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CAIRNCROSS: STUDY HYGIENE PRACTICES - NOT HEALTH IMPACT

Health impact studies are not an operational tool for project evaluation, or "fine tuning" interventions in the water supply and sanitation sector. They are unpredictable, and do not say anything about progress of a project. Recent research further shows that the most significant impacts on disease incidence stem from the behavioural changes which constitute hygiene improvements, such as washing hands, food and utensils; and the disposal of children's stools. Access to water in quantity appears to have a greater impact on diarrhoea than water quality.

Health impact research specialist Dr. Sandy Cairncross of the London School of Hygiene and Tropical Medicine draws these conclusions from 12 recent health impact studies. He launched his personal assessment and synthesis at the November 1989 meeting of the Collaborative Council in Sophia Antipolis, France, in a presentation sponsored by U.S. AID.

"This may come as shock to water engineers", Mr. Cairncross said. Endemic diarrhoea is a water-washed and hygiene related disease, rather than a water-borne disease. That means that it is a disease whose transmission will be reduced by an increase in the volume of water used for hygienic purposes, irrespective of the quality of that water.

Dr. Cairncross has looked at longitudinal and case control studies on diarrhoeal disease in Bangladesh, Brazil, the Gambia, Lesotho, Malawi, Nicaragua, Nigeria, Philippines and Sri Lanka, which were all carried out by reputable research groups. The results of these studies are unpredictable; they are sometimes surprising in that they offer no firm interpretation. In particular, the small, quick studies offer little

information to assist in the interpretation of their results, Cairncross concluded.

Mr. Cairncross suggests to target environmental improvements at those whose environmental conditions are worst, rather than at particular socio-economic groups on which some researchers have focussed. For example, at those whose water sources are furthest away, or whose environment is most faecally polluted.

Such target groups are most likely to feel a need for water and sanitation improvements. They are most likely to respond to them by improvements in their hygiene. "While the evidence from health impact studies is hard to interpret in this respect, it is clear that in most of those where a significant health impact was found, the provision of water supply or sanitation had been accompanied by improvements in hygiene."

All the studies had difficulty in measuring even the quite simple behavioural factors such as household water consumption. The problem is that the necessary techniques for the objective study of human behaviour are not well known in the water sector. Cairncross: "No coherent attempt has been made to adapt them to the sector's needs."

He suggests to develop a set of guidelines for the study of hygiene practices. They would have to provide practical tools for the operational evaluation of water and sanitation projects. "A study of behavioural factors can be carried out more quickly, and much more cheaply than a health impact study. Its results would offer far greater power to diagnose problems in an existing programme. For example, a finding that health impact is small does not indicate how the impact can be increased. On the other hand, a finding that, say, latrines are not widely used will suggest measures to improve the situation."

Operational tools for the assessment of changes in hygiene practices would be particularly valuable for the evaluation of hygiene education programmes. "Little is known about the relative cost effectiveness of the various possible approaches to hygiene education. And without objective, preferably standardized methods to measure the impact on behaviour of each approach our understanding of this subject is unlikely to improve."

Mr. Cairncross proposed to organize an international meeting of experts to hammer out the main issues and to develop the draft guidelines.

Some representatives of donor agencies present in France showed interest in co-funding such a study, so

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there is a good possibility that there will be more news on this issue. IRC will report on any further development of such guidelines.

TARA PUMP FROM BANGLADESH INTO LOCAL PRODUCTION IN GUATEMALA

The TARA direct action handpump, developed in Bangladesh on the basis of the VLOM (Village-Level Operation and Maintenance) pump design is making new inroads in Latin America. Guatemala has followed the example of Bolivia to produce this pump locally. This is reported by Per Engebak from UNICEF in Guatemala.

Since September 1989, UNICEF Central America, Fondo de Inversión Social (FIS) and the UNDP/World Bank Handpump Programme jointly initiated a study to determine the possibility of implementing the local manufacturing of handpumps in Guatemala. The study concluded that there was enough demand, sufficient manufacturing facilities and a genuine desire from the governmental institutions for the carrying out of this venture.

From the beginning, it was agreed to use a direct action handpump that had already been well proven. Guatemala saw no need to start an independent handpump research programme, as the global range of experiences gained in the last years had resulted in numerous handpump designs that could easily be adopted in the region. Therefore, instead of 're-inventing the wheel', it was decided on the development of the TARA pump, due to its simple design, its easy manufacturing and its compliance with the village-level operation and maintenance of the VLOM concept. The Government decided to give the handpump a local identification and settled on the name MAYA pump (MAYA meaning "more water" in the native Indian language).

Another element that supported the decision to develop the TARA pump was the fact that the UNDP/World Bank had successfully implemented the local manufacturing of the YAKU handpump (Bolivian version of TARA) in the Oruro Pilot Project, in Bolivia. The choice was a logical one: the savings in time, money and energy were clear and the tangible accomplishments were surprising. In less than three months it was possible to accomplish the following:

- » Have shop workers understand the importance of the good workmanship and the quality that must go into the making of handpumps. The result: ten MAYA handpumps of acceptable quality were manufactured by a local shop by the beginning of December 1989.
- » Get Government institutions directly involved in the construction of specially designed well covers.
- » Successfully install handpumps in three nearby communities with genuine local involvement, which have already benefitted around 300 inhabitants.

- » Create timely awareness of the need to implement sound programmes of:
 - a quality control and inspection procedures in the manufacturing process
 - operation and maintenance at village level.
- » Obtain commitment by local institutions to expand the programme as rapidly as possible. UNICEF and FIS (Social Investment Fund) will purchase 120 MAYA handpumps early 1990, which will be installed by Guatemalan Government's D.S.M. (Environmental Sanitation Division) by late May 1990.

Neighbouring countries have demonstrated interest to obtain samples of the locally produced MAYA pump with a possibility of exporting it to these countries.

The current manufacturing capacity is 600 handpumps per year, which is only sufficient to satisfy a part of the local demand in Guatemala. A plan is now in preparation for doubling the manufacturing capacity to 1,200 handpumps per year.

The above accomplishments, although carried out through the joint effort of many institutions and individuals, were possible mainly due to co-operation from the UNDP/World Bank, whose engineer, Mr. Antonio Rivera, provided his experience and know-how gained in the Oruro project in Bolivia.

Thanks to the global efforts in co-ordinating handpump research and development, Central America has now been able to effectively tap into this technical know-how and combine it with technical co-operation between two Latin American countries, whereupon it has been possible over a remarkably short period of time to develop handpump manufacturing facilities for VLOM pumps in Central America.

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WOMEN, WATER AND SANITATION

"I don't want women's involvement in water and sanitation projects just because I like them, but because otherwise the projects don't work." This quote from Mr. Saul Arlosoroff, manager of the UNDP/World Bank Regional Water and Sanitation Group in Singapore illustrates the growing recognition of the importance of women in the water supply and sanitation sector. If one looks for an area where the International Drinking Water Supply and Sanitation Decade has really changed attitudes it is in community participation and in particular women's participation.

The Mar del Plata Action Plan in the seventies, which laid the basis for the Decade, was still quite general in this respect. Participation of the community accounted for only two rather general recommendations of the six

hundred recommendations made. However, recent international policy documents are a great deal more precise. The report of the Interlaken donors' meeting in 1987 suggested a fundamental change in the goals of water and sanitation programmes from counting numbers of installations towards improvements of social economic aspects. This meeting called for precise work plans, budgets and expertise for the software aspects, including women's participation.

A number of agencies are in the front line in this development. The more specialized ones focussing exclusively on women are UNDP's Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWESS) established in 1983, and the United Nations International Research and Training Institute for the Advancement of Women (INSTRAW), which produced a training package on women, water supply and sanitation. As an information agency in water and sanitation, IRC approached community participation and involvement of women as early as the late seventies. Since then IRC has been focussing on the integration of the software aspects with hardware.

In 1985 IRC, in collaboration with PROWESS/ UNDP, produced a literature review and annotated bibliography on participation of women in water supply and sanitation. With funding from the Norwegian government PROWESS/ UNDP has commissioned an annual follow-up on this bibliography.

"Many men and women involved in the Decade have told me that the atmosphere has gone from one where mention of women was met with ridicule and anger to one where those who present their experiences in this field are welcomed, acknowledging them as partners in reaching objectives", says Siri Melchior, PROWESS/ UNDP project manager.

Why this change? There are a number of facts which have become clear to everybody working in the sector.

- » In nearly all developing world cultures, women and children collect all the drinking and household water, on average some 40 to 60 litres per household per day.
- » Water carrying can be very time consuming and arduous work. Research in East Africa shows that it can absorb a quarter or more of daily food intake. The task thus leaves less energy and time for other essential activities such as breastfeeding, childcare, education, community development work, domestic work, food production and income generation. It also poses a serious health risk to women, in terms of reduced resistance to disease and direct hazards such as bad falls and miscarriages.
- » Women tend to be sick and are generally the main guardians of household cleanliness. The customs related to cleanliness and defecation are often surrounded by more shame for women than for men, thus burdening women with complicated arrangements.
- » As domestic managers, women decide which water they will use for what purposes in what season, how

much water they will collect, how they will store and use it and where they will dispose of the various types of wastewater. As educators they direct children's water collection and use, and guide them on sanitation, waste disposal and hygiene.

- » Recent studies further indicate that women's managing role extends, more than previously realized, beyond the home to the neighbourhood and community. Here their activities have included maintenance and simple repair of traditional water sources, upkeep of public hygiene, establishment of regulations on water use, implementation of user control, and exertion of pressure on local authorities to effect major repairs or replacements.

As Siri Melchior says; "Women are not a special interest group in water and sanitation. They are a mainstream interest group. They need to be both beneficiaries, with a lessened burden being a prerequisite for contributing to other development activities, and partners, as without their involvement projects risk being inappropriate and failing."

Based on the lessons learnt we plan a series of articles on women, water supply and sanitation in forthcoming newsletters, in which we will also come back on the work done by the various agencies involved. We invite contributions from readers on this subject.

INFORMATION ACTIVITIES REQUIRE SYSTEMATIC FRAMEWORK

To provide a methodical approach to the description, analysis, planning and evaluation of information activities IRC has developed a systematic framework. It attempts to place the various aspects of information provision in logical relation to each other and so help to identify strengths and weaknesses and ensure that important elements of the information transfer process are not overlooked. As announced in our last newsletter of 1989 (no. 188/189) we will describe the systematic framework in this second article on information exchange. The description given here is condensed to fit the space of this newsletter but you are most welcome to request IRC for a paper on the framework.

Information users

The potential users of information in specific fields are often widely scattered and sometimes difficult to identify, especially in interdisciplinary fields such as water supply and sanitation. A thorough knowledge of the characteristics, size and distribution of the estimated potential user population is, however, fundamental to the successful provision of information to meet its needs. It is therefore important to devote adequate time and resources to this aspect of the study.

In relation to the functions and responsibilities of our working lives, we all play five basic vocational roles, namely: learning, practice, communication,

management and administration, policy-making and planning.

These roles are neither mutually exclusive nor permanent. Managers and policy-makers may become involved in learning about new aspects of their subject; practitioners may become involved with policy formulation; administrators may also be involved with teaching or research. In any role, at any given time, an individual needs to know certain facts and how to perform certain tasks. The four basic channels through which such knowledge may be acquired are:

1. documentary records of various kinds
2. mass communications or broadcasting
3. formal training
4. informal contacts.

The same process of analysis of the "knowledge needs" of an individual or group may thus result in the identification of any one or more of these four channels as effective means of meeting those needs in that particular situation. The knowledge needs of a given individual may change constantly both during the working day and throughout his working life as he successively adopts one role after another. In most cases, however, an individual performs one dominant or primary role at most times.

Within a given sector such as water supply and sanitation, the knowledge needs of different types of workers, corresponding broadly to their dominant or primary roles, will be different and may also change over time. Thus, a village craftsman's needs will be different from those of a senior official in the Ministry of Water Resources; and the needs of a group comprising different types of workers (for example, village craftsmen, local administrators, rural health workers), and involved in a particular activity (for example, a new project), may change much more rapidly than those of similar workers in other areas where no new projects are being undertaken.

Five basic components or expressions of knowledge needs may be identified, which will vary in importance for an individual or group according to the role being performed at any given time. These are:

- » **CONTENT:** need expressed in terms of subject coverage e.g. of slow sand filtration techniques, and/or orientation or intention - e.g. whether content should be practical or theoretical, designed to communicate facts, change attitudes or inculcate skills.
- » **LEVEL:** need expressed in terms of level of approach to the subject, e.g. whether elementary or advanced, designed for students or for research workers, etc.
- » **MEDIUM:** need expressed in terms of the medium through which the knowledge is transferred, e.g. book, periodical article, microform, television broadcast, training workshop, village meeting, etc.

The medium may be particularly significant in relation to the user's ability to make use of a particular form, for example, whether he has a microfiche reader or has the skills to participate effectively in a meeting.

- » **LANGUAGE:** need expressed in terms of the language in which the information is presented and the user's ability to understand it. This need not necessarily mean a foreign language; the individual's own language may be used in such a way as to make it difficult to understand.
- » **CURRENCY OR TIMELINESS:** need expressed in relation to the timeliness or currency of the information. The importance of information will vary considerably according to the role being performed.

One thing an analysis of knowledge needs based on this framework might show is that while the best way of meeting the needs of some of the participants in a water supply project was to provide better access to documentary information, for others the best way would be to provide a training course perhaps to develop the skills and attitudes enabling them to participate effectively in the project.

The supply of information

It is impossible to establish an information system to serve the needs of a particular group of users unless a supply of information exists on the right subjects, at the right levels of presentation, in the right formats and languages, and with appropriate timeliness for the needs of the users.

A thorough study of the existing situation with regard to the supply of sectoral information in the local environment is essential. It should involve an analysis of the generation of information, particularly locally, and of both local and foreign production of information materials of all kinds. Factors affecting access to information, including official policies with regard to freedom of information, exchange controls, telecommunications channels, etc. must be considered. The facilities available for the distribution of information through newsletters, the book trade, through electronic means, etc. must be investigated, together with the facilities available from other information units in the sector. The aim is to get a picture of the facilities available for producing and disseminating information to the potential users outside the information system being studied.

In the next issue of the IRC Newsletter a case study will illustrate how the systematic framework works.

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DELHI: SAFE WATER 2000

A great deal of human happiness is at stake. Two billion people out of the over five billion inhabitants of our globe are still without access to safe water close to their homes and without sanitation facilities. Ten years ago, the countries of the world agreed at the United Nations to launch the International Drinking Water Supply and Sanitation Decade as a tool for promoting the goal of safe water and sanitation for all. The Decade will be over at the end of this year.

As a result of this promotional effort, 600 million more persons now have access to safe water and some 250 million people have had proper latrines installed for better health and hygiene. A great deal of human misery has been alleviated and economic gains in the billions of dollars have been achieved.

Much though, urgently remains to be done for the poorest unserved and underserved populations. This issue will be addressed at the Global Consultation on Safe Water and Sanitation for the 1990's to be held from 10-13 September 1990 in New Delhi under the banner of "Safe Water 2000", reports the first press release of the United Nations Development Programme in India.

The Government of India will host the meeting through a national secretariat under the auspices of the Department of Rural Development and the Ministry of Urban Development, as well as with other ministries such as Health, Women and Child Welfare, and Economic Affairs.

The United Nations Development Programme (UNDP) has established a secretariat in New York, with an information co-ordinator in Geneva. The

secretariat is responsible for the preparation of background issues and the convocation of influential planners and finance, health and environmental specialists from over 150 countries and 50 international organizations. These include UNICEF, WHO, the World Bank and voluntary organizations such as OXFAM.

Martin G. Beyer, the Swedish geologist well-known to many of us in the sector, has been appointed Executive Secretary for the Consultation. During the last sixteen years, he was Senior Adviser to UNICEF for water supply, sanitation and child hygiene. Mr. Beyer has also been involved in the Rural Water Supply Programme of the Government of India from its early stages in 1969.

The meeting will provide a forum for the exchange of experiences and for planning, in which the Governments of developing countries and External Support Agencies, including non-governmental organizations, will participate. The consultation is expected to arrive at strategies and build on worldwide experiences during the past years which could be supported by the international community. These will cover especially the low-income groups in rural and peri-urban areas and place emphasis on overall management. The discussions will also provide a basis for closer linkages with health and environmental concerns, such as improvements in the quality of the environment, water resources, waste water and solid waste disposal.

The results of the consultation will be brought to the attention of the United Nations General Assembly at its 45th Session in November 1990.

The outcome of the consultation and the subsequent resolutions expected from the UN General Assembly aim to stimulate governments and communities alike to give much higher priority, including financial, to the basic life-saving services of water supply and sanitation.

Each year, ten billion U.S. dollars are spent in the area of water and sanitation in developing countries. This amount is sufficient to cover less than half of all people in need of safe water and sanitation. With double that figure, sector specialists say wonders can be achieved. This would be a most productive investment, for less than two percent of what the world spends annually on military expenditures.



THE NICE STATEMENT ON COUNTRY LEVEL CO-OPERATION IN WATER AND SANITATION

Delegates from 15 developing countries and 45 external support agencies (ESAs) attending the meeting of the ESA Collaborative Council in Sophia Antipolis, France, from November 28 to December 1, 1989, gave a high priority to sending the following statement on the outcome of their deliberations to developing country governments and all ESAs. We are glad to share this Nice statement with our readers.

1. Revitalized campaigns to expand the provision of sustainable water supply and sanitation services to those in greatest need should be a major component of strategies to protect and enhance the environment and improve the health and well-being of all the world's population in the coming Decade.
2. The parallel goals of reversing environmental degradation and combatting growing health threats are firmly linked with progress in providing safe water and adequate sanitation. The vital integrated approach to all development calls for innovative collaborative structures among developing country agencies, and water supply and sanitation (WSS) agencies are taking the lead in promoting such collaboration at the country level. The external support community is committed to support these initiatives by helping with the necessary institutional development, providing long-term technical and financial assistance, and adopting common strategic approaches to optimize the use and available resources.
3. Country-level co-operation among governments, national and local organizations and ESAs is essential to maximize the use of limited financial, human and natural resources, to avoid duplication of efforts, and to achieve project sustainability.
4. We stress the importance of governments taking the lead in developing programme frameworks and co-ordinating implementation efforts within those frameworks. Each framework needs to include sound policies, priorities and plans, and should clearly define the roles of governments, communities, ESAs and non-governmental organizations (NGOs).
5. ESAs are prepared to assist governments in developing a programme framework, if requested, and should ensure that projects they support are in full accordance with the programme framework developed by the government.
6. ESAs must co-operate among themselves in supporting country initiatives and should identify ways of achieving this in each developing country.

7. We emphasize the importance of information exchange, monitoring, and management training, in achieving country-level co-ordination and efficient use of resources.
8. Country co-operation may be difficult, time-consuming and costly to achieve in the short term, but is essential for long-term sustainability.
9. Country-level co-operation will require flexibility and pragmatism on a country-by-country basis.
10. We are convinced that the goal of achieving sustainable water supply and sanitation services for the needy will be greatly assisted by redoubled efforts in country-level co-operation.

VERGNET PROPOSES MAINTENANCE CONTRACT

The possibility of privatization in drinking water supply and sanitation in developing countries is receiving increasing attention. Various multi- and bilateral donors suggest in their policy documents to look into privatization possibilities. The French pump manufacturer Vergnet, which is active in Africa, is now proposing a new policy for successful maintenance through contracts with villages.

In the first issue of the newsletter VSA La Lettre d'Afrique, Marc Vergnet explains how he sees this privatization work in practice. "We propose a maintenance contract between the VSA agent and the village. For a flat fee the craftsman will visit the well site several times a year for maintenance and to change locally produced wearing spare parts. In the event of a pump breakdown he will come at short notice. This is how, against an annual payment, we can guarantee that the pump will remain in good working order."

In West Africa 25 000 villages use the Vergnet Hydro footpump. The company has set up local subsidiaries in Cameroon and Niger, and Vergnet departments in larger companies in Mali, Burkina Faso and Togo. Competent technical teams will provide technical support and control pumps. More than 3000 area mechanics have been trained to dismantle and service the pump.

Spare parts supply and sleeve insurance could also be covered by the flat annual fee to be paid by the village. In case of obvious misuse of the equipment the parts will not be replaced free of charge. The French pump manufacturer cannot specify what the costs will be.

This obviously depends on the country, the region, taxes and custom duties.

We'll keep you posted about these maintenance and spare parts contracts.

APPLICATION OF THE INFORMATION FRAMEWORK (*Info series no.2*)

This brief case study illustrates in outline the application of the systematic framework for the description, analysis, planning and evaluation of information activities which was outlined in the previous issue (NL 190).

The case study is based upon a project for the strengthening of a number of documentation centres serving regional offices of the Ministry of Water in a developing country. The framework is first applied in carrying out a diagnosis of the existing situation and then in formulating proposals for action based on the diagnosis.

The first step in the diagnosis is to review existing sources of information on the background of the project and the present condition of the documentation centres. These sources include both published and unpublished reports and statistics as well as maps and plans showing the locations of the various centres and their internal layouts. The second step is to make field visits to the Ministry headquarters, to the regional documentation centres and to other relevant institutions.

These first two steps should provide a firm basis for the third, which is to initiate any further investigations which may be needed to obtain a clear picture of the situation. These may include, for example, surveys of information users and their knowledge needs; statistical analysis of records of the existing operations and services of the centres; observation of the behaviour of information users and staff; and interviews with staff members to assess their training needs. The findings of these various studies are then analyzed and appropriate proposals for action formulated.

Both the diagnosis and the proposals for action will focus on key aspects of the systematic framework of information provision.

The diagnosis will first attempt to assess the knowledge needs of actual and potential users of the documentation centres. The main users are the technical and managerial staff of the regional offices of the Ministry of Water, whose needs are shown, by interviews and a questionnaire survey, to be mainly current documentation on local problems,

supplemented by access to current technical periodicals to keep them abreast of recent developments.

A questionnaire survey of water supply and sanitation institutions and agencies in the country has identified the major producers of documentary sources of information and the principal types and series of documents which they produce. This shows that the kinds of documentation needed by users are being produced in the country; but the fact that users complain of not having access to them indicates that there is no proper system for identifying and collecting these documents. This is confirmed by a firsthand examination of the existing collections, which shows that they are haphazard, out-of-date and badly organized. The lack of foreign periodicals is not due to lack of money as such, but mainly to the fact that funds for documentation services are provided within the general administrative budgets of the regional offices, and are frequently used for other purposes by the regional directors.

Even if the collections were improved, the diagnosis shows that many users would still have difficulty in using them due to the scattered locations of the regional offices, the difficult terrain in some regions and poor transportation facilities. It is therefore essential for the documentation centres to be able to receive and satisfy requests from users who cannot visit them in person. The diagnosis also reveals that none of the regional offices have telex or fax facilities and that some do not even have a reliable telephone system, while in others the only telephone is located in the Regional Director's office, where it is not easily accessible to other members of staff.

Even if adequate communication facilities were available to enable the centres to serve users who cannot visit them in person, the users have to be able to find out which centres hold which documents in their collections. This is not possible at present since there is no central catalogue of the various collections and the few centres which have created their own catalogues are all using different and quite inadequate cataloguing systems. This is mainly due to the fact that very few of the staff of the centres have received any training in documentation work, while those who do have the opportunity to receive such training usually move on to other jobs soon afterwards, because of the lack of career prospects in documentation work in the Ministry of Water.

The results of the diagnosis of the existing situation are analyzed by the project staff and specific objectives, strategies and priorities for future action are provisionally identified. These are then discussed in detail, not only with the authorities at the central

Ministry level, but also with the heads of the regional offices, representative information users and, in particular, the staffs of the documentation centres.

With regard to the problem of collecting locally-produced documents, the proposals for action suggest that agencies under the control of central government - particularly those forming part of, or directly linked to, the Ministry of Water - be required, by Ministerial directive, to supply copies of their current non-confidential documents to one or more of the documentation centres.

It is considered neither feasible nor necessary for copies of all documents to be supplied to all the centres. On the other hand, the existence of the documents should be made known to users and staff of all the centres, and methods for supplying copies of them to users in other centres are needed. This implies the introduction of a degree of centralization in technical operations, which in turn suggests that all the regional centres should be linked in one documentation system centred in the main documentation unit of the Ministry.

These considerations point to the need to bring the various documentation centres and their staffs together in a separate department within the Ministry. This would provide better and more varied career opportunities for staff, facilitate the organization of centralized technical operations and the provision of information products and services, and, by giving the department its own subhead in the Ministry's budget, make the documentation centres less vulnerable to budgetary cuts imposed by the regional directors.

The creation of a new department for documentation services within the Ministry would thus be one of the major proposals for action resulting from the study. A fully detailed and costed plan for the establishment and operation of such a department might be prepared in the course of a follow-up assignment once the idea had been accepted in principle by the Ministry.

The above provides only a brief indication of how the systematic framework might be applied in the diagnosis of the existing situation and the preparation of proposals for action. A project with different aims

would require more emphasis to be placed on different elements of the framework, and even one with similar aims, if carried out in a different location, would almost certainly produce different findings and lead to different proposals for action. The framework provides a means of ensuring that key elements in the information transfer process are not overlooked, and that the interdependence of the various elements is fully taken into account in analyzing information activities in a particular situation.

NEW DISINFECTION PUBLICATION BY WHO

"Disinfection of Rural Small Community Water Supplies, a manual for design and operators" is the title of a new book published by the Water Research Centre on behalf of the World Health Organization Regional Office for Europe. The book relates particularly to the countries of the WHO European region but may have wider application.

The manual describes the principles of disinfection in simple, easy to understand language. It also gives practical measures required to make them work, and contains chapters describing source protection, supply systems and the management of rural water supplies. Some of the equipment used in Europe will not last in developing country conditions. The chapter on electro chlorination refers to sophisticated technology for capacities required by towns; small units which are simple to operate and maintain are not discussed.

One drawback is the lack of references made to the sources of information. Readers may require reference to the original source to be able to check the particular conditions under which certain techniques have worked. However, for those not knowledgeable about disinfection this manual provides a good general introduction.

The manual can be obtained at 5 pounds sterling from:
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OPERATION AND MAINTENANCE MEETING LAYS GROUNDWORK FOR ACTION

From 20-23 February an informal working meeting took place at IRC at the request of WHO to discuss the issue of operation and maintenance (O&M) of water supply and sanitation facilities in developing countries, and to prepare a detailed programme for the WHO-hosted meeting of the Working Group on Operation and Maintenance, which is scheduled to be held in Geneva from 19-22 June 1990.

The recent meeting, organized by WHO and IRC, was attended by representatives from GTZ, WASH, and the World Bank/UNDP joint programme, as well as the two organizing agencies, and was a follow-up activity resulting from interest expressed in an earlier small meeting in November, 1988. At that time, immediately after the International Drinking Water Supply and Sanitation Consultation in The Hague, a number of External Support Agencies met to discuss the status of O&M. The main conclusions of the 1988 meeting were that the magnitude of the problems needs to be more clearly established in order to increase awareness and status of O&M activities and organizations as one of the key components of sustainable water supply systems; that ESA support is necessary for the development of country-level policies and strategies; that case studies need to be elaborated to exchange and transfer experiences; and that a working group meeting should be organized to discuss opportunities for co-ordination of efforts aimed at improving operation and maintenance.

The approach of the February meeting was to analyze the problems of poor operation and maintenance in depth, so as to tentatively formulate the objectives of co-operative efforts to improve O&M. A limited number of activities were identified which would require the commitment and support of both governments of developing countries and ESAs.

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PROBLEMS AND EFFECTS

Several major problems contributing to the current state of operation and maintenance were identified. These include funding problems; difficulties in implementing O&M policies due to a lack of suitable models and approaches; lack of attention to appropriate, maintainable technologies; and inefficient sector, institution and user involvement and performance.

In order to develop clearer standards or indicators for evaluating O&M conditions in developing countries, the participants analyzed the effects of poor O&M.

Overall, due to poor O&M, benefits of water supply and sanitation programmes are not fully realized, governments can no longer realistically plan for the improvement of water supply and sanitation coverage, and the position of sector institutions is weakened - the political priority given to the sector cannot be translated into appropriate action due to a lack of influence and funds.

OBJECTIVES AND ACTIVITIES

The meeting participants suggested several strategic objectives towards the goal of improved operation and maintenance. Reaching this goal will contribute to an international effort to maximize sustainable water and sanitation coverage.

The Potential Role of External Support Agencies

Firstly, adequate funding for O&M must be ensured: resources from users, the government, and the external support community must be mobilized. Decreasing O&M costs and increasing efficiency, perhaps with funding from ESAs, is of paramount importance. Furthermore, ESAs could promote and support O&M development through realistic and balanced policies providing practical guidance to decision makers and programme staff. To do this they will need reliable data and monitoring systems to assess the status of O&M on a continuous basis.



At user, programme and country level, ESAs could also promote information generation and exchange projects and studies which relate positive O&M experiences.

Finally, ESAs could promote and support development of O&M systems and procedures which minimize the interference of commercial and political interests.

Water Supply Systems

Co-ordinated efforts at the country level could assure that information about maintenance requirements for available technologies are made available. Application of developed selection criteria accompanied by the development and implementation of a system of rules for suppliers, the government and WSS programmes, would be an important condition for the use of appropriate, maintainable technology. A multidisciplinary approach which considers economic, socio-cultural and environmental aspects is essential in developing such a system.

The quality of water supply and sanitation systems must be assured through the use of adequate planning and design procedures, and materials meeting required quality standards.

System implementation should be monitored to ensure proper construction with a view to proper maintenance. Involvement of the staff and institutions which will be in charge of O&M after construction is completed, can to a large extent contribute to the assurance that the system is built as it should be.

Proper arrangements for commissioning schemes with an appropriate guarantee period in order to increase accountability of those constructing and maintaining the systems is also very important.

Increased emphasis on the selection and protection of drinking water sources will contribute significantly to the normal functioning of water supply systems. Experience must be gained and past experiences reviewed in co-ordination with other development sectors, in particular at community level and with catchment areas affecting the water sources.

O&M responsibilities and support roles must be properly defined and the proper use of facilities ensured to guarantee continued functioning of systems. Furthermore, damage caused by users and vandals can be avoided through proper planning, design, implementation and organization. None of this can be achieved, however, if materials and other supplies necessary to keep the systems in good working order, are not available for those responsible for O&M.

Performance of the Sector, Institutions and Users

Essential for improved sector performance is clear definition of the responsibilities of government institutions, the private sector, ESAs, local authorities and users. Clear definition implies that responsibilities do not overlap unnecessarily and that all actors accept and are equipped to take up their role. Better exchange of information could greatly contribute to better sector performance and to more adequate

policies and legal frameworks for further sector development.

Several conditions can effect the efficiency of water supply and sanitation institutions:

- » clearly defined role
- » clear strategic objectives and full commitment of staff
- » accountability in terms of cost-effectiveness of their work in the sector
- » realistic manpower development and training plans
- » adaptation of organization structure to the institution's role.

The only way that users can feasibly carry out their O&M role is if favourable conditions exist, for example, through increased budgets by governments. Once conditions are favourable, community participation and hygiene education will be the key to higher user motivation and the development of viable user-based organizations. User's roles will generally be determined in consultations with communities and community groups.

In order to achieve the objectives described above, a series of activities were proposed at the meeting, for discussion at the working group meeting in June. They address key issues identified on the basis of the problem analysis, and included preparation of a position paper; development of O&M guidelines; data collection, literature reviews and information exchange; monitoring systems development and country workshops.

WORKING GROUP MEETING IN GENEVA

The purpose of the upcoming working group meeting is to develop an action plan to improve operation and maintenance practices as one of the components to enhance the sustainability of water supply and sanitation facilities. It will be arranged in three blocks dealing with problem and strategies, identification of steps and activities, and prioritization and action plan formulation respectively. The meeting is thus also seen as a means to gain support for high priority for O&M, and will aim to achieve the following results:

- » gain support from ESAs, country institutions and sector specialists for increased efforts and effective allocation of resources to O&M
- » reach agreement on the scope of joint efforts during the next decade
- » outline a joint strategy and framework to improve O&M
- » have concrete activities proposed by meeting participants.

Ideally, participating ESAs will fund participants from a developing country, so that 50% of the participants will represent a developing country institution or programme. This will assure good input from those facing O&M problems in the field and those responsible for improving O&M practices. It is also hoped that donor agencies' project managers of water

supply and sanitation programmes currently addressing O&M problems will participate, and will support the participation of senior national staff with whom they collaborate.

IRC, as a member of the organizing committee, looks forward to reactions to this article.

UNICEF WORKSHOP ON AFRICAN EXPERIENCES ON MAINTENANCE IN JULY

In Uganda community-based maintenance will be the topic of a regional workshop hosted by UNICEF/Kampala. The "Workshop on Exchange of Experience on Community-based Maintenance Systems" is scheduled for July 31 through August 4, 1990. It will try to further the development of viable community-based maintenance concepts through the presentation and discussion of a few African case studies, a field visit and working group sessions. For information contact Michael C. Nowacki, Senior Project Officer WES, UNICEF P.O. Box 7047 Kampala Uganda.

FORTHCOMING EVENTS

With the International Drinking Water-Supply and Sanitation Decade drawing to a close, the number of international meetings seems to be increasing. Below, a selection of the most relevant consultations, seminars, conferences, and exhibitions in the water sector and related sectors for the rest of this year are listed for your information. Of course we will try to report relevant findings from these meetings in future issues of this newsletter.

5-7 May 1990

ACTION FOR A COMMON FUTURE

Bergen, Norway

Contact: World Commission on Environment Development (Government of Norway)
Economic Commission for Europe
CH-1211, Geneva 10, Switzerland

7-11 May 1990

REGIONAL CONSULTATION ON SAFE WATER AND SANITATION IN THE 1990's

Abidjan, Ivory Coast

This is the first of two consultations to outline regional sector issues and possible solutions to be tabled and discussed at the Global Consultation in September 1990 in New Delhi. It will be co-hosted by the African Development Bank and the UNDP/World Bank Regional Water and Sanitation Groups.

Contact: The Manager, Community Water Supply and Sanitation Unit, Division of Environmental Health
WHO, 1211 Geneva 27, Switzerland

21-25 May 1990

INTERNATIONAL SYMPOSIUM ON DEVELOPMENT OF SMALL-SCALE WATER RESOURCES IN RURAL AREAS

Khon Kaen, Thailand

Contact: Carl Duisberg Gesellschaft
c/o Asian Institute of Technology
P.O. Box 2754, Bangkok, Thailand

4-8 June 1990

REGIONAL CONSULTATION ON SAFE WATER AND SANITATION IN THE 1990's,

Manila, Philippines

This is the second of two consultations to outline regional sector issues and possible solutions to be tabled and discussed at the Global Consultation in September 1990 in New Delhi. It will be hosted by the Asian Development Bank.

Contact: The Manager, Community Water Supply and Sanitation Unit, Division of Environmental Health
WHO, 1211 Geneva 27, Switzerland

5 June 1990

WORLD ENVIRONMENT DAY

Launching in Mexico

13-15 June 1990

LAWPRC CONFERENCE ON INNOVATIVE COST-EFFECTIVE SEWAGE COLLECTION AND TREATMENT SYSTEMS

Sao Paulo, Brazil

Contact: Dr. S.A.S. Almeida
Multiservice
Av. President Wilson, 210-9th floor
20030 Rio de Janeiro, Brazil

24-27 June 1990

GLOBAL WATER POLICY AND TECHNOLOGY SUMMIT

Cairo, Egypt

First of five planned high-level regional summit meetings to galvanize world attention on the issues of water scarcity and water contamination.

Contact: Dr. Joyce Starr, Chairman and Director
Global Water Policy and Technology Summits
United States Global Strategy Council
Suite 300, 1555 Connecticut Avenue
NW, Washington D.C 20036, USA

15-20 July 1990

3rd INTERAMERICAN SYMPOSIUM ON HEALTH EDUCATION

Rio de Janeiro, Brazil

Organized by the International Union for Health Education (IUHE) Regional Offices for Latin America, the conference will address "Health changes in the Americas for the year 2000".

Contact: Noemia Kligerman, IUHE/ORLA
Nutes - Box 8082
Rio de Janeiro, Brazil
or Michael Palko, IUHE/NARO
P.O. Box 2305
Station D, Ottawa
Ontario, Canada K1P 5W5

26 July - 3 August 1990

**15TH IAWPRC BIENNIAL INTERNATIONAL
CONFERENCE ON WATER POLLUTION
RESEARCH AND CONTROL**

Kyoto, Japan

Contact: Prof. T. Matsuo
Dept. of Urban Engineering
University of Tokyo
Hongo 7-3-1, Bunkyo-ku,
Tokyo 113, Japan

6-10 August 1990

**LAWPRC CONFERENCE ON LOW COST ENERGY
SAVING WASTE WATER TREATMENT
TECHNOLOGIES**

Harbin, China

Contact: Secretariat ISLEWTT Harbin 90
Dept. of Environmental Engineering
Harbin Architectural and Civil Engineering
Institute
144 Daahzi Street
Harbin 150006, China

20-24 August 1990

**INTERNATIONAL SYMPOSIUM ON REMOTE
SENSING AND WATER RESOURCES**

Enschede, The Netherlands

Contact: Secretariat International Symposium on
Remote Sensing and Water Resources
ITC (BPC), P.O. Box 6
7500 AA Enschede, The Netherlands
tel.: 053-320330
fax: 053-304596
telex 44525 itc nl

27-31 August 1990

**16 WEDC CONFERENCE : INFRASTRUCTURE
FOR LOW-INCOME COMMUNITIES**

Hyderabad, India

The conference will be co-organized by the Regional
Centre for Urban and Environmental Studies
(RCUES).

Contact: Professor John Pickford, Water Engineering
and Development Centre (WEDC)
Loughborough University of Technology
Leicestershire, LE11 3TU
United Kingdom
tel.: (0)44 509 222390
telex: 34319 unitec g
fax: 0(44) 509 610231

10-14 September 1990

AQUATECH '90

Amsterdam, The Netherlands

Contact: Industrial Presentations (Europe) BV
Europaplein
1078 GZ Amsterdam, The Netherlands
tel.: +31 20 5491212
fax: +31 20 464469
telex: 16017

10-14 September 1990

**GLOBAL CONSULTATION ON SAFE WATER
AND SANITATION FOR THE 1990's**

New Delhi, India

Contact: Dr. Martin Beyer, Executive Secretary
Global Consultation New Delhi
UNICEF, 3 United Nations Plaza
New York, NY 10017, USA
tel.: (212) 326-7000
telex: 175989

or Mrs. Eirah Gorre Dale, Information Co-ordinator,
Safe Water 2000

UNDP

1211, Geneva 10, Switzerland

tel: (41 22) 798.58.50

fax: (41 22) 798.75.24

23-28 September 1990

WORLD RENEWABLE ENERGY CONGRESS

Reading, United Kingdom

Contact: Professor A.A.M. Sayigh, Dept. of
Engineering, University of Reading
Whiteknights
P.O. Box 225, Reading RG6 2AY
United Kingdom

29-30 September 1990

WORLD SUMMIT FOR CHILDREN

New York, USA

Called for by UNICEF

November 1990

**UN GENERAL ASSEMBLY : FORMAL CLOSING
OF THE INTERNATIONAL DRINKING WATER
SUPPLY AND SANITATION DECADE**

New York, USA

November 1990

**INTERNATIONAL SEMINAR ON
GROUNDWATER RESOURCES MANAGEMENT**

Bangkok, Thailand

Contact: Dr. Asit K. Biswas
President, IWRA, 76 Woodstock Close
Oxford OX2 8DD
United Kingdom

Chief Editor:	Dick de Jong
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OXFAM TESTING KIT WINS AWARD

The development of the OXFAM DelAgua water testing field kit for use in developing countries has won the Appropriate Technology Award in the United Kingdom. Chosen from 159 entries the winning kit was developed by the Robens Institute of Health and Safety at the University of Surrey with an initial grant from OXFAM of 3000 pound sterling. It is now self-supporting. About 125 kits a year, at 950 pound sterling each, have been sold over the last three years. There are now about 470 kits in use in 40 countries.

"We hope that this award will make a valuable contribution to the quantity versus quality debate in the global provision of water supplies", said David Wheeler, co-ordinator at the Institute. The Appropriate Technology Award is one of the four categories in the Better Environment Awards for Industry sponsored by the Environment Foundation, the Department of the Environment and Shell UK Ltd.

Two well-known water specialists, Dr Barry Lloyd from the University of Surrey and Jim Howard of OXFAM, have been very much involved in the water testing kit: Dr Lloyd in testing it out in Peru and Jim Howard in promoting its use wherever he can. It is a robust, mobile and easily maintained unit for field use, providing immediate analysis of village water supplies. Local staff are trained to use the kit, so they no longer

need to travel long distances to laboratories, if these exist at all.

OXFAM, as an agency involved internationally in emergency and other water supplies, realizes the immense value of this ability to test on site. "We envisage and plan for this test equipment to become a standard tool in providing safe water for the poor," said an immensely pleased Jim Howard.

AN INTERSECRETARIAT GROUP FOR WATER RESOURCES

Co-ordination between the different United Nations agencies concerned with water resources is handled by the Intersecretariat Group for Water Resources. The most recent meeting, where 16 UN bodies and specialized agencies were represented, took place at UNDP in New York from 24-27 October 1989. The agenda covered reports on the International Drinking Water Supply and Sanitation Decade and regional issues such as the water situation in Africa. In addition environmental aspects of water resources were discussed along with climate change, the prospects for UNESCO's International Hydrological Programme (IHP) IV and approaches to demand management. The next meeting of the Group will take place in 1990 at the World Meteorological Organization (WMO) in Geneva.

Dr. John Rodda
World Meteorological Organization (WMO)
P.O. Box 2300
1211 Geneva 2, Switzerland

SECTOR POLICY PAPER: THE NETHERLANDS

This summary is the first of a series on policies adopted by international donor organizations regarding their work in the drinking water supply and sanitation sector in the coming years.

With the end of the International Water Supply and Sanitation Decade approaching, in retrospect it has become clear that its aims were more of a challenge and a stimulus than a feasible, concrete objective. Partly due to increasing urban and rural population problems and an economic recession, it was estimated



that in 1985, even more people were without proper facilities than at the beginning of the Decade.

A major concern in international consultations has been the need to find new ways of sustaining and increasing the momentum for both the construction of new facilities and the improvement and maintenance of existing ones. The importance of hygiene behaviour in relation to use of facilities has been found to be equally important. The recognition of these problems during the Decade has resulted in a number of recommendations which have in turn influenced the approaches adopted by international agencies, including the Netherlands Government, for their drinking water and sanitation-related policies for the 1990s.

The policy memorandum issued by the Netherlands is set in the context of Dutch development co-operation policy in the fields of health care and rural development, and is designed to stimulate the development of general policy proposals, manageable goals and practical guidelines.

Considerable progress in construction and management of new drinking water and sanitation and maintenance of existing facilities was made during Decade. However, a host of problems have yet to be overcome to reach future goals.

Problems

- * User participation
- * Organizational capacity
- * Cost effectiveness and financial self-sufficiency
- * Techniques and local manufacture
- * Uneven development
- * Co-ordination and co-operation

Dutch Involvement

The Netherlands has taken an active interest in the improvement of drinking water supply and sanitation facilities in certain developing countries for some time now, and in recent years has allocated 100-150 million guilders per year to the sector. Additionally, many institutes, educational establishments and agencies are also involved in the growing interest the non-governmental sector is showing towards Drinking Water and Sanitation activities.

The Netherlands supports numerous and varied drinking water and sanitation facilities in developing countries. These range from single projects with a specific aim to multidisciplinary, integrated projects integrating elements ranging from water supply and waste disposal to hygiene education. Funds are also provided to assist with acquisition of spare parts, equipment and other materials.

Principles

The Netherlands will continue to devote its expertise and such resources as it can to the drinking water supply and sanitation sector, using the following carefully considered criteria:

- » Priority will be given to 'programme countries and regions' - countries with which the Netherlands has a longstanding development relationship.
- » In consultation with the host government, and with its agreement, priority will be given to regions or limited areas within programme countries.
- » Activities supported by the Netherlands will be consistent with the Netherlands' as well as the local partner's policy framework and development plans for the sector. Where such frameworks are lacking, their development will be encouraged. Where possible, Dutch support will be provided for an extended period. The objectives, activities, actors and financial, material and professional input of the various parties will be described and agreed.
- » Drinking water supply and sanitation facilities will lead to concrete, quantifiable results in so far as possible. Preparatory studies on needs of the population or hydro-geological suitability will qualify for Dutch support where these activities can be followed up by a concrete project - activities supported by the Netherlands should enhance the potential for autonomous sectoral development. Dutch assistance will therefore be geared towards local capacities. The transfer of knowledge and demonstration will remain key elements in Dutch assistance.

Objectives

Contribution to a lasting and effective improvement in the health and living conditions, primarily of the poorest population groups in rural areas, regional centres and intermediate towns constitutes the overall Dutch objective in supporting the sector.

Specific objectives relate to improving the quantity, quality and/or accessibility of drinking water supplies and sanitary facilities. Other activities include utilization and management of ground and surface waters, measures to improve the recovery and/or purification of waste substances, and steps to prevent or reduce environmental pollution.

Guidelines

Two overall objectives stand central to Dutch policy: durability and effectiveness. A careful examination will be needed for each project to determine which aspects require special attention (e.g. participation, cost

coverage or co-ordination). The following Dutch guidelines apply in order to attain these objectives:

- » *community participation*: It will be assumed that the users will play the fullest possible role in planning, implementation and especially maintenance in all the facilities supported by the Netherlands.
- » *financial self-sufficiency*: The Netherlands will continue to operate on the principle that utilization and maintenance costs should be borne by the users or the national authorities. The Netherlands will promote the overall financial independence of the sector, which implies that it will also encourage users and national agencies to bear the cost of interest and depreciation. Grant aid will be provided where this is not yet possible. Project proposals will be required to determine the social and financial capacity of users and the viability of activities as well as how and by whom the costs of utilization and maintenance are to be met. These preliminary studies should result in specific agreements beforehand between users and national authorities concerning charges and collection of payments. There must be a self-supporting system to cover utilization costs.
- » *institutional development and transfer of knowledge*: Due to budgetary constraints on the part of central governments, and with a view to community involvement in aid activities, the Netherlands supports the present trend towards decentralization of national drinking water supply and sanitation agencies down to user level. Support will also be provided for initiatives to transfer relevant activities to the private sector (e.g. handpump manufacture).
- » *technology*: Where possible, the Netherlands will support research programmes for the development of simple and affordable technology for the poorer population groups in developing countries. Local, commercial manufacture will also be encouraged. Limited support in the fields of training in business management and product development may be considered.
- » *balanced development*: In both urban and rural areas, the Netherlands' policy favours the balanced improvement of water supply, sanitary facilities, drainage and waste disposal. Active and effective co-operation and co-ordination between the national drinking water supply and sanitation organizations will therefore be encouraged. In the preparatory phase, intersectoral planning will be encouraged in conjunction with information activities.

It is assumed that prior to implementation, projects with Dutch support will be checked for adverse effects on the environment, and accompanied by recommendations regarding the limitation of these effects.

- » *co-ordination and co-operation*: The Netherlands will actively stimulate co-ordination and co-operation between donors, e.g. by means of close collaboration and consultation with international bodies such as UNDP, WHO and the World Bank. The Netherlands will continue to participate actively in international consultations on sectoral policies and strategies, which received a particular boost during the International Water Decade.

Closer co-operation will be pursued in programme countries and regions with the World Bank's Sector Development Teams, and the Netherlands will take part actively in the sector policy talks between recipient countries and donors.

Transfer of information and knowledge between national and international organizations and development of relevant stocks of knowledge will be encouraged as an integral element of projects.

The Sector Policy Paper Water can be obtained from:
Information desk
Ministry of Foreign Affairs
P.O. Box 20061
2500 EB The Hague
The Netherlands

IMPACT OF PIPED WATER ON CHILD HEALTH IN SAO PAULO

In January this year we reported the views of Sandy Cairncross of the London School of Hygiene and Tropical Medicine who questioned health impact studies and suggested to measure hygiene practices instead. Yet results from health impact studies continue to reach us. Here is one that reportedly shows impact of piped water on child health in Sao Paulo, Brazil.

In a recent article in World Health Forum, Monteiro and colleagues found that improved water supply contributed substantially to the fall in infant mortality rates in Sao Paulo. Health surveys showed that infant and childhood mortality rates fell by about 50% and 70% respectively between 1973 and 1983. In that same period the proportion of households with piped water increased markedly from 68% to 96%.

According to the authors' case-control study, among infants from houses without piped water the mortality associated with diarrhoea was four times greater than among infants from houses where such a water supply

existed. The increase in coverage corresponds to a 43% reduction in deaths associated with diarrhoea. This would account for half the observed fall in such deaths and approximately 11% of the fall in overall infant mortality. A further 9% reduction can be attributed to an increase in breast-feeding and the remaining part to improved coverage and quality of the health services.

Monteiro, C.A. et al. **Better prospects for child survival** World Health Forum, vol. 10, no. 2 (1989), p. 222-227

TARA HANDPUMP

In IRC Newsletter 190 of January we reported experiences in Nicaragua with local production of the Tara handpump from Bangladesh. The World Bank has recently published a paper about the development of this pump under the title, **The Tara Handpump: the Birth of a Star**, by Bent Kjellerup, William K. Journey, and Khawaja M. Minnatullah.

The Tara (Bengali for "star") is a low-lift, direct action handpump developed in Bangladesh, where it has been adopted as the standard handpump in areas where the depth to the water table exceeds the normal suction limit for handpumps (about 7.5 m), and is less than 12m. The paper follows the development of the Tara with special reference to field experience in the Mirzapur Handpumps Project. After a description of the Tara's components and of its local production, the paper concludes with a case study from Bolivia, the first country outside Bangladesh to implement a programme based on the Tara design.

The authors conclude that perhaps the most important ingredient for the success of the Tara pump was that time constraints were not forced on the development exercise.

The 35-page document was published as no. 1 in the Water and Sanitation Discussion Paper series and is available free of charge from:

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

NEW PUBLICATION

Mara, Duncan ; Cairncross, Sandy. **Guidelines for the Safe Use of Wastewater and Excreta in Agriculture and Aquaculture : Measures for Public Health Protection**. Geneva, Switzerland, World Health Organization (WHO), 1989. xii, 187 p.
ISBN 92-4-154248-9
Price: Sw.fr. 35

These guidelines, addressed to senior professionals, are intended to promote the safe reuse of wastewater and excreta for agricultural and aquacultural fertilization. A review of the history and benefits of wastes reuse includes many examples of existing practices. Types of excreta-related diseases, their routes of transmission and the risks of infection are discussed in the light of recent epidemiological advances, with particular emphasis on control of microbiological contamination. The socio-cultural implications of the reuse of wastes, notably of excreta-derived products, are considered, and the environmental benefits of the practice are outlined. Feasible and appropriate control measures for public health protection are comprehensively reviewed, and the institutional, legal and financial aspects of project planning and implementation are treated in detail.

Available from: WHO publication distributors or direct from: Distribution and Sales
WHO, 1211 Geneva 27
Switzerland

IRC COURSES

As some of our readers may be aware, IRC in collaboration with MDF and IHS is organizing two short courses in 1990. The three-week course "Management for Sustainability" will take place 11-29 June and will be repeated in November, and the two-week course "Community Water Supply and Environmental Sanitation for Low-Income Urban Communities" will take place 27 August-7 September. For these courses a limited number of places are still available. Participants or their sponsors are advised to contact IRC's Ms Izabella Wimmers as soon as possible. The 1991 programme will be issued shortly.

Chief Editor:	Dick de Jong
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	Nicolette Wildeboer
	Izabella Wimmers

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AFRICAN COUNTRIES TO ACCELERATE PROVISION OF WATER AND SANITATION SERVICES

Intensified efforts to accelerate the provision of water supply and sanitation services to the people of Africa resulted from a gathering of experts from 47 African countries and 30 donor agencies in Abidjan in early May. During the first three days of the Africa Rural Water Supply and Sanitation Workshop, some 130 participants focused on problems of rural areas, where three quarters of Africa's rural inhabitants presently do not have access to satisfactory water and sanitation systems, with appalling health consequences.

One major conclusion drawn at the meeting is that services can be provided more rapidly and in a more sustainable way, but that concerted efforts are needed to change the emphasis of government support. Instead of taking full responsibility for providing new systems and then finding it impossible to provide the resources to maintain them, experts say that community organizations, private sector companies and non-governmental organizations hold the key to progress.

There are many successful examples in which community management provides sustainable supplies, while those operated by governments fail to perform properly. However, the meeting emphasized that government's role is crucial in many fields, including policy formulation and regulation, sensitization of people to the need for better sanitation and hygiene, building up the capacity of local and private sector

organizations to look after installed facilities, and in funding and resource mobilization.

As a result of the conference community and especially women's participation will be an integral part of project development and implementation, and the agreed approaches will include the development of methodologies and systems for involving women in the formulation of strategies and the planning of programmes.

Participants considered the entire water and sanitation sector and reached agreement on the approaches and strategies needed to tackle their formidable problems in meeting the water supply and sanitation needs of the continent's urban and rural populations in the 1990s. A conference statement issued at the end of the regional meeting stated that each country is now committed to promoting sector development strategies and policies which will ensure equitable provision of water supplies and improved sanitation facilities to those in greatest need. Despite the severe economic plight of many countries, the continuing effects of natural disasters, and the increasing problems caused by rapid urbanization, African countries face the 1990s with confidence that their joint efforts can make the most effective use of scarce resources.

A detailed agreement on strategic approaches will now be finalized and widely disseminated, beginning with Safe Water 2000 - the Global Consultation on Safe Water and Sanitation for the 1990s - being organized by UNDP and hosted by the Government of India in New Delhi from 10-14 September 1990.

The workshop and regional consultation were jointly organized by the African Development Bank, the World Bank and the United Nations Development Programme. Participation from the African countries was made possible by major contributions to UNDP's Trust Fund from the Commonwealth Science Council (UK), CIDA (Canada), DANIDA (Denmark), NORAD (Norway) and SDC (Switzerland). Other contributors included the Kuwait Fund, FINNIDA (Finland), France, the Federal Republic of Germany, the Netherlands, Sweden, USAID, UNICEF, WHO, and UNDP/UNDTCD.



DUTCH POLICY ON WOMEN, WATER AND SANITATION

(item 2 of a series)

Women carry prime responsibility for water and hygiene in and around the home, and thus have a vital stake in appropriate planning, proper maintenance and effective management of improved facilities. To contribute to the shaping of favourable project conditions for women the Dutch Directorate-General for International Co-operation published a policy paper on the subject last year, in which IRC had significant input. "Women, Water and Sanitation, policy on an operational footing: main points and checklist" is published as No. 2 in the Sector Papers on Women and Development.

This sector paper briefly describes the traditional and new roles of women in the area of water and sanitation and what bearing these roles have on the wellbeing of households, communities and women themselves. It stresses how project success depends on recognition and upgrading of these roles and it outlines practical steps to facilitate women's genuine and profitable involvement, keeping in mind that their prime responsibility should never become their sole burden.

Below we list the key statements and questions which are raised in the paper in fuller detail.

- » To identify women's management role in the area of WSS, the question 'how' maintenance is done appears to yield more revealing answers a 'who' is officially in charge.
- » When women are enabled to take on new activities on the basis of freed time and energy, they tend to use any additional income, knowledge, or other advantages that they derive from these activities, to meet basic family needs.
- » In essence, WSS provisions always remain community responsibilities. This implies that the many connected activities, including the new work to realize and sustain improvements, should not be allowed to become women's sole burden, thereby increasing the already heavy demands on their time and energy.
- » Women's key roles and primary interests in the area of WSS mean that improvement projects cannot be effectively designed or carried out without their involvement. Social specialists with experience on women's involvement should already be included in a project preparation team.
- » Women's unique local expertise makes them indispensable as informants on possible and suitable location, availability and reliability of water sources, the preferred use of water and waste, and the social acceptability of water sources and sanitary arrangements.
- » Women's intimate social knowledge is also of use in finding suitable training candidates for local maintenance and management: people with sufficient time, commitment, trustworthiness and skills.
- » Women are familiar with the traditional learning systems that are particularly relevant for effective health education and project communication as a whole.
- » Experience shows that women can financially and practically assist in low-cost construction, that they can come up with their own improvements on the basis of their specific skills and insights, and that they have access to places which external projects can hardly reach for cultural or demographic reasons.
- » Technical maintenance of traditional facilities has always largely been in the hands of women. It seems cost-effective to continue this arrangement with new facilities requiring new techniques, provided that a supportive organizational framework is set up, that proper training is given and that a satisfactory balance between benefits and workloads is achieved.
- » Wherever possible, women's traditional role in informal management should be extended to new, more formal situations. This is warranted by their capacities in this area, and by the advantage of having management arise from the main group of actual users.
- » Without the users' participation in all project phases and without appropriate supplementary health education, it is unlikely that improvements will be wholly accepted and understood. As a result, maintenance will be of poor quality, while an overall change in hygienic behaviour will not occur.
- » Poor women are the target category with the highest degree of motivation in terms of felt needs. It is they who should primarily be approached and asked what precisely they do, how and why they do it, what problems they face, what expectations they have and how their participation can be organized.
- » Even with limited delegation of responsibility and authority to the local level, users can always meaningfully participate in decisions on design and location of water sources and sanitation facilities, and on additional provisions for washing, bathing or cattle watering. They can also contribute to decisions on additional funding, manner of payment

and control over operation such as operation hours and accountability of operating staff to the community they serve.

- » Health education should focus on (1) the marketing approach and (2) the participatory approach. This means that (1) the needs and capacities of each target group are first investigated, with particular attention to women's interests, problems and practical possibilities, upon which the outline of a suitably adapted programme is evolved. It means (2) that target groups are assisted in the joint identification of problems and in joint decisions on solutions. Only then will certain improvements become acceptable and only then will the health message be effectively understood.
- » Project staff should give users sufficient information on the technical, financial, managerial, health and workload implications of the various options. Users can then combine this external information with their own knowledge and experience, with advantages and disadvantages, and arrive at careful choices. User information thus is an essential requirement for genuine and effective participation in decision-making.
- » To play a useful role in careful handling, simple repair and preventive maintenance of facilities, women should get sufficient training, compensation for workload increases, back-up for larger repairs and a substantial share in the overall management of the service.
- » Questions to evaluate impact include: Do the new facilities continue to function? Are they actually and adequately used? Have hygiene risks been reduced? Do women see the new facilities as improvements in terms of hygiene, workload and other benefits? Have women any suggestions for adaptation of facilities or improvement of arrangements? Are any (groups of) women excluded from the benefits, disproportionably taxed by workload increases, or actually robbed of income?

The policy paper also contains a handy checklist for project formulation, implementation and evaluation.

Copies are available from:

Information Desk
Ministry of Foreign Affairs
P.O. Box 20061
2500 EB The Hague
The Netherlands

MAINTENANCE CONTRACTS - ALSO IN INDIA

On the Nepal border of Uttar Pradesh, India, tribal women are utilized as small time contractors for repair and maintenance of the state's India Mark II handpumps. This is reported by Mansoor M. Ali, UNICEF Project Officer - Handpumps in New Delhi in reaction to the maintenance contract proposal from French pump manufacturer Vergnet in Africa (see IRC Newsletter 191 of February 1990).

In the area of Tharu tribals in Lakhimpur Keri district at the foot of the Himalayas 167 India Mark II pumps have been installed. Since May 1989 15 tribal women have been trained at village level in preventive maintenance and repair jobs under the Training to Youth for Self Employment programme. After this one month training the women sign a maintenance contract with the Uttar Pradesh Water Board. They are supplied with a tool box and bicycle.

Each woman mechanic has the responsibility of maintaining 15 - 20 pumps in her own and neighbouring villages. The women not only do monthly inspections; they also teach and guide users about proper use of the pumps, proper drainage, keeping the pump platform and surroundings clean and the importance of safe drinking water. When repairs need to be carried out below ground level, four or five mechanics work together. For each pump 350 rupees are allocated for maintenance as well as spare parts.

The women are paid ten rupees per month per handpump through the village panchayats. The Hindu newspaper reported that for most women 190 or 200 rupees may be an interesting monthly income, but that for some of them the feeling of elevation counts more. The women derive a sense of possession and pride from having been selected to play a supervisory role in the community as pump mechanic.

UNICEF and the Dutch Government support this water supply programme in Uttar Pradesh.

For more information contact:

Mansoor M. Ali
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UNICEF
UNICEF House
73 Lodi Estate
New Delhi - 110003
India

SPECIAL ISSUE ON WATER FROM NEW INTERNATIONALIST

"Thirsty for Life - The Power of Water" is the banner under which the UK-based New Internationalist magazine has devoted its May 1990 special issue on water and sanitation and related environment issues. Put together by UNICEF's Maggie Black, this is an excellent example of the public information efforts for the sector in the 1990s.

In the keynote article Maggie Black explains why water is a political issue and concludes: "For too long, many of those whose lives depend on the power, the productivity and the health-giving properties of the waters have behaved cavalierly towards them. Now, the water-affected are awakening and their voices are gradually being heard. People are protesting against the dams which destroy ecological systems; they are fighting the chemical pollutants which poison waterways; they are asserting control over the installations in their villages..... All of these protests have the same background message: water must remain a common asset, regulated between and within societies for the benefit of all. With muted thunder, a new era in water power may just be dawning.

Together with Brian Appleton, whose reporting is well known in the water sector, Maggie Black also wrote an article under the heading "The Decade flows on". They explain to the public why everyone says that the Decade was a tremendous success and how the collaborative effort for the 1990s aims "at articulating common approaches so as to provide developing countries with sensible and co-ordinated help on request".

The New Internationalist contains a score of other articles and has two beautiful spreads with graphics on water, which can be very handy in explaining the situation in and importance of the sector.

Copies of the May issue of New Internationalist can be obtained at 2 pounds sterling per copy (including packing and mailing) from:

New Internationalist
UK Editorial Office
55 Rectory Road
Oxford OX4 1 BW
United Kingdom

NEW PUBLICATIONS:

> The International Development Research Centre (IDRC) in Canada has recently released a new

publication on disinfection entitled "Water Disinfection by Solar Radiation: Assessment and Application", by authors Acra, Jurdi, Mu'Allem, Karahagopian and Raffoul.

The 65 page book is aimed at researchers and health care workers interested in solar energy applications and water disinfection. It provides basic information on solar energy and aspects such as transmission of solar radiation through atmosphere and different media. The main water disinfection methods are reviewed and continuous-flow solar systems are explained. These were tested on two types of pilot plants, and the results are discussed in detail.

Those interested in ordering the book, which costs CAD \$12.00, can write to IDRC, who will forward the request to the appropriate sales agent.

IDRC
Communications Division
PO Box 8500
Ottawa
K1G 3H9 CANADA

Asian Development Bank and UNDP recently published *Women and Water : domestic shallow well water supplies, the family handpump scenario : proceedings of a regional seminar "Women and Water - the Family Handpump"*, Manila, 29 August - 1 September 1989.
Price: not quoted

> The Asian Development Bank carried out a UNDP-funded "Regional Study on Domestic Shallow Well Water Supplies" which was conducted in Bangladesh, Indonesia, Pakistan, Philippines and Thailand. The objective was to explore the extent to which individual families could satisfy their basic water supply needs by self-help through family-owned shallow wells (mostly with handpumps), and the extent to which such a strategy would involve and benefit women. The collective results of the country studies, and a number of background papers from External Support Agencies (ESAs) are presented and summarized in these published proceedings.

Available from:

Water Supply Division, Asian Development Bank
P.O. Box 798
1099 Manila, Philippines

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ASIAN AND SOUTH PACIFIC COUNTRIES TO REINVIGORATE WATER AND SANITATION SECTOR IN THE 1990s

The coming decade will see renewed and reinvigorated campaigns in Asian and Pacific countries to bring the basic needs of safe water and proper sanitation to as many people as possible. Some 85 specialists from 24 countries in the region and 22 international aid agencies have agreed on a comprehensive package of approaches and priorities for accelerating the provision of water and sanitation services to meet the challenges of the next ten years.

"We know what to do and where to go, let's get on with the job," said Alexander Rotival, co-ordinator for the United Nations Development Programme/World Health Organization (UNDP/WHO) water supply and sanitation campaign for the 1990s.

Mr. Rotival was speaking at a press conference at the conclusion of the week-long Asian Development Bank-hosted Regional Consultation on Water Supply and Sanitation in the Philippines in early June.

Mr. Rotival was referring to the fact that, although the International Drinking Water Supply and Sanitation Decade ending this year has failed to meet its targets, it had helped to improve the technology - for example, for handpumps and gravity-fed water supply systems and for low-cost but effective sanitation systems - for sustainable development in the sector.

Dr. Dennis Warner, WHO's manager of the Community Water Supply and Sanitation Unit, noted that the Decade has raised awareness of water supply and sanitation issues in the international community, has helped develop new technology for better water supply and sanitation facilities and has underscored the need for government agencies, external support agencies and non-governmental organizations to co-ordinate activities to reduce redundancies.

What the Decade failed to achieve, said Dr. Warner, was to serve the number of extra people which had been optimistically targeted. He noted that although between 400 million and 500 million extra people had been provided with water supply facilities over the last 10 years, "There are more unserved people today than

10 years ago," he observed, "We are running fast but we are falling behind."

The Decade brought home the point that there were not enough financial resources to meet targets and also the fact that there was a lack of success in maintaining water supply and sanitation projects after getting them started, said Dr. Warner.

To stress the scale and urgency of the challenges ahead, Mr. Rotival noted that 35 000 children die every day from water-borne diseases, which account for 80 per cent of all cases of infant mortality.

The conference focused on the impact of the trend toward increasing urbanization on the water supply and sanitation sector. As one expert pointed out there will be 22 mega-cities - with population of 10 million or more - by the year 2000 and 11 of these will be in Asia. This compared with four mega-cities, including two in Asia, in 1980.

Another important issue which emerged from the meeting, said a UNDP spokesperson, was the need to transfer some of the responsibilities for establishing and maintaining water supply and sanitation facilities, and also for funding them, from governments to user communities.

WHO economist Dr. Peter Koenig said that more long-term planning was required for the coming decade. This had been somewhat neglected in the previous decade, he said, and it was necessary to tackle water supply and sanitation problems in an integrated manner with other problems such as urbanization, and to develop overall plans for the utilization of resources.

The regional meeting was a prelude to the Global Consultation to be held in New Delhi, India, from 10-14 September.

UNICEF WATER AND SANITATION WORKPLAN 1990 - 1995

This is the second in a series of three summary articles on water supply and sanitation sector policies adopted by international donor organizations.

Now, at the virtual end of the Decade, it is clear that despite success in creating awareness and in introducing low-cost technologies, the Decade has been hampered by, among other things, high population growth and inadequate funding and rates of implementation, causing it to fall short of its primary objective. The Decade goal is now rescheduled for the year 2000, to coincide for 'Health for All' by that time.

Because water and sanitation programmes are national responsibilities, strategies and planned activities of the UN Agencies and the rest of the external support



community should strengthen and reflect national priorities, and additionally, complement national activities in such a manner as to enhance overall effectiveness.

UNICEF'S FRAMEWORK FOR THE 1990s

For the 1990s, UNICEF will actively associate itself with the primary long term goal of universal access to water and sanitation by the year 2000, as well as three subsidiary goals:

- Linkage of water and sanitation with the control of diarrhoeal diseases, to assist in bringing about a significant reduction in the mortality and morbidity rates resulting from these diseases.
- Elimination of guinea worm disease during the 1990s via use of health education and the provision of safe water supply to affected areas in endemic countries.
- Pursuit of water and sanitation programmes via sustainable development, including environmental sustainability, by paying attention to management of watersheds and catchment basins, lowering groundwater levels by overdumping, and pollution of groundwater by on-site means of excreta disposal.

UNICEF's framework for its contribution to these goals is based on the following principles:

- placing of water and sanitation within the UNICEF corporate thrust
- placing the responsibility for this corporate concern with UNICEF Representatives, and thus at the country level
- using sustainable development, including environmental sustainability, as the major channel for developmental assistance
- paying increased attention to human resources development as an integral component of institutional development
- encouraging more widespread use of low-cost technologies
- giving greater priority to peri-urban slums to help meet the challenge posed by urbanization
- increasing the role of monitoring and evaluation in sector management
- continuing to further the linkage of water and sanitation with health and related concerns
- using systematic and concerted mobilization throughout the 1990s as a principal vehicle to achieve universal water and sanitation access by the year 2000
- allocating a greater share of the UNICEF budget to water and sanitation
- managing the interim through objectives or short-term goals leading to the primary long-term goal.

MAJOR ACTIVITIES FOR 1990-1995

To effectively manage the programming of water and sanitation activities during the 1990s at both the country and global level, UNICEF will initially concern itself with the first half of the decade (1990-1995).

Country Level

Universal water supply coverage: UNICEF will give special assistance to 14 selected countries globally, so that they can soon realize their goal of full coverage. The situation in remaining countries will be reviewed to identify constraints, prior to giving the necessary assistance for accelerating the rate of coverage.

Sanitation: UNICEF will channel more human and financial resources towards revitalization of the programming of the sanitation component. The definition of sanitation will be broadened to include not only latrine promotion, construction and use, but also solid waste disposal, environmental hygiene, personal hygiene, etc. Furthermore, sanitation will be removed from its mainly technical mould, and linked more with mobilization of beneficiaries so that communities can be viewed as programme participants rather than recipients.

Community Management of Systems: Through making sustainability a programme objective and encouraging visits to countries where elements of community management are advanced, UNICEF intends to enhance programme sustainability via effective community management of constructed water and sanitation systems.

Human Resources Development: The water and sanitation staff will be trained systematically in order to provide a balance in terms of knowledge and skills regarding management, hardware and software issues. Institutional capacity building will be placed as one of the major objectives of water and sanitation programmes.

Cost awareness and effectiveness: UNICEF's water and sanitation staff will be sensitized regarding cost issues, so that greater cost effectiveness is reflected in programme planning and implementation.

Linkage of water and sanitation with health and socio-economic concerns:

- a. Linkage with control of diarrhoeal disease: The programming of water and sanitation will be linked with the programming of oral rehydration therapy in a practical, complementary manner.
- b. Linkage with control of guinea worm disease: Through means such as increased funding, hygiene education and ensuring safe water supply, the aim is to eliminate and eventually eradicate guinea worm disease in the 1990s.
- c. Linkage with control of Schistosomiasis: Awareness concerning the disease will be raised, and governments and ESAs will be mobilized to place its control high on the developmental agenda. Endemic countries and the degree of their problem will be identified, and health education will be used as the major means of disease control.

Technical cooperation among developing countries (TCDC): In the field of water and sanitation, TCDC will be promoted among UNICEF-assisted countries through the identification of countries with special learning situations, and the execution of short-term consultancies in field offices on behalf of the water and sanitation section at UNICEF headquarters.

Acceleration of coverage rate: Through monitoring, evaluation and utilization of successful innovative means, it will be attempted to increase the rate of coverage for water and sanitation facilities.

Global Level

Allocation of greater proportion of global water and sanitation funds to low-cost technologies: Through interaction between UNICEF and other members of the UN family, bilaterals, and NGOs, as well as through publicity and promotion on the topic, UNICEF will attempt to achieve an increase in the proportion of global funds invested in low-cost water and sanitation systems relative to high cost systems.

Inter-agency collaboration: Existing collaborative efforts within the water and sanitation sector will be improved, primarily among UNDP, WHO, the World Bank and UNICEF via Decade and post-Decade U.N. Steering Committee meetings.

Monitoring of Water and Sanitation Coverage: Via governments and ESAs, a simple, practicable monitoring system at the country level will be established to cover water and sanitation progress. For the monitoring system, a definition of access is necessary, and can in this case be indicatively defined as being the availability of at least 20 litres of safe water per person daily, located at a total distance not to exceed one kilometre from the user's dwelling. For safe excreta disposal, minimum coverage can be a sanitary latrine.

Country governments should be encouraged to re-set or re-confirm their target dates for coverage, governments will be assisted to establish a monitoring system to monitor coverage rates and rates of progress, and annual monitoring is to be used as an active management tool.

Environment: Through establishment of firm contact with UNEP and other organizations involved in environmental activities, through distribution of available literature to field staff, and through raising environmental issues at programme previews, reviews and field visits, UNICEF will attempt to raise awareness of potential negative environmental impact so that preventive actions can be taken.

OVERALL CONTRIBUTION

UNICEF's annual contribution to the sector is less than 10% of that contributed globally. However, as a result of its presence in an operational sense in virtually all developing countries, its strength in mobilizing people and resources, and its use of the \$70 million it contributes for low-cost water and sanitation technologies, the organization can play a significant role in the sector and in the achievement of the goal of universal access to water supply and sanitation by the year 2000.

UN AGENCIES AND WOMEN AND WATER NO.3

In this third article in the series of four on women and water we concentrate on the work of two United Nations agencies with which IRC also works together: PROWESS/UNDP and the International Research and Training Institute for the Advancement of Women (INSTRAW).

PROWESS

PROWESS stands for 'Promotion of the Role of Women in Water and Environmental Sanitation Services' and is based in the United Nations Development Programme (UNDP) Division for Global and Interregional Programmes. Starting with funding from Norway in 1983, it has since received direct financing from Canada, Finland, UNDP and the United States, as well as supplementary funding from others such as the Netherlands.

The PROWESS programme demonstrates ways of involving women in wider community planning, operation, maintenance and evaluation of drinking water and waste disposal schemes. Its experience so far in well over 1,000 communities shows that early and wide participation by women and their communities pays off in better maintenance, higher cost recovery, improved hygiene practices and other socio-economic gains for the community.

As part of its mandate to replicate experiences PROWESS has started a new publication series: "Lessons - Strategies - Tools" to document and disseminate information on the participatory methods it has used, tested and refined since 1983. Publications cover experiences in projects in Bangladesh, Kenya, Lesotho, and Indonesia; two manuals; and a video on participatory training techniques.

Information and publications can be obtained free of charge from:

Programme Manager
INT/83/003 - PROWESS
304 E. 45th Street, Room FF-12108
New York, N.Y 10017
USA

INSTRAW

INSTRAW has a mandate to carry out research, training and information activities world-wide to ensure the integration of women as key agents of development. As an autonomous body within the United Nations system, it was established by the Economic and Social Council (ECOSOC) in conformity with General Assembly Resolution No. 3520 (xxx), based on the recommendations of the 1975 World Conference of the International Women's Year. Since 1983, headquarters are located in Santo Domingo, the Dominican Republic.

INSTRAW interlinks research, training and information activities addressing practical aspects of rethinking development and the role of women within it. Women, water supply and sanitation is one of the sectoral issues on which INSTRAW has been particularly active. The Institute produced a multi-media training package of modules on Women, Water Supply and Sanitation, in which IRC's work featured considerably.

The training package consists of a set of seven training modules, slightly adapted to the two main target groups, water and development officials and women organizations, and a set of audiovisual materials comprised of 120 overhead sheets (transparencies), four slide-sound packages and two videos.

The modules were prepared with funds from the Italian Government and by the Turin Training Centre of the International Labour Office, and the texts and content of a major part of the audiovisuals by INSTRAW.

The materials have been used in regional and national seminars. The regional seminars were in Thailand with the Economic and Social Commission for Asia and the Pacific, and in Bamako, Mali with the United Nations Department of Technical Co-operation for Development (DTCD). The three national seminars were in Sudan and Somalia with UNICEF, and in Kenya with the ILO project Organization Skill Development for Self-Reliance.

An example of a project resulting from the training course is the pilot training programme for women handpump mechanics in a tribal area in India, on which the IRC Newsletter No.194 carried an item. The project was set up by a superintending engineer from Jal Nigam, the State Water Authority of Uttar Pradesh, India, after she had attended the regional training course in Thailand.

REVISION BY IRC

Currently IRC is revising these modules in co-operation with the Natural Resources and Energy Division of the United Nations Department of Technical Co-operation for Development. They are being summarized and updated to five modules:

1. The IDWSS Decade and Beyond, on the achievements and follow-up of the IDWSSD
2. Participation of women in planning, choice of technology and implementation
3. Role of women in health, hygiene education and training
4. Water resources management and women (new)
5. Evaluation

The revision is planned to be completed by mid-October 1990.

For more information on INSTRAW and its publications contact:
INSTRAW
P.O. Box 21747
Santo Domingo
Dominican Republic
telex: (326) 4280 WRA SD

DRINKING WATER SOURCE PROTECTION DISCUSSED AT IRC

On May 31 and June 1, IRC organized a working meeting to discuss drinking water source protection and focus on the major problems affecting small communities in developing countries, their causes, and future research and development needs. Six of the 11 participants made presentations on risk assessment issues and strategies, specific problem-cause-effect links

leading to deteriorating quality, quantity and reliability in India, Tanzania and Pakistan, and some of the management, economic and legal aspects of source protection.

Conclusions from the meeting referred to three main areas: problem causes; institutional constraints; and information needs for effective strategic planning. The most serious and pressing causes of problems were agreed to include industrial discharge, agricultural chemicals, human waste disposal, land-use change and unsustainable use of groundwater resources. Many causes are currently ignored due to a lack of priority and political commitment to tackling the issues. The situation is aggravated by the fact that many developing country institutions lack the resources to quantify problems and their causes, and to advise on solutions. They lack the physical infrastructure and manpower skills to implement action-oriented research or systematic strategies for source protection. The consequence is a lack of data on which effective planning can be based on a country-by-country basis. In particular, the costs and benefits associated with drinking water source protection are poorly understood.

Recommendations by participants focused on four main areas: priorities and awareness; institutional development; information and strategies for planners; and specific actions for research and development. Higher priority must be attached to drinking water source protection and greater awareness is needed of the costs and benefits of drinking water source protection to allow developing country authorities to act to control damaging practices with greater confidence. Institutions need information support, manpower development, equipment for monitoring and strategies for surveillance. Existing strategies such as the Sanitary Survey should be more widely applied. There is a definite need for a detailed analysis of environmental data to provide: checklists to identify and prevent or remedy drinking water source problems; guidelines for on-site and catchment protection; country inventories to establish cause-effect links and indicate risks and priorities for drinking water projects; and in-depth consideration of the legal and economic aspects of drinking water source protection. International organizations, in co-operation with developing countries, should develop, test and publicize on-site and catchment protection based on country priorities and felt needs.

The direct outcome from the meeting was a report containing summaries of the six presentations, summaries of workshop discussions on quality and quantity issues, and the overall conclusions and recommendations. On the basis of IRC's on-going research work, an earlier unpublished review report and the results of the working meeting, IRC is currently preparing an Occasional Paper on the subject.

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WATER: CRUCIAL FACTOR FOR DEVELOPMENT

In many developing countries water will become the most important limiting factor in their socio-economic development, a crucial indicator of environmental pollution and the availability of resources, and a frequent cause for social conflicts and international disputes. Projects in the water management-, water supply- and sanitation sector are therefore essential for improving the basic necessities for life and development, preserving the resource base, protecting the environment, enhancing the quality of life, and ultimately securing political and economic stability of countries and regions.

This is in short the message about the relevance of the sector to environmental concerns and the roles of the sector in environmental protection endorsed by the 1990 Committee and recently distributed to the members of the Collaborative Council of External Support Agencies for consideration in future designs of water supply and sanitation development projects. The initial paper on this issue was prepared by Dr. Klaus Erbel from the German Agency for Technical Co-operation (GTZ) following the

December 1989 meeting of the Collaborative Council in France.

The paper calls for drastic measures:

- careful examination of all projects in the water sector to determine whether they have an impact on the environment and to assess the risks, respectively acceptability of that impact;
- plan utilization of the existing water resources in such a way that they will also be available in adequate quantity and quality to future generations. This could for example mean excluding well-drilling or -digging programmes which lead to over-exploitation of groundwater.

Another important aspect is taking into account secondary and subsequent effects of a water supply project:

- higher availability of water often creates problems with its disposal;
- the building of small dams for irrigation purposes frequently increases the risk of water-induced diseases such as malaria or bilharzia;
- reservoirs, and even new wells, if they are to supply water for livestock watering places, bring with them the risk of a sharp increase in herd size and thus of overgrazing, soil erosion and eventually desertification.

Water and sanitation projects will not automatically make an effective contribution to the protection of resources and the environment unless an awareness of the interconnections between ecology and economy can be created and deepened among donors, counterpart organizations and project target groups in the field.

The paper concludes that the main contributions of the sector to the protection of vital resources and preservation of the environment are:

- systematic and complete inventories of existing water resources;
- improvement of drinking water quality to reduce health hazards;
- introduction of policies and methodologies to save water and protect water resources in the sense of sustainable development;



- sewage treatment and solid waste management to minimize environmental pollution and recycle or recover resources.

ENVIRONMENTAL SANITATION: THE URBAN CHALLENGE

The environmental situation in most urban areas in developing countries is poor, and is deteriorating. Unpaved roads and dirt tracks flooded by wastewater, large wastewater ponds piles of refuse acting as breeding sites for vermin, open canals filled with black anaerobic water and sludge are commonplace sights in many urban areas. This is the grim picture painted in the Background Paper prepared for the "Safe Water 2000" Global Consultation on Safe Water and Sanitation for the 1990s in Delhi.

The number of large cities is growing rapidly. Between 1950 and 1986 the urban population quadrupled from about 300 to 1,200 million. Over the coming 25 years 90 percent of urban population growth will take place in developing countries. The average annual urban growth rate is 3.5 percent. In the year 2000 there will likely be between 200 and 250 million more urban dwellers without water and sanitation services than there are today, thus nearly doubling the total urban unserved (see figure).

THE GRIM FIGURES

Water scarcity will affect all regions and many cities.

East and North Africa - Ten countries are likely to experience severe water stress by the year 2000; in several countries the only feasible way of meeting the municipal demand in the year 2000 will be by the diversion of irrigation water.

China - Fifty cities face acute shortages; water tables beneath Beijing are dropping 1 - 2 metres per year; farmers in the Beijing region could lose 30 to 40 percent of their supplies to domestic and industrial uses.

India and Pakistan - Tens of thousands of villages now face shortages; many cities and most townships have water for only a few hours a day.

Mexico - Groundwater pumping in parts of the valley containing Mexico City exceeds recharge by 40 percent, causing land to subside.

Water pollution is a particularly crucial issue facing urban communities. Over 90 percent of discharges into rivers in and around the cities in the developing world are sewage and industrial effluents. Industrial wastes are often more toxic than those from domestic sources as they contain high concentrations of metals, chemicals and complex organic pollutants. This clearly calls for urgent enactment of legislation and establishment of enforcement mechanisms.

Conventional sewerage is often too expensive for significant parts of many urban centres to afford. Collection from each household and disposal of solid waste by an outside agency is similarly unaffordable for low-income communities within urban areas. For both liquid and solid waste there is a need to adopt low-cost technologies such as improved pit-latrines and to involve communities as much as possible.

Rapid expansion of water and sanitation services and increased support for pollution control must become urban environmental priorities. National governments must play a strong role in establishing meaningful environmental standards, and provide the technical assistance, training, and financing for their burgeoning cities. Achieving a better urban environment will largely depend on stronger local service institutions, better urban land management and municipal finance, and increased resources for municipal waste treatment and disposal operations.

UNICEF WATER PEOPLE CALCULATE INVESTMENT NEEDS

Just before the "Safe Water 2000" Global Consultation in Delhi two top officials from the Water and Environmental Sanitation Section at UNICEF's headquarters made some calculations on investments required to attain safe water by the year 2000. Joe Christmas, chief of the WET section and Carel de Rooy, senior programme officer, forecast a rather gloomy situation, and also hint at some unconventional alternatives.

To get a 100 percent water and sanitation service coverage both in urban and rural areas by the year 2000 they calculate US\$ 36,000 million will be required annually, or about three and a half times the average annual investments during the 1980s. Their calculation is based on the following division of technologies:

- » US\$ 247 billion for high cost technologies in urban areas (US\$ 200 per capita for water and US\$ 350 for sanitation),
- » US\$ 26 billion for intermediate technologies in mainly peri-urban areas (US\$ 100 and US\$ 25 per capita),
- » US\$ 11 billion for low-cost technologies in the remaining peri-urban areas, and
- » US\$ 73 billion for low-cost technologies in rural areas (US\$ 30 per capita for water and US\$ 20 for sanitation).

In the current economic climate annual sector funding of this magnitude will not be forthcoming, Christmas and de Rooy write. If one were to focus on the provision of services to the rural and peri-urban populations with only 30 percent of the project amount or US\$ 11 billion annually, over 2 billion needy people can be reached with sanitation and 1.6 billion with water supply. In other words 30 percent of the total cost can service 80 percent of the unserved, if the low-cost option is emphasized.

The UNICEF water specialists quote estimates that the current allocation of funds to high-cost and low-cost technology is in the order of 80 and 20 percent respectively. They recommend a more equitable division of resources between investments in the urban areas and the rural and peri-urban areas.

Furthermore the more privileged urban population in developing countries should pay for the full cost of high-cost services where this has not been achieved. Additionally, cost-sharing and/or cost-recovery mechanisms should be implemented among the needy.

LESOTHO SUSTAINABILITY PROJECTIONS

How critical the relationship between sector investment and population growth in developing countries is, can be illustrated with an example from Lesotho, presented at a recent sector meeting in Switzerland. Projections based on government figures show that the rural population of Lesotho can be fully served by the year 2004, provided present levels of investment are maintained and no funds and human resources are diverted for maintenance and repair.

Acknowledging that already now increasing demands are being made on money and staff for maintenance, the rate of establishment of water schemes is likely to decrease and - with all other factors remaining the

same - the rural population will then only be served in 2040. Next to a considerable increase of foreign funding, which is not very likely, the only other solution seems to be a hardening of government policies on cost recovery, which will have to result in a considerable raise in the water rates as well as larger management responsibility at community level for repair and maintenance.

SUSTAINABILITY OF VIP LATRINES DOUBTED

In a recent literature review of projects in Ethiopia, Kenya, Tanzania and Zimbabwe supported by the Swedish International Development Authority (SIDA), doubts are being raised about the sustainability of the ventilated improved pit (VIP) latrine.

Rapporteurs Erik Nordberg and Uno Winblad found that the VIP latrine technology relied too much on SIDA-funded subsidies, resulting in programmes unsustainable by local resources. Except in Zimbabwe, VIP latrine programmes were also not large enough to have a real impact on health.

The research, which was requested by SIDA for review of its environmental hygiene strategy, revealed that current development programmes tend to neglect the poorest half of the population. Technologies affordable to these groups have not been systematically developed and tested, and insufficient attention has been paid to socio-cultural factors influencing adoption of new practices and new facilities.

However, Nordberg and Winblad also found increasing evidence that improved water supply (larger quantities available per household and less contamination) and improved sanitation, when combined, are associated with considerably reduced burden of illness. This association is particularly strong among poor households and particularly obvious in methodologically superior studies.

The researchers' recommendations include that environmental hygiene be given a more prominent role and a larger share of the resources within water and health support programmes. Much more emphasis must be given to sustainable, affordable improvements in the poorest households within the area of any given project.

The Swedish researchers see as the main task of a donor-funded sanitation programme, to assist the

recipient country/community in starting an affordable and self-sustaining process of latrine construction, use, maintenance and upgrading. In order to be sustainable and replicable, sanitation schemes must be financed in full by the communities they serve, and all building materials must be available locally. A programme relying on important motor vehicles and fuel for the conveyance of people, equipment and materials is neither sustainable nor replicable.

On 27 August the report was discussed at SIDA headquarters during a seminar with various sections of SIDA and consultants. The new environmental strategy is scheduled to be ready later in the year.

For more information contact:
Water Section Infrastructure Division, SIDA
Birger Jarlgatan 61
1025 Stockholm, Sweden

MANAGEMENT FOR SUSTAINABILITY COURSE REPEATED

The course 'Management for Sustainability in Water Supply and Sanitation Programmes', organized by IRC in collaboration with the MDF foundation, has been scheduled twice during 1990.

The first course, held in June for senior staff from India, Kenya, Pakistan, Saudi Arabia and Yemen turned out to be very useful for all participants and was enjoyed by IRC's staff.

The second course will take place from 12 November until 2 December. Applications are welcome until 1 October. The course is meant for senior project staff, project managers, and managing staff from national institutions responsible for planning of water supply and sanitation programmes.

The final list of participants will be ready around 15 October. Those who have already applied will receive more detailed information around that date.

Course duration: Three weeks

Course fee: US\$ 3000

Sponsorship: To be arranged by the participants

For more information contact:
Ms. Izabella Wimmers, Course Assistant
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STAFF ON THE MOVE

- Neil Carefoot, well known specialist in human resources development at WHO Headquarters in Geneva, took early retirement from the Community Water Supply and Sanitation Unit. His dual focus approach - training programmes should be conducted as an element of overall institutional development - has gained wide recognition in developing countries.

- Ueli Meier, director of the Swiss Centre for Appropriate Technology (SKAT) is leaving the institution in October 1990. The new director will be Alex Arter, who has been with SKAT for more than three years. Mr. Arter also worked in Nepal for eight years as an advisor and project leader for Helvetas.

Please also note SKAT's new address:

Tigerbergstr. 2

9000 St. Gallen, Switzerland.

- As of October 1990, IRC's Programme Officer Michael Seager will be taking a position with UNDP as Investment Planning Advisor to the Ministry of Energy, Minerals and Water of the United Republic of Tanzania. He will form part of a newly established Sector Advisory Team within the Ministry, backstopped by the UNDP/World Bank Regional Water and Sanitation Group.

During his time with IRC Michael's work included responsibility for the demonstration projects on public standposts and piped supplies in Malawi, Zambia, Indonesia and Sri Lanka, and the development of the community-based financial management/resources coverage programme area.

Chief Editor:	Dick de Jong
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	Cor Dietvorst

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WORLD LEADERS TAKE UP CHALLENGE SET BY WATER SPECIALISTS IN DELHI

The importance of the provision of clean water and sanitation for children features prominently in the World Declaration on the Survival, Protection and Development of Children, which was adopted by 70 world leaders meeting in New York at the end of September. By setting "universal access to safe drinking water and to sanitary means of excreta disposal" as one of the major goals of their action plan for the year 2000, the world leaders are willing to go one step further than the specialists who, two weeks earlier, endorsed the "New Delhi Statement".

This statement at the end of the Global Consultation on Safe Water and Sanitation for the 1990s, "Safe Water 2000" held in New Delhi from 10 - 14 September did not call for specific goals of service to all by the year 2000. "To reach full coverage by the year 2000 would require five times the current investment level of about US\$ 10,000 million a year," the Statement says. That is not a viable option. However, in the 1990s, sector agencies can dramatically increase the efficiency of providing and

sustaining services. "At the same time, increased financial resources must be sought from governments, external support agencies and consumers. For example, halving the costs and at least doubling the financial allocation could allow universal coverage to be approached by the end of the century," it adds.

Taking on this challenge, over 600 representatives from 102 developing countries and 28 donor aid agencies endorsed a four-point programme to increase drinking water supply and sanitation services in poor communities throughout the developing world during the 1990s:

- 1 safeguarding health and protecting the environment through integrated water resource and waste management;
- 2 a reorientation of institutional strategies to ensure an integrated approach, including educational aspects, a change in attitudes, behaviour and procedures, and participation of women at all levels of sector institutions;
- 3 community management and operation of facilities;
- 4 sound financial practices, improved management of existing assets, and consistent use of appropriate technology.

"The political and financial commitments are substantial," the Statement continues. "For the sector to achieve its objectives, governments must accept that the enabling environment for progress will often involve profound institutional, economic and social changes, and reallocation of resources and responsibilities at all levels."

The new four-point approach is explained in greater detail in the Statement under four headings:

People and the Environment - New and environmentally sound appropriate solutions are required reflecting the need to conserve resources and minimize pollution, and which are affordable to the communities they serve.

Delhi: New approaches or crisis

The New Delhi statement begins with a short overview and a warning.

"The 1980s saw unprecedented progress in bringing water and sanitation services to many millions of the world's poorest people. But it was not enough. One in three of the developing world's population still lack these basic human needs.

Entering the 1990s, population growth in some countries remains unchecked. Infrastructure in many cities is stretched to the breaking point. Uncontrolled pollution puts further stress on the living environment and aggravates competition for increasingly expensive water resources. Without fundamentally new approaches, the hardship will turn into an unmanageable crisis"

Women and children will be hardest hit by the threat to health and environment resulting from rapid population growth, which is aggravated by accelerating urbanization. "Improvements to the household environment can be most effectively achieved through people's involvement as equal partners in resource management."

People and Institutions - the role of government must change from that of provider to that of promoter and facilitator, enabling local public, private and community institutions to deliver services. "Women must be trained and guaranteed equal employment opportunities at all levels of staff and management."

Community Management - Community management goes beyond participation to empowering and equipping communities to own and control their own systems and is the key to sustaining services. Governments should support community management

through legislation and extension, and give it priority in national sector strategies for the 1990s. "Within these strategies, gender issues will be all important. Women should be encouraged to assume prominent roles in planning, resource mobilization, and all subsequent aspects of sector development."

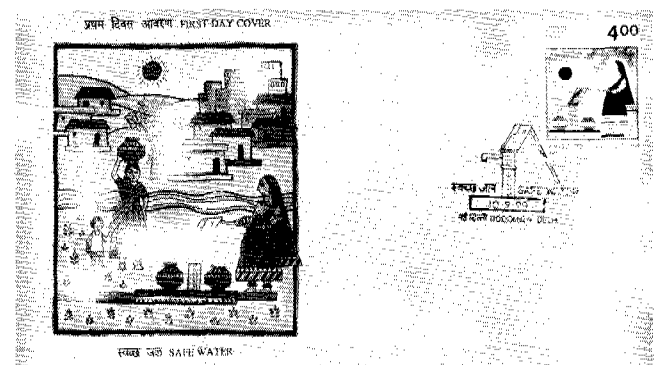
Financing and Technology - Increased efficiency in fund utilization will require changes to make services more cost effective and responsive to consumer needs and demands. Appropriate charging mechanisms should reflect local socio-cultural and economic conditions. Consumers' ability to operate and maintain the facilities should also be the major criteria for technology selection.

Implementation of this new approach will need to be part of country-specific strategies which specify actions to be taken. The Statement urges countries and external support agencies to formulate and implement action plans for water and sanitation incorporating the guiding principles of the New Delhi Statement. Other specialized agencies are invited to support this process. The Water and Sanitation Collaborative Council is recognized as a convenient global forum for the exchange of information on sector issues and experiences. The Council brings together sector professionals from External Support Agencies, Non-Governmental Organizations, professional associations and developing country sector agencies.

Apart from being presented to the UNICEF Summit for Children, the New Delhi Statement will also be submitted by the Government of India to the November meeting of the U.N. General Assembly to review the International Drinking Water Supply and Sanitation Decade. In addition, the Statement will be sent to the organizers of the 1992 World Environment Conference in Brazil with a request that it be tabled to

INDIA ISSUES SAFE WATER STAMP

The government of India not only very ably hosted the UNDP sponsored Global Consultation on Safe Water for the 1990s, with the Vice President and various ministers taking part in the inaugural session, but also issued a commemorative 4-rupee stamp in honor of the event, together with a first day envelope bearing a special postmark.



emphasize the special importance of water and sanitation in environmental management.

LUTHERAN WORLD SERVICE WATER PROJECT IN WEST BENGAL

Following the safe Water 2000 Global Consultation in New Delhi chief editor Dick de Jong stayed on in India to have a look at how global and national policy setting translates into water projects in the field. Here is his report:

Gunadhar Mahato is a pump-mechanic from the village of Garra in Bankura district, about seven hours away from Calcutta in West Bengal, India. The 38-year old farmer usually works the small patches of land which he owns in various locations in this drought-prone area. Twice a year he and two of his colleagues go on maintenance trips to service 17 pumps in the region, or he is called in by the block development office, who has received word from a village that a pump has broken down.

Dismantling the India Mark II pump, greasing bolts and the chain, cleaning the main pipe from below ground and rebuilding it takes a few hours by a team of caretakers. The pump mechanics each receive 20 rupees per pump from the Government of India.

Gunadhar Mahato received his training in 1988 from the Lutheran World Service (India). LWS implements this Government of India programme under India's Technology Mission in collaboration with the Council for Advancement of People's Action and Rural Technology (CAPART) in Ranibandh in Bankura district, where in 1989, 269 defunct tubewells were rejuvenated. The first two project phases included the improvement of open wells and rehabilitation of defunct pumps. For both wells and pumps special attention was paid to the construction of platforms and drainage channels into soak pits. Since 1988 seven pump caretakers have been trained in this region.

Awareness groups were organized about safe drinking water and health. Funds for the third phase have been received, to start shortly: in about a year the improved wells will be closed with a cover and an India Mark II pump will be installed. New awareness campaigns and hygiene education are planned.

LWS staff in Ranibandh and at the Calcutta office stress that this project (one of the 55 mini-missions of the government) concentrates on implementation. Timely delivery of pumps and other equipment and training of pump mechanics are all needed to provide groundwater to areas with difficult geographical and geological configurations, leaving only limited time for community involvement and hygiene education.

In its regular development programme LWS sees the community as the starting point for its projects. Awareness drives in villages, community involvement in the siting of drilling and wells, hygiene education and training of female caretakers are all aimed at eventually handing over the project to the people. "In liaison with local Panchayats (elected body) and the government departments concerned LWS will leave the area where we drilled", says P.C. Josephs, head of the Emergency and Drilling Division of LWS. So far this has not happened in any of the projects.

During the field trip to the Bankura project it became clear that here the handing over to user groups who are prepared to take responsibility for pump use and maintenance will be difficult. At various open wells and pump sites villagers report that they appreciate the improved water supply, and that the incidence of diarrhoea has gone down considerably. But cleanliness around the sites is lacking, drainage to soak pits is sometimes clogged, and from users and bystanders it becomes clear that they still consider the well or pump to be the government's responsibility. When it breaks down they will go to the Panchayat and then hope for the best.

Neither has the issue of effective community involvement and resource coverage in rural water supply been resolved in West Bengal and Orissa. Drilling and equipment costs are shared by the local government and donor, with at best some involvement of communities in siting and work on the drainage and soak pit. The preventive above-the-ground maintenance at village level is expected to be done on a voluntary basis by female pump caretakers.

In April 1990 LWS(I), in collaboration with the Public Health Department and UNICEF, trained literate, married women from 128 villages in Orissa in preventive handpump maintenance, hygiene and wastewater management. The female pump caretakers are not paid by anyone. They should consider the pump to be theirs and take pride in their role as

caretakers, is the general philosophy. With a pair of spanners, log sheets and defects reporting cards (with postage stamps) it is hoped that the pumps will be kept functioning, under responsibility of the Panchayats. Part-time pump mechanics paid by the local government are to do repairs and maintenance of below-the-ground parts.

In order to assure community and women's involvement and resource coverage, India's central government is recommending state governments form village level water and sanitation committees with sizable women's participation. From the proposed budget allocation to the village Panchayats for water supply, a maximum of 10 percent should be set aside for meeting maintenance costs against a partial contribution from the beneficiaries. This recommendation is still to be put in practice.

DRAMATIC EVIDENCE OF HEALTH IMPACTS

Infant and child mortality can be reduced by more than 50 percent and one-quarter of all diarrhoea episodes may be averted by improving water and sanitation conditions. These reductions are reported in the Report on IDWSSD Impact on Diarrhoeal Disease prepared for WHO at the end of the Water Decade. They have been quantified in a recent review of all available studies relating to water and sanitation improvements to diarrhoeal disease morbidity and infant and child mortality. The results are shown in the following table.

Table 1 Health impacts from improvements in water and sanitation

Health indicator	Number of Studies	Percentage reduction	
		Median	Upper Range
Diarrhea incidence	55	26	68
Diarrhea mortality	3	65	79
Total child mortality	9	60	81

From Esrey SA, Schiff C, Roberts L, Potash J (1990) Health benefits from improvements in water supply and sanitation: Survey and analysis of the literature on selected diseases. WASH Project Technical Report No. 66.

On the question if more could have been done, the author notes that water and sanitation activities during the Decade did not include working with those involved in the control of diarrhoeal diseases. Nevertheless, efforts of both groups gained momentum simultaneously in the last ten years. In the second half of the Decade, the two groups were moving in similar directions. Common approaches on hygiene behavioural issues provide a good launching point for linking diarrhoeal disease programmes with water and sanitation efforts, but the state of knowledge is still evolving.

At the start of the IDWSSD, many experts seemed to think that drinking water was of paramount importance. Now it is generally recognized that the quantity of water available for personal and domestic hygiene has more influence than the purity of the drinking water. Hence the diversion of resources towards behavioural issues and the effective use of facilities, writes author Dr. Steven A. Esrey of the WASH Project.

As linkages with sectors such as immunization, maternal and child health, and agriculture will be strengthened in the 1990s, two general questions need to be considered by those responsible for funding, designing and implementing projects:

- 1 How do improvements in water and sanitation, in conjunction with other outputs (e.g. growth monitoring activities) affect diarrhoeal disease transmission?
- 2 How do reductions in diarrhoea from the implementation of water and sanitation programmes affect other aspects of community life such as worker productivity, rates of

immunization or Oral Rehydration Solution use, and expenditure on health care or overall purchasing power?

The author also identifies issues for future information collection and applied research to help design more effective programmes for reducing diarrhoeal disease morbidity and mortality:

- » how close to home services should be provided;
- » the minimum water necessary and hygienic behaviour required to achieve substantial health impacts;
- » methods to sustain behavioural change;
- » preconditions and additional inputs necessary to maximize health benefits.

In the coming issues of this newsletter we will report in more detail on these documents. The first one follows below.

Copies of the documents are available from:
CWS Unit, Division of Environmental Health
World Health Organization
1211 Geneva 27
Switzerland

IMPACT REPORTS OF DECADE PUBLISHED

The Steering Committee for Co-operative Action for the International Drinking Water Supply and Sanitation Decade has published a series of six booklets about the impact of the Decade on a number of key issues. They are 12 to 24 page write-ups on co-operative efforts, achievements, and issues for the future. Titles are:

- 1 **Report on IDWSSD impact on Diarrhoeal Disease**, prepared by Dr. Steven A. Esrey of the Water and Sanitation for Health (WASH) Project.
- 2 **The IDWSSD and Women's Involvement**, prepared by Ms. Mary Elmendorf.
- 3 **Human Resources Development in the IDWSSD**, prepared by Dr. Richard M. Ballance.
- 4 **IDWSSD Activities in Technical Information Exchange**, prepared by the IRC International Water and Sanitation Centre.
- 5 **Report on IDWSSD Impact on Dracunculiasis**, prepared by Dr. Donald R. Hopkins of the Carter Centre.
- 6 **Report on IDWSSD Impact on Schistosomiasis**, prepared by Dr. F. DeWolfe Miller of the University of Hawaii School of Public Health and Water Resources Research Centre.

WATER SUPPLY AND SANITATION SECTOR POLICY: AFRICAN DEVELOPMENT BANK GROUP

The water supply and sanitation sector occupies a significant place in the African Development Bank Group's overall lending and assistance policy. This summary of its water supply and sanitation sector policy is the last of three such policy summaries, following those of the Dutch Ministry of Foreign Affairs (no. 193, May 1990) and UNICEF (no. 195, July 1990) respectively. These policies, like those of similar lending and donor organizations, will shape the future of the sector in the coming years.

At the beginning of the International Water Supply and Sanitation Decade, 66% of the urban population and 22% of the rural population of Africa had access to adequate supplies of potable water. In addition, 54% of urban and 20% of rural residents had access to adequate sanitation. Remarkable progress during the 1980s allowed for coverage targets for 1990 of 84% urban and 46% rural residents for water, and for sanitation 82% and 52% respectively, reports the Bank in its Water Supply and Sanitation Sector Policy paper.

Between 1970 and 1984 total external support funds for the sector in the Bank Group's member countries amounted to US\$ 4.9 billion, of which just under US\$ 600 million was contributed by the Bank Group. In recent years the Bank Group has financed a steadily growing share of total investment in the sector, and recent agreements to increase the Bank Group's capital should see dramatic growth in sector funding.

In collaboration with its member countries, the Bank Group's goals will be directed towards achieving the greatest possible coverage of services within the means

available to improve public health, enhance the quality of life and promote community organization.

POLICIES ON LENDING IN WATER SUPPLY AND SANITATION

PLANNING AND CO-ORDINATION

Activities facilitating effective planning and co-ordination among all institutions, agencies and communities operating at all levels throughout the sector will be encouraged. The Bank Group is supportive of those activities that assess needs and resources, incorporate user participation, and emphasize the importance of achieving sustainability of water supply and sanitation systems.

The Bank Group supports and will participate in sectoral planning on international and regional levels, and intends to play an active role in support of planning that co-ordinates external assistance to national sector programmes.

Because of the necessity of strategy formulation at the national level, the Bank Group assigns high priority to the preparation in each member country of sectoral assessments and master plans. These should take the link between the water supply and sanitation sector and other sectors, especially health and education, into account. Loan applications reflecting compliance with completed sectoral assessments and master plans will be given preference.

SOCIAL POLICIES

The Bank Group will support projects that include applied research on strategies to promote community participation and components designed to facilitate community involvement.

Because women, as principal beneficiaries and primary managers of project outputs, are indispensable for ensuring that project benefits are obtained, projects promoting the active participation of women in all stages of project development will be given priority. Furthermore, the Bank Group encourages the recruitment and training of women as project promoters and community educators, and the

involvement of women's associations in implementing social and health components

Hygiene education components should be linked to community participation, user education, and existing primary health care programmes.

INSTITUTIONAL POLICIES

Together with the governments of member countries, the Bank Group will appraise the capacities of the operating institutions to manage existing systems. The conclusions will be used to define components supporting institutional development, so that projects containing these components can be considered.

Technical assistance and training exchanges among the water supply and sanitation institutions of the member countries will be encouraged, because human resources development and staff training are vital to improve technical and managerial performance. Manpower studies and assessments of training and human resources development needs will be supported

FINANCIAL AND COST RECOVERY POLICIES

Because available resources are insufficient to finance present operations, much less to expand services, cost recovery from users will be encouraged.

Financing of all operating costs, maintenance and future asset replacement by urban and peri-urban consumers is endorsed, as well as financing of a substantial portion of capital expansion by operating institutions from internally generated funds.

Cross-subsidization of peri-urban services by urban consumers is supported. For rural water supply projects, full cost recovery is difficult to attain, but collection of payments from beneficiaries for at least operations and maintenance costs, is advocated.

Support will be given to projects in which tariffs are designed to ensure that the poorest consumers will have access to the system. Fees must be based on ability and willingness to pay, which are influenced by the level of service and the understanding of the

benefits. Only projects that can ensure the expected rates of return can be supported by the Bank Group.

TECHNICAL POLICIES

Low-cost technologies, where they exist, will be favored over high cost technologies.

It is generally agreed in the sector that operation and maintenance (O&M) is a top priority. The Bank Group therefore encourages national policies for equipment standardization, and for participation of the private sector and rural and peri-urban communities in O&M tasks.

Rehabilitation loans will be given priority once the causes leading to the need for rehabilitation have been analyzed and agreed upon, and a plan for correcting the situation has been developed.

ENVIRONMENTAL POLICIES

The Bank Group is committed to addressing the problems of waste disposal and water quality.

Impact analyses should appear in all project proposals concerning wastewater and solid waste disposal, and water source quality assessments should accompany water supply projects.

For urban and peri-urban areas, low-cost technologies for wastewater disposal will be financed, as will be studies to identify new approaches. Provisions for collection and disposal of solid waste in water supply and sanitation projects are encouraged.

The Bank Group will support studies to plan and implement toxic waste disposal programmes in member countries.

POLICY APPLICATION

The policy summarized here was approved by the board of directors of the African Development Bank and the African Development Fund. Acknowledging that policies evolve, the Bank Group will evaluate the policy on a periodic basis, taking into account new tendencies, changes and circumstances.

IRC EXPERIENCE IN PHNOM PENH

During a recent support mission to a Dutch-supported Integrated Infrastructure Upgrading Project in Phnom

Penh, Cambodia IRC assisted in community implementing a community participation and hygiene education component. This proved to be a very difficult job because the uncertain political situation really prevented people from getting involved in any thing else than trying to earn as much as possible to keep body and soul together and as a hedge for the possible worse times ahead.

Moreover, there was a tendency to view acquisition of material benefits (garbage bins, watertaps, latrines, garbage trucks) as the solution to all problems. Once these services would be given, it would be no problem to organize the community to pay for operation and maintenance. However experience from earlier years in Cambodia and other countries, shows that if the community is not organized and involved from the start, it is unlikely that they will feel responsible for operation and maintenance in the Phnom Penh project. Because it was stressed often, that the community is now tired of talking and hearing about the project without seeing much improvements, it was decided that the community participation part and hygiene education components would only start once the sewer and water pipes had arrived from overseas so that they could be seen by the people as proof of activities forthcoming.

WATER HARVESTING IN FIVE AFRICAN COUNTRIES

"Water Harvesting in Five African Countries" is the title of the latest book published jointly by IRC and UNICEF in the IRC Occasional Paper Series. It was prepared by M.D. Lee and J.T. Visscher on request of the UNICEF Water and Environment Sanitation Team in New York and reviews the current status of water harvesting in Botswana, Kenya, Mali, Tanzania and Togo. The book focuses on appropriate technologies, socio-economic aspects, project methodologies and prospects for wider application of water harvesting in the 1990s.

It is based on review of available literature by Dr. Lee and particularly on reports resulting from fieldwork carried out in the five countries by various consultants. Runoff water collected from rooftops in a storage tank can provide a very good source of water for a family. On a larger scale, enough water may be

captured for a whole community by building a dam to catch runoff from a rock outcrop. Runoff farming complements this harvesting of drinking water, boosting crop yields by catching runoff on fields, improving direct infiltration, and preventing soil loss.

The book has 126 pages and is available from IRC (order code OP 14) at US\$ 17.50 including bank charges and surface mail.

IRC BRIEFING PROGRAMMES

IRC organizes Briefing Programmes, which are especially designed to meet individual information and/or training needs of national and expatriate staff working in water supply and sanitation programmes or institutions in developing countries. During the programme participants make use of the unique collection of documents on drinking water supply and sanitation in developing countries available in IRC's Documentation Unit. They also benefit from individual support from various staff members, who have extensive and recent field experience. On this basis participants prepare information packages and appropriate workplans for their work in the field.

The **Standard Briefing Programme**, with a duration of 5 days is especially suitable for project staff preparing for a new assignment.

For senior professionals who want to upgrade their knowledge on key subjects and latest developments in the sector a 3-day **Intensive Briefing Programme** offers the most effective opportunity.

Tailor-Made Programmes, with a duration of 5 to 10 days, on two or three main subjects pre-determined by the participant(s) combine the principles of a Standard Briefing Programme with that of a short training course.

Chief Editor:	Dick de Jong
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with contributions from:	Nicolette Wildeboer Izabella Wimmers

SCHEDULED BRIEFING PROGRAMMES 1991

January	7-11	July	8-12
	14-18	August	26-30
February	11-15	September	2-6
March	4-8	October	14-18
April	8-12	November	25-29
May	13-17	December	9-13
	27-31		
June	10-14		
	24-28		

Applicants will in principle be scheduled in the period listed above. Further details concerning Tailor-Made Briefing Programmes and Intensive Briefing Programme can be supplied on request.

SHORT TRAINING COURSES

Together with special training institutes IRC organizes short training courses on key subjects. So far 3-week courses have taken place on two subjects: low-income urban community water supply and environmental sanitation, and management for sustainability. In 1991 these courses will be repeated according to the following schedule.

Short Training Courses in 1991

Water Supply and Environmental Sanitation for Low-Income Urban Communities. (IHS/IRC)

March 4 - 22

September 2 - 20

Management for Sustainability in Water Supply and Sanitation Programmes in Rural and Peri-Urban Areas. (MDF/IRC)

April 8 - 26

October 14 - 1 November

For more detailed information, please contact Ms. Izabella Wimmers, Course Assistant.