a better understanding of the problems of environment in relation to various human activities and to encourage individuals and groups to behave and act in a way that favours the preservation and improvement of the environment. The programmes recommended for school and out-of-school education will be geared to cover the environmental health aspects and, in particular, those related to water supply and sanitation.

Struggle against Illiteracy

UNESCO library programmes will endeavour to relate this form of education to practical applications determining better living conditions. Water supply and sanitation practices can be successfully included in such applications.

Information Systems and Services

UNESCO's General Information Programme (PGI) places emphasis on concerted action to facilitate full access to scientific and technological information and its effective use, and to contribute to the development of information infrastructures and the theoretical and practical training of information personnel and users. The PGI can provide a general framework for and technical guidance to the development of the Programme on Exchange and Transfer of Information (POETRI) for information support of the International Drinking Water Supply and Sanitation Decade.



Social Sciences

Several UNESCO programmes in the field of social sciences, are concerned by and can contribute to the IDWSSD activities, such as those on Environment and Human Settlements which are particularly concerned with training activities in architecture, urban and regional planning and management of human settlements and on Status of Women.

For more information, please contact Mr. W. Gilbrich, UNESCO, 7 Place de Fontenay, 75007 Paris, France.

Source: Human Resources Development for the International Drinking Water Supply and Sanitation Decade, Basic Strategy Document, March, 1982; Global Promotion and Cooperation for Water Supply and Sanitation/Division of Environmental Health/World Health Organization, 1211 Geneva 27, Switzerland.

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WATER SUPPLIES IN MALAWI

By 1980 about 4,500 rural water supply boreholes had been drilled and fitted with handpumps in a widely dispersed programme throughout Malawi. Over half of these boreholes were drilled between 1970 and 1980 and the unit costs rose during this period from about K2000 to K5500 for a borehole with a handpump. Maintenance costs have climbed to K200 per borehole per year. Over 500 dug wells had also been constructed, in an independent programme (K1 = approximately US\$ 1).

The impetus of the International Drinking Water Supply and Sanitation Decade and the creation of the Department of Lands, Valuation and Water (DLVW) in Malawi has led to a close look at the country's rural water supply programme. The very successful gravity-fed piped water programmes can only serve a small percentage of the rural population due to the limited number of protected, perennial sources. It is estimated that about 70% of the 1990 rural population of about 7 million people will need to be served from groundwater, requiring the construction of an estimated additional 11,000 boreholes and 7000 dug wells. At 1980 prices the cost of the additional boreholes would be over K60 million and the maintenance cost of 15,500 boreholes would be over K3 million per year. This level of capital investment and recurrent costs is unacceptably high for Malawi.

Since 1980 the Groundwater Section of DLVW together with the ODA Groundwater Project has developed a new approach to the provision of low-cost groundwater supplies to rural communities. This is primarily based on matching and understanding of the geology of an area and the occurrence of groundwater with the most appropriate and economic method of groundwater abstraction. By keeping borehole diameters and depths down to the minimum necessary and by using high open area PVC well screens (locally manufactured) and gravel packs, borehole costs have been considerably reduced and the use of smaller rigs, vehicles and crews has become possible.

The next step was the development of the concept of "Integrated Projects for Rural Groundwater Supplies". By careful planning, implementation and on site management, an Integrated Project aims to provide complete coverage of an area by rehabilitating existing boreholes, protecting suitable existing

springs and dug wells, constructing new low-cost but well-designed boreholes and digging new wells. An important component of the Project is the involvement of the community in all activities, through decision making committees at various levels and with the maximum possible degree of self-help labour. By this approach, the cost of a borehole with handpump has been brought down to K1500.

Community-based maintenance structures are being established, with the prime responsibility for pump maintenance to rest with village caretakers. To enable this, both shallow and deep lift handpumps have been developed in Malawi, with ease of maintenance being a primary design feature. The handpump development work is still in progress and the hand-over to the user community is seen as a key to the success of the programme.

Two full-scale Integrated Projects are presently underway each to serve about 60,000 people at costs of about K400,000. The Upper Livulezi Project is almost half completed and the Dowa West Project just commencing. The former project is also the Malawi location for handpump testing within the UN/World Bank Global Handpump Testing Project. Project targets in terms of cost, waterpoint production rate, and community participation are all being successfully achieved.

Several further Integrated Projects have been planned and funds for three more projects have been allocated. It is hoped to expand the programme to eventually cover all of the appropriate areas of Malawi, with ideally at least one project per year in each of the three regions of the country.

This general approach to low-cost, rural groundwater development is likely to be widely applicable in other countries with similar social and economic constraints to the provision of rural water supplies, irrespective, to some extent, of hydrogeological conditions.

Source: Mr. Robert A. Borthwick, UNDP Resident Representative/P.O. Box 30135/Blantyre, Malawi.

* * * * *

LITERACY: THE KEY TO BASIC HEALTH CARE?

In an article in the first issue of the quarterly journal Waterlines, Arnold Pacey advances evidence that literacy might be the key element in basic health care. Quoting another author, Pacey contends that "literacy is the key ... the basic personal skill that underlines the whole modernizing sequence".

Citing the State of Kerala in southern India as a primary example, Pacey uses a number of health indicators to show that Kerala, with an average life expectancy of 66 years, is decidedly advanced compared with the rest of India. Although its abundant rainfall makes water supply no insurmountable obstacle, Kerala is one of the poorest of Indian states, with considerable less state investment in public health care than other states. Kerala nevertheless has in the last 20 years made remarkable progress in sanitation improvement and basic health care -- and literacy seems to be a catalyst to both.

The mother-baby relationship is the vital unit in basic health care. In Kerala many mothers are literate and can, for example "store information" on health care practices without relying exclusively on memory; they

can read instructions on food packages and medicine bottles. Literacy, Pacey says, is a stimulus to personal cleanliness and he illustrates a number of changes in social behaviour brought on by a growing awareness to better health care practices through the written media.

While the evidence is still tentative and requires more validative research, the example of Kerala poses an interesting question: "In planning health education in conjunction with the Water Decade", Pacey asks, "what impact can we expect where literacy rates are low?"

Waterlines, Vol. 1, No. 1 contains a number of equally interesting pieces on: a simple method of jetting tubewells; co-ordinating water supply and sanitation planning; freeing the Blue Nile from bilharzia; the SWS sand filter and pump; rainwater harvesting; bringing the twin pit latrine to Botswana; water--women's work; Guinea worm -- the unnecessary evil; water collection from thatch; the Consumers Association's hand-pump testing programme, and book reviews. Waterlines is well worth a subscription of £ 7 a year from Intermediate Technology Publications Ltd/9 King Street, Covent Garden/London WC2 8HN, United Kingdom. And congratulation to the editors Frank Solomon, Frances Stuart and John Collett. A long time in the pipeline, Waterlines is worth the effort!

SEMINARS/COURSES

XVII INTERNATIONAL COURSE IN GROUND-WATER HYDROLOGY

This course will be held in Barcelona from 14 January to 15 July 1983. It will be mainly intended for graduates from higher technical schools and science faculties and who wish to receive further training or to specialize in the problems of prospecting, tapping, exploitation and planning of groundwater, while studying surface water and other hydrological resources.

The teaching programme will be: auxiliary disciplines, groundwater exploration and exploitation, and water management. This means a total of 307 hours for the theoretical and applied courses, 10 field trips, 6 technical visits, and the writing of a groundwater practical report in small groups. Lectures are given in Spanish.

For further information, please write to Curso Internacional de Hidrologia Subterranea, Beethoven, n° 15-3°, Barcelona - 12 (Spain), Telephone 322-19-51, Telex 52455 COABNE (93).

INTERNATIONAL SEMINAR ON HUMAN WASTE MANAGEMENT

An International Seminar on Human Waste Management will be held on 16-22 January 1983 in Bangkok, Thailand. This seminar is being organized by the National Housing Authority (NHA), the Institute for Housing Studies (IHS-BIE) and the Asian Institute of Technology (AIT).

The emphasis of the seminar will be on low-cost solutions which can be operated at the community level.

Participants to the seminar will be selected based on their backgrounds, i.e. their experience in the field of sanitation as well as the abstracts of the papers they will be presenting at the seminar. Because of financial constraints, the organizing committee

will only be sponsoring participants coming from the Asian region, although the committee is also seeking funds for sponsorship of participants from the other regions, particularly Africa.

The objectives of the seminar are:

1) to assess the merits and failures of the existing human waste disposal system for low income settlements; 2) to study options and alternatives; 3) to identify suitable delivery systems and implementation strategies.

Persons wishing to receive further information should contact: Ms. Tina Liamzon, Seminar Coordinator, P.O. Box 24-130, Bangkok 10240, Thailand.

SHORT COURSE ANNOUNCEMENT

The Department of Civil Engineering at the University of Ottawa will be holding a short course on "Water Supply and Sanitation for Developing Countries" from May 31 - June 1, 1983. The course, which is an updated version of an earlier course, will review the emerging low cost, renewable energy technologies, consider the role of operation and maintenance and will study social, economic and cultural aspects of technology implementation in developing countries. The cost of the course is \$250 (Canadian). The course is to be given by a team of consultants, professors and government engineers with overseas experience. CIDA and IDRC representatives will also be participating.

For further information please contact:

Dr. Ron Droste, Water and Sanitation Short Course, Department of Civil Engineering, University of Ottawa, Ottawa, Ontario, Canada K1N 9B4, Phone: 613-231-3432.

PUBLICATIONS

PROBLEMS AND NEEDS OF AFRICA IN COMMUNITY WATER SUPPLY AND SANITATION FOR THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

This report is essentially a synthesis of the country reports prepared by member States of the United Nations Economic Commission for Africa. After a brief introductory background and a short recapitulation of sources of information, the Report contains a short description of the principal demographic features of Africa's population, including the urban-rural concentration and trends. This is followed by a statement on the progress on the Continent in the sector during the seventies.

The current status in urban and rural water supply and urban and rural sanitation is briefly described.

Special problems and constraints as stated in the Country Reports are summarised, followed by some observations on problems relating to source development from surface and ground waters.

Targets and objectives of the Decade in the different countries are summarised and the rate of progress targetted over the next decade in some countries compared with performance during the past decade. Programmes as formulated in some countries are then reviewed. This is followed by a summary of the requirements set out in the country reports of technical assistance and advisory services, manpower and training, material and equipment, investments, institutional

arrangements, public participation, choice of technology and selected research problems. In conclusion, some suggestions are made for further work in the light of the requirements pointed out by the countries in their respective reports. For more information, please contact the United Nations, Economic Commission for Africa, P.O. Box 3001, Addis Ababa, Ethiopia.

TRADITIONAL WATER PURIFICATION IN TROPICAL DEVELOPING COUNTRIES

This is a newly published, interesting book by Dr. Samia Al Azharia Jahn (presently with the Water Purification Project, Khartoum, Sudan) dealing with a somewhat neglected subject. "Traditional Water Purification" covers aspects of water supply which have frequently been overlooked.

Under the challenge of this harsh environment, people in rural areas have developed a great variety of traditional water purification methods to treat turbid and polluted water. Ordinary text books on public health engineering or preventive medicine do not mention these methods, and most water supply engineers, physicians and planners educated in up-to-date technologies have either hardly heard of them or believe that these methods have no longer any practical importance.

In fact, however, this book shows that most of the traditional water purification methods in the tropics are quite sound. The careful reader will easily see their connections with more sophisticated modern approaches.

This book is published by GTZ. It can be regarded as an important means towards preserving traditional knowledge and mobilizing it for the benefit of rural people in many countries.

Published by: GTZ - German Agency for Technical Cooperation, Postfach 5180, D-6236 Eschborn 1, West Germany.

FROM UNESCO'S INTERNATIONAL HYDROLOGICAL PROGRAMME:

SURFACE WATER AND GROUNDWATER INTERACTION

Studies and Reports in Hydrology No. 29
Prepared by the International Commission on Groundwater, Edited by C.E. Wright, 123 pp. Price in France: 45.00 FF.

AQUIFER CONTAMINATION AND PROTECTION

Studies and Reports in Hydrology No. 30
Project 8.3 of the International Hydrological Programme
Prepared by the Project Working Group, R.E. Jackson, Chairman and General Editor, 440 pp. Price in France 125.00 FF.

METHODS OF COMPUTATION OF THE WATER BALANCE OF LARGE LAKES AND RESERVOIRS Volume I: Methodology

Studies and Reports in Hydrology No. 31

Edited by E.L. Ferguson and V.A. Znamensky, 120 pp. Price in France: 32.00 FF.

The address for residents in France is: UNESCO, 7, Place de Fontenoy, 75700 Paris.

In all other countries contact the UNESCO National Distributors nearest you.

ALSO FROM UNESCO:

Nature and Resources is a quarterly journal published by UNESCO providing international news and information about UNESCO programmes concerning environmental activities, natural resources research and conservation. It has a circulation of 12,000 in 138 countries. Nature and Resources is published in English, French and Spanish language editions. For costs and other information please write to Nature and Resources, UNESCO, at the above Paris address.

NEWS FROM IRC

IRC announces its latest offering in its Occasional Paper Series: A GROUNDWATER PRIMER, by G.J. Heij and C.R. Meinardi of the National Institute for Water Supply of the Netherlands.

In their introduction the authors state the aim of the Primer: "We do not aim to make a geohydrological expert of you; merely you should be able to understand such a specialist. If you ever work in a team with a geohydrologist, you will need some knowledge of what he or she is doing and why, or else the team will not function optimally".

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

In the fifth chapter Heij and Meinardi review various tests to be used in field and laboratory investigation and how to combine them.

The sixth and final chapter gives the reader an idea about the ultimate result of most geohydrological studies, that is development of groundwater resources.

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

This Occasional Paper of 119 pages, is available in English only and is reproduced in a low-cost photocopy format. The price is \$US 5. Payment by cheque or international money order should be sent directly to IRC.

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

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

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

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THE WATER SUPPLY AND SANITATION DECADE: TWO YEARS DOWNSTREAM

Where Do We Stand Now?

In his recent remarks to the Seminar on Developing Countries at the International Water Supply Association Congress (Zürich, September 6-7 1982), Dr. B.H. Dieterich, Director of Environmental Health, WHO, discussed the question which has produced so many divergent answers: "How's the Decade Going?"

As a starting point, Dr. Dieterich cleared up a common misunderstanding that the Decade is an international programme planned, coordinated and funded by United Nations and official agencies. As he puts it: "We must speak of the Decade -- not of the International Decade -- as a basically national endeavour supported internationally in the spirit of the North-South cooperation. I believe it is fair to state that, fortunately, the momentum created in the developing countries during the last two years is greater and more encouraging than that which we see in the international community."

Country-level: Some Bright Spots

In the last six months alone, close to twenty countries have embarked upon, or strengthened national action for planning and decision-making in which external support is involved. Many others are gradually changing their programmes in line with the Mar del Plata recommendations.

International Level: Disappointing Response

Neither individually nor collectively have the

international and bilateral funding agencies responded fully to the new challenge of the Decade. Lending institutions still confine their loans for the most part to capital investment, giving consideration neither to infrastructure improvements nor to building up of absorptive capacities in countries to enable them to effectively utilize external assistance.

The Decade Target

The ambitious nature* of the Decade -- full coverage with water supply and sanitation -- has in some cases, along with a traditional catering to the urban middle class, delayed action. Dr. Dieterich philosophizes: "One lesson we all learned in the last two years is that achievement of the target may become more likely if the Decade is seen as a development effort, long overdue, rather than an isolated, seemingly arbitrary 10-year programme merely for the laying of pipes and the installing of pumps".

Coverage

Full coverage with water supply and sanitation by 1990 is not forecast by all developing countries setting targets for the Decade. Both urban and rural water supply targets range from 100% to 50% and urban sanitation targets climb from 25% to 100% coverage. Rural sanitation lags behind and only occasionally are the targets for 1990 higher than 50% while in a few cases lows of around 10% are recorded.

Before the acceleration of programmes planned by developing countries can take place, national capacities to construct, operate and maintain facilities must be strengthened. A reorientation of planning and design criteria should redirect efforts towards the underserved, employing low-cost technology, and closely linked with health and other sectors. Community awareness and involvement should be promoted.

Drinking-Water Bias

Sanitation occupies a secondary place in targets set by developing countries -- drinking-water still commands by far the greatest attention. That the complementarity of water supply, sanitation and health education is necessary to promote long-term health is open to debate according to the isolated actions of many developing countries in the latter two categories.

Funding

Because much of the funding comes from developing countries themselves, the present



hard-hitting recession in terms of readjusted priorities has not helped Decade targets. Of available funds drinking water supply grabbed 70% of the estimated US\$ 10,000 million invested in the sector in 1981 -- leaving sanitation a long way back in second place. There was a US\$ 200 million gap between projects approved and those projected (US\$ 700 million) by the World Bank/IDA for 1981. Despite the acutest needs of Africa and Asia, much of the WB/IDA loans are earmarked for the relatively better-off Latin America and the Caribbean.

The Commission of European Communities shared this bias. Recent commitments from Arab development institutions average a 7% support for the water sector. In funding Decade projects, Regional Development Banks also play a substantial role. The funding by Bilateral official development agencies stayed about the same in the last two years (with some less), bilaterals disappointed at country priorities. UNICEF in 1981 contributed US\$ 10 million less than the record of US\$ 53 million in 1979, and only 6%-7% of this for sanitation. International NGOs are playing a bigger role in the Decade than imagined simply judging by their estimated expenditures for 1981 -- US\$ 100 million.

Other highlights of Dr. Dieterich's presentation to the Seminar on Developing Countries at the 1982 IWSA Congress:

Decentralization

Institutions in developing countries that have catered exclusively to the water and sanitation needs of the urban middle class, with rural programmes as a sideline, are too centralised and slow-moving to meet rural people's needs. What is needed are workable schemes at the village and community level -- and for this much more support is needed from national agencies. More intermediate staff will help keep the costs of decentralization down. Community participation is an essential aspect of this decentralization and sufficient political will is necessary support to make it work.

Finance and Tariffs

WHO supports the idea of well-designed tariff structures that allow for extension of the service to the less privileged; incorporate a progressive aspect to discourage excess use, waste and misuse by large consumers; and rely on average tariffs which cover average costs -- resulting in not only financial equilibrium but also the gradual extension of the service.

* * * * *

THE ORIGIN OF THE DRINKING WATER SUPPLY AND SANITATION DECADE

From where does the idea of the Drinking Water Supply and Sanitation Decade come? On November 10, 1980 the Decade was officially launched in the United Nations General Assembly. This declaration was the result of actions begun by Habitat, the United Nations Conference on Human Settlements, held at Vancouver, Canada from 31 May to 11 June 1976. It was recommended that quantitative targets be established by nations to ensure that all their people have access to safe water supply and hygienic waste disposal by 1990. From this Conference later emerged the slogan "Clean Water and Adequate Sanitation

for All by 1990".

The subsequent United Nations Water Conference at Mar del Plata, 14-25 March 1977, extended this groundbreaking work and urged that a plan of action "be formulated in a co-ordinated manner at the national and international levels". A Steering Committee for Co-operative Action was set up in August 1978 on the initiative of the Director-General of the World Health Organization and the Administrator of the United Nations Development Programme.

Participants in the Committee now include ten organizations of the United Nations system: The United Nations, UNICEF, United Nations Development Programme, International Labour Organization, Food and Agricultural Organization, UNESCO, WHO, the World Bank, UNEP and UNCHS.

The WHO Unit for Global Promotion and Co-operation for Water Supply and Sanitation provides the Secretariat. To improve co-ordination and delivery at the country level is the main objective of this Steering Committee.

* * * * *

RESOURCE MOBILIZATION FOR THE DECADE

Also at the Seminar on Developing Countries at the International Water Supply Association Congress in Zürich "What to do for resource mobilization for the Decade" was a topic of attention. IRC joined many representatives of UN and external support agencies and others active in the field in welcoming the new thinking on assistance for the human dimension of the Decade: human resources development, community participation, and people problems in operating and maintaining water and sanitation facilities.

Close cooperation between all partners in development was urged to prevent overlap and waste of slim resources.

* * * * *

HANDPUMPS FOR RURAL COMMUNITIES

For the past six years, Canada's International Development Research Centre (IDRC) has been supporting research in the development of more effective pumping systems for rural water supplies. The approach taken has been to systematically examine the implications of new materials and improved pump designs. In view of the wide-spread introduction of plastics technology that has taken place in developing countries in the last decade, particular attention was focused on the polymer resins, specifically polyvinylchloride (PVC) piping, which is widely available throughout Africa and Asia. In many respects, plastics technology is to developing countries what cast iron was to industrialized countries a hundred or so years ago.

Design work centred on the development of a simple, low-cost piston and footvalve assembly for a manual pump. This stage of research was completed in April 1978 in collaboration with the University of Waterloo in Canada. The pump that was produced differs from others that have been developed because it has been designed for local fabrication, installation, and maintenance with existing resources in developing countries.

After the development stage, research was conducted in Asia (Malaysia), the Philippines,

Sri Lanka, and Thailand) and in Africa to field test the pump under varying conditions. This PVC pump demonstrated during the field trials that it holds considerable potential for use at the village level. It can be made locally at reasonable cost and is easily repaired with locally fabricated parts.

As the culmination of the Asian segment of this project, a meeting was convened in Kuala Lumpur at the University of Malaya from 16 to 19 August to review the results of these field tests, to evaluate the pump in terms of its technical and economic performance, and to review the status of the hand-pump technology. Sponsored by IDRC in collaboration with the Faculty of Engineering, University of Malaya, the meeting was used to disseminate information to current and potential users of the handpump in Southeast Asia.

The next stage in this pump's development will be to investigate the feasibility of mass production. Plans are currently being developed at the University of Malaya to establish a small-scale fabrication unit to provide prototypes to other Asian projects, continue research on new materials and design modifications, provide appropriate technical training, and study the cost-effectiveness of various manufacturing processes.

For more information please contact Mr. Michael Graham, International Development Research Centre, Asian Regional Office, Tanglin P.O. Box 101, Singapore, 9124.

INDIA: NEW CENTRE FOR SCIENCE AND ENVIRONMENT

The Centre for Science and Environment is a non-governmental, quasi-academic research organization that has been set up to increase public awareness of the role of science and technology in national development. The Information Service issues news and feature items in six languages - English, Hindi, Marathi, Bengali, Malayalam and Punjabi - prepared by a research team consisting of professionals qualified in science and technology. Anil Kumar Agarwal is the Director. For more information: CSE, Centre for Science and Environment, 807 Vishal Bhawan, 95 Nehru Place, New Delhi-110019, India.

REQUEST FOR INFORMATION ON THE COST OF WATER TREATMENT PLANTS

Prof. Daniel Okun requests IRC Newsletter readers to help him find cost data of water treatment plants in developing countries. This can include: (1) cost data for similar plants that have been built in other regions within the country or in another developing country with similar characteristics; (2) general cost curves that are based on the costs of a variety of plants constructed within the country; and (3) general predictive cost equations developed for similar situations. Dr. Okun and Christopher R. Schulz, both of the University of North Carolina, are authoring a book entitled Practical Surface Water Treatment for Communities in Developing Countries. The cost data will be used in the chapter on that topic. The address: Dr. Daniel A. Okun, Department of Environmental Sciences and Engineering, University of

North Carolina, Chapel Hill, North Carolina 28514, U.S.A.

US GROUP RELEASES REPORT ON WATER

The National Council for International Health (NCIH) recently announced publication of a 100-page booklet based on proceedings at its headquarters in Washington last month, entitled: "Water Supply and Sanitation in Rural Development". Also released was a companion Document, entitled "Guide to US-based Agencies Involved in Water and Sanitation Projects in Developing Countries" which should be available soon.

The "Guide" is designed to encourage exchanges of information and cooperation among non-governmental organizations and other groups.

Information about each of the 65 agencies covered by the "Guide" includes geographical areas and countries served, length of programme involvement, types of services provided, nature and extent of training programmes, and examples of representative projects.

The publications are available at NCIH Headquarters, 2121 Virginia Ave., N.W., Suite 303, Washington, D.C., U.S.A.

NEWS FROM IRC

A tool to prevent re-inventing the wheel in documented information, or a first step to find the needle in the rapidly growing haystack of documents. Those are brief characteristics of IRC's most recent publication of interest to information-suppliers on community water supply and sanitation in developing countries: POETRI - Programme on Exchange and Transfer of Information, Reference Manual, Volume I.

The manual covers the main steps involved in the planning, design, set-up and management of information support services for water supply and sanitation development in developing countries. It contains six different parts in a loose-leaf format which can be used separately as individual guides and which can also be regularly revised and updated.

These parts are:

- * planning for information support activities at national level;
- * design and setting-up of information services;
- * national inventory of information sources on community water supply and sanitation;
- * compilation of user inventories and survey of user requirements;
- * education and training for information support.

Published under the joint sponsorship of UNESCO and The Netherlands Directorate General for International Cooperation, the manual mainly aims at managers, information officers and documentalists of the information centres and other organizations that participate or are planning to participate in the POETRI programme, which was initiated in the context of the Drinking Water Supply and Sanitation Decade. Volume II of the manual concentrating on tools and training materials is in the pipeline.

To order a copy of the POETRI Reference Manual, please make out an international

cheque or money order payable to IRC for US\$ 14,00.

Non-commercial organizations and individuals based in or from developing countries may apply for a complimentary copy. Bulk order prices are reviewed on a case-by-case basis.

IRC Governing Board Discusses IRC Support Role

IRC Governing Board members from several UN agencies and from 2 Dutch Ministries met at IRC 14-15 October to review the Annual Plan for 1983. IRC's support role was reviewed in light of a management consultancy's report that IRC should organize project-wise, with the subsidy of the Netherlands' Ministries to be used for information projects and the generation of other projects and their funding. Information development and transfer should remain the goal of IRC's research and demonstration projects, training activities and projects on community participation. IRC will continue its cooperation with WHO in the role of collaborating centre for water supply, with programmes in the rural and urban fringe areas of developing countries as the main object of focus.

In their capacities for the first time as Governing Board members are Dr. Martin Beyer, Senior Policy Specialist on Water and Sanitation for UNICEF, and Dr. Peter Lowes of UNDP who is also coordinator for WHO/UNDP Decade activities. Mr. John Kalbermatten, Senior Adviser on Water and Waste at the World Bank was not able to attend. Mr. S. Unakul attended as observer for WHO, where he is Manager of Environmental Health Technology and Support. Present from the Dutch Ministry of Foreign Affairs (Development Cooperation) was Mr. H. Gajentaan, and from the Ministry of Health and Environment, Messrs. P.J. Verkerk, D.J. de Geer, and P. Santema (chairman).

New Staff at IRC

IRC's Information Section is again fully staffed. Dick de Jong (35) has recently taken up the position of Information Officer. He is a journalist by profession; specializing in the development information field. His first hand experience comes from Asia, where he worked from 1978 to mid-1981 with the UNICEF information section in Bangladesh. Publication management, general information services and public relations are among the priority tasks for IRC's new man in information. A big hello from him to Newsletter-readers.

Another newcomer with IRC is 42-year old Toon A. van Dam, who heads the POETRI-project (and in no way related to IRC's director J.M.G. van Damme). The new POETRI man has a civil engineering and land

surveying background and professional know-how about project management. He co-founded a consultant agency in building management and since 1978 served as executive director for marketing and public relations in a consultant group for health care programming. He has worked in Surinam, Indonesia and Nigeria. When contacting him, please address: Mr. Toon A. VANDAM, just to avoid name confusion.

Mr. J.T. Visscher (32 years old) is now the Slow Sand Filtration project manager, replacing Mr. Han Heijnen who now works for SATA in Nepal. Visscher's experience in the UNICEF/UNDP funded rural water supply project in Guinea-Bissau should be very useful to IRC - particularly since he and his colleagues struggled with different approaches to community participation.

The new Slow Sand Filtration project manager received his Civil Engineering degree (specialization: sanitary engineering) in 1977 from the Delft University of Technology, The Netherlands.

* * * * *

Call for Training Material for Water Supply and Sanitation

As part of its Manpower Development and Training activities, IRC is presently scouring the world for training material related to water supply and sanitation in developing countries. The intention is to publish a catalogue of selected training material and any material Newsletter readers could send to IRC would be greatly appreciated.

This proposed catalogue is part of joint activities planned at the recent (13-17 September) Workshop on Human Resources Development for the Decade, held at IRC.

Other Workshop recommendations include:

- * Guidelines for HRD should be published, designed for senior managers and officials;
- * An international seminar in the second half of 1983 should be organized to sum up experience in Decade HRD.

Participants in the Workshop came from the Caribbean, Sri Lanka, and Indonesia, and consultants were on hand from WHO and the World Bank.

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

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



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THE FOOD AND AGRICULTURE ORGANIZATION (FAO) AND THE WATER SUPPLY AND SANITATION DECADE

The area of FAO action is within communities dependent for their livelihood on agriculture, forestry and fisheries. Its cooperation in national programmes for the promotion of water supply, sanitation and other services is therefore directed towards improving the quality of life among rural people.

In support of such programmes, FAO encourages the integration of water supply and sanitation systems with well planned and operated production schemes, such as projects for irrigation, drainage and other specific agricultural purposes involving the employment and settlement of rural populations. In this way, the recurrent costs of services can be better assured through the generation of individual and public income. A number of FAO field projects already have a component for drinking water supply, employing techniques and materials best suited to the local circumstances and environment.

Through collaboration with WHO, FAO is bringing greater attention to bear on the issues of human health in agriculture, especially in the development of land and water resources. This has close links with domestic water and the disposal of waste.

Apart from the more material aspects of water supply and sanitation, in the context of specific projects, FAO also has a broad role in the action programme of the World Conference on Agrarian Reform and Rural Development (WCARRD). This brings with it responsibilities for improving access to essential resources such as water; for better conditions and services in rural communities; for the development of human resources

through training and the dissemination of knowledge in such fields as nutrition, home economics and associated measures for family hygiene and sanitation.

It also involves the promotion of cooperative action for production and for the development of social services and facilities, and the recognition of the potential gains from the wider participation of women in rural development. These local groups and associations offer a potential focus for initiatives to introduce, improve and maintain their community water supply and sanitation systems.

The following are some of the areas in which FAO's field programmes could include components related to the safety of drinking water and sanitation:

1. WCARRD Follow-up Programme

In its WCARRD follow-up programme, FAO emphasizes the development of human resources through people's participation and training. A component on drinking water supplies and sanitation could be included in the training programmes which will be designed for rural people, especially in new settlements. The Regional Rural Development Centres could also contribute through their training programmes to the achievement of the Decade's goals.

2. Training Courses in Extension, Home Economics and Nutrition

It is well known that field workers in extension, home economics and nutrition have more contacts with the mass of the population, especially in rural areas, than others. Their main duty is to assist and train people in improved methods of farming, home management and nutrition. Safe drinking water and sanitation should be a major component of training programmes. Training courses in home economics carried out by FAO include the following:

(a) environmental sanitation (proper placement of the well about 30 metres away from the latrine); (b) proper treatment/collection/protection of water for drinking or kitchen use; (c) importance of providing storage tanks, washbasins, bathing places or bathrooms, soak pits, latrines; (d) proper care of utensils for infant feeding.

Training programmes for rural extension workers could include topics on the necessary precautionary measures to be taken in order to avoid polluting drinking water through irrigation or pesticide residues during pest control operations.

3. Irrigation Schemes for Agricultural Production

FAO encourages the integration of water supplies and sanitation systems with well



planned and operated production schemes, such as projects for irrigation, drainage and other specific agricultural purposes involving the employment and settlement of the rural population. A number of FAO field projects already have a component for drinking water supplies, employing techniques and materials best suited to the local circumstances and environment.

Source: Human Resources Development for the International Drinking Water Supply and Sanitation Decade, Basic Strategy Document, March, 1982.

For more information please write: Dr. W.D. Maalouf, Food and Agricultural Organization (FAO), Via delle Terme de Caracalla, 0100 Rome, Italy.

KENYA: WATER AND SANITATION NEWS

* The Kenyan Ministry of Water Development will spend 24 million dollars on rural water supply during the current financial year, according to Minister Jeremiah Nyagah. Financial constraints have limited the amount available to the 150 projects chosen from the 600 ones submitted by various district development committees. About 4 million people will be directly effected by the 150 projects, many of which were already in the research, planning, design or construction stages.

* Self-help water projects reach about 20 percent of Kenyans according to the Minister. For their support 10 million dollars has been earmarked by the government and a framework established for technical support in the districts and provinces.

* The Norwegian Agency for Development Aid has allocated more than 20 million dollars to help bring safe water to fast growing major Kenyan towns.

* Subject to the availability of resources, Mr. Nyagah said his Ministry will operate and maintain the small water supplies formerly run by the various county councils. Some of these need rehabilitation at an estimated cost of 16 million dollars. Sewage disposal facilities in minor urban and rural centres will be further developed; their share of the budget is about 8.5 million dollars.

* Lack of safe water has plagued Kenya's third biggest town - Kisumu - for the last five years, and cholera outbreaks were directly attributed to it. Situated at the edge of Lake Victoria, Kisumu's water problems stem from a supply system adequate for a town of 50,000; the present population is four times that, and growing at 8 percent a year. To counter this trend, a 2 million dollar water works project was started in 1977, and despite delaying contractor hang-ups, is now operational.

* Under a new cooperation arrangement, Kenya will receive some 5.8 million dollars from West Germany to establish a central workshop for the Ministry of Water Development. Kenyan Finance Minister Arthur Magugu signed the agreement in October with Bonn's ambassador in Nairobi, Johannes von Vacano. Von Vacano said his government recognizes Kenya's stress on meeting the basic needs of the people. He noted that the German government has so far supported water projects in Nakuru, Kisumu, Thika and Malindi towns with over 58.5 million dollars in grants. This figure included funds for the "water supply of Malindi and the vicinity" project under the 1982-83 Kenyan-German financial cooperation programme. The German

government also provides scholarships for advanced training of qualified ministry staff.

(Source: Adapted from IPS Weekly Drinking Water and Sanitation Bulletin, Sept.-Oct. '82)

INTERNATIONAL CENTRE FOR SOIL CONSERVATION INFORMATION

It is planned to set up an International Centre for Soil Conservation Information as an independent, non-profit-making, educational organisation based at the National College of Agricultural Engineering (NCAE), at Silsoe, Bedford, England.

The activities of the Centre will be to:

- collect and collate information on soil conservation using bibliographic sources and a world network of correspondents. There will be a machine-readable data-base, as well as hard copy and micro storage.

- disseminate information through: a regular newsletter or bulletin; state-of-the-art reviews on particular soil conservation topics; subject bibliographies, with and without abstracts; supplying, so far as copy-right allows, copies of published literature.

The Centre will work closely with NCAE in offering training facilities, research opportunity, and consultancy services.

Anyone interested is invited to write to: ICSCI, NCAE, Silsoe, Bedford, MK45 4DT, United Kingdom.

RURAL WATER AND SANITATION NEGLECTED IN EUROPE SAYS UN COMMISSION

Water supply and sanitation in rural and sparsely populated areas in Europe receive too little attention. That's the conclusion of the recent Seminar on Drinking Water Supply and Effluent Disposal Systems held in Albufeira, Portugal (18-21 October) organized by the Committee on Water Problems of the United Nations Economic Commission for Europe (ECE).

The Seminar's findings should sound familiar to those involved with water and sanitation in developing countries.

For low-populated, remote and rural areas, the participating representatives of European governments urged public authorities to promote the application of legal and administrative instruments such as technical guidelines, licensing, subsidies and pricing systems. Low-cost technologies, energy-saving devices and prefabricated installations could significantly reduce the costs of sewerage systems, participants found.

Economic, organizational and managerial constraints were seen as bigger hang-ups for European rural areas than purely technical issues. While a central administration authority is best suited to ensure optimal design of the whole system, operation and maintenance should be decentralized at the regional and local levels. In sparsely populated areas individual sanitation methods should be considered. Rural people, according to Seminar participants, should be involved in planning and decision-making for improved and new services. Rehabilitation and renewal of drinking water supply systems in old towns should also receive priority as up to one-half of the water supplies do not function at all. Groundwater infiltration which overloads sewage treatment plants is also a major problem.

In conclusion, the ECE seminar participants

recommended that the Committee on Water Problems envisage setting up projects on the respective merits of centralized and decentralized systems for drinking water supply and effluent disposal, including their socio-economic, technical and institutional aspects, as well as on changing investment priorities in drinking water supply and sewage disposal due to recent developments in national economies.

NEW TECHNOLOGY FOR SAFE WATER: REVERSE OSMOSIS

One very interesting piece of high-technology water supply machinery to come recently from West Germany is PEDRO. PEDRO is one clever fellow: by membrane filtration (or reverse osmosis or ultra-filtration) he can produce pure drinking water from saline or brackish water sources. The "ped" in PEDRO is the pedal-driven pump which enables an adult to produce in one minute, potable water: 0.75 liters from brackish water and 0.4 liters for seawater.

PEDRO has a pre-filter, a piston pump with flywheels and pedals, a reverse osmosis plate model, a back-pressure regulator, and gauges for pressure, conductivity and feed flow rate. The plate module contains 1.7 m² of sheet membranes which can be installed or exchanged without special tools.

For more information please contact: W. Hilgendorff, GKSS-Forschungszentrum Geesthacht GmbH, Max-Planck Strasse, 2054 Geesthacht, Federal Republic of Germany.

Another variation on the reverse osmosis theme, from another West German company, is the ROCHEM RO System. This Rochem RO Unit is designed for a self-controlled automatic 24-hour operation. In different shapes and sizes the Rochem RO systems can be rapidly installed for: 1) desalination of water for municipalities, new homesite developments, hotels and resorts, offshore drilling rigs, naval and merchant vessels, hospitals, military, mining sites, construction projects, and disaster relief; 2) desalination of saline water for industrial water supply for manufacturing processes, cooling tower make-up water, food preparation, ice plants and agriculture; 3) recycling of waste water for municipal and industrial use; and purification of water supply for boilers, medical and pharmaceutical use and the food industry. On site the pre-fab RO Unit has only to be connected to the raw water and the brine and pure water pipes supplied with an electric power source (diesel, solar or wind).

For more information: Rochem RO Wasserbehandlung GmbH, Stenzilring 14a, 2102 Hamburg 92, Federal Republic of Germany.

COURSES/SEMINARS

Training and Assistance in Public Health & Environmental Engineering for Developing Countries

The Department of Civil Engineering at the University of Newcastle upon Tyne in the United Kingdom has been training engineers and scientists from developing countries for the past thirty years. Its Public Health and Environmental Engineering Group includes five academic members of staff with considerable experience in developing countries. Regular programmes of training at both undergraduate and postgraduate levels are available in the Department. Short courses

are offered both in the Department and in requested locations in developing countries. Specific courses can be prepared to serve the needs of individual agencies or institutions in developing countries. Examples of possible topics are: Appropriate water supply and sanitation; Wastewater treatment process design; Industrial wastewater management; Water pollution control; Environmental administration; Environmental modelling; Hazardous waste management; Environmental impact assessment.

Research collaboration is an activity which particularly interests the group. And researchers at institutions in developing countries who feel their projects will benefit from the considerable background of experience of the Newcastle staff are invited to open up communication. Many institutions have already been assisted in developing research which is relevant to local conditions as well as in upgrading laboratories and teaching programmes. Research and advisory consultancy is undertaken by the group on specific contracts. In this way, a broad range of expertise is made available to international agencies, national governments and non-government organizations.

The Department also has a strong and active teaching and research group, with four academic members of staff, in hydraulic engineering (Hydraulics, Hydrology, Hydraulic Structures). When collaborating, the two groups together form a strong water resources group with considerable experience and expertise. The postgraduate courses in Hydrology and Water Resources at Newcastle are recommended by UNESCO and are well attended by students from developing countries.

For more information: Dr. M.B. Pescod, University of Newcastle Upon Tyne, Department of Civil Engineering, Claremont Road, Newcastle Upon Tyne NE1 7RU, United Kingdom.

First International Summer Programme on Health Services Evaluation: "The Evaluation of Drinking Water and Sanitation Projects"

June 20 to July 8, 1983; The Royal Tropical Institute, Amsterdam.

The Programme is open to medical doctors, scientists and engineers with at least four years' experience in environmental health programmes regarding drinking water supply, sanitation and similar subjects. The general objective of the programme is to enable specialists and policy-makers responsible for drinking water supply and/or sanitation programmes to appreciate the scope and limitations of various techniques used in the evaluation of such projects, and to use these in the setting up of appropriate evaluation schemes. Emphasis is on evaluation as a population oriented activity. This includes the assessment of needs and demands, effects on public health, technical efficacy and efficiency and utilization. Relevant epidemiologic principles will form an integral part of the theoretical curriculum.

The 1983 Programme will be organized by the Royal Tropical Institute, Amsterdam.

The following organizations and institutions are collaborating in the development and conduct of the Programme: the World Health Organization; the Ross Institute, London School of Hygiene and Tropical Medicine; the International Reference Centre for Community Water Supply and Sanitation; Dwars, Heede-

rik & Verhey (DHV) Consulting Engineers; Technical University, Dept. of Civil Health Engineering, Delft, The Netherlands.

Further information can be obtained from: Dr. J.M.V. Oomen, 1983 Programme Director, International Summer Programme on Health Services Evaluation, the Royal Tropical Institute, Mauritskade 63, 1092 AD Amsterdam, the Netherlands.

Land Subsidence Subject of International Symposium in Venice, Italy

A Third International Symposium on Land Subsidence is scheduled for March 19-24, 1984 in Venice, Italy. The symposium is sponsored by the International Association of Hydrological Sciences, with cosponsorship to be given by various international societies, organizations of the United Nations family, and several Italian government and international organizations.

Organized within the framework of the International Hydrological Program, the symposium will bring together international interdisciplinary specialists in the problems of land subsidence due to fluid withdrawal.

The program committee is especially looking for papers on legal, socio-economic, and environmental effects of land subsidence, engineering theory and analysis, karst "sink-hole" type subsidence, and subsidence due to dewatering of organic deposits or due to application of water (hydrocompaction).

Notice of preliminary intent to offer a paper and/or to attend the symposium should be sent to A. Ivan Johnson, Programme Chairman, Third International Symposium on Land Subsidence, Woodward-Clyde Consultants, 7600 East Orchard Road, Englewood, Colorado 80111, U.S.A. Details concerning the symposium arrangements, and instructions on preparation of abstracts, will be sent to those persons indicating interest in the symposium.

PUBLICATIONS

Emergency Vector Control after Natural Disasters

(Scientific Publication No. 419).

The Pan American Health Organization announces the publication of this new manual. It was prepared by the Working Group on Vector Control after Natural Disasters, formed after Hurricane David swept through the Caribbean in 1979. It is intended for evaluation teams responsible for determining the probability of vector-borne, disease-related emergencies after certain types of natural disaster. It is also meant to serve as a reference for governments that face post-disaster vector control policy decisions. Surveillance and control methods are discussed for specific vectors such as *Aedes aegypti*, anopheline vectors of malaria, pest mosquitoes, flies, rodents and others. The last chapter treats the recruitment, briefing and

activities of consultants and multidisciplinary teams.

Annexes include a list of vector surveillance equipment and supplies, pesticides and applications for the chemical control of vectors, rodents and pests, and a guide to insecticides, rodenticides and equipment. Published in English and Spanish.

To order, please write: Publications Office, PAHO, 525 23rd Street, N.W. Washington, D.C. 20037, U.S.A.

Water Supply and Sanitation in Developing Countries

This is an excellent, recently published, 368-pages volume, bringing together contributions of well-known authors.

The book covers water supply technology, low-cost sanitation options, management aspects, as well as subjects such as operation and maintenance of water supply and sanitation systems, and training of counterparts. It contains the revised and improved version of material from a course given at the University of Ottawa during June 1980 and is edited by Eric J. Schiller and Ronald L. Droste of that institution; published by Ann Arbor Science Publishers, P.O. Box 1425, Ann Arbor, Michigan 48106, U.S.A.

The Risk of Groundwater Pollution by On-Site Sanitation in Developing Countries, a Literature Review

In view of the proposed substantial investments in on-site sanitation, for both urban and rural areas, it is essential that the relationship between groundwater quality and on-site sanitation is investigated to ensure that improved sanitation does not cause excessive soil and groundwater pollution. An International Working Group concerned with aspects of environmental pollution due to low-cost sanitation proposed in 1980 that rigorous long term studies should be undertaken into the relationship between environmental pollution and on-site sanitation in different soils and hydrogeological conditions. As a first step the International Reference Centre for Wastes Disposal (IRCWD) in collaboration with the World Bank Technology Advisory Group (TAG) conducted a study including a review and analysis of the existing literature and the preparation of a document on Groundwater Quality Monitoring Methodology.

This publication is the outcome of the literature review and was prepared by IRCWD consultants: W.J. Lewis, S.S.D. Foster, Institute of Geological Sciences in Wallingford, England, and B. Draser, Ross Institute of Tropical Hygiene in London. Final editing was done by D. Stuckey, IRCWD.

The report is available free of charge from: the International Reference Centre for Wastes Disposal, Ueberlandstrasse 133, CH-8600 Dübendorf, Switzerland.

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

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

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