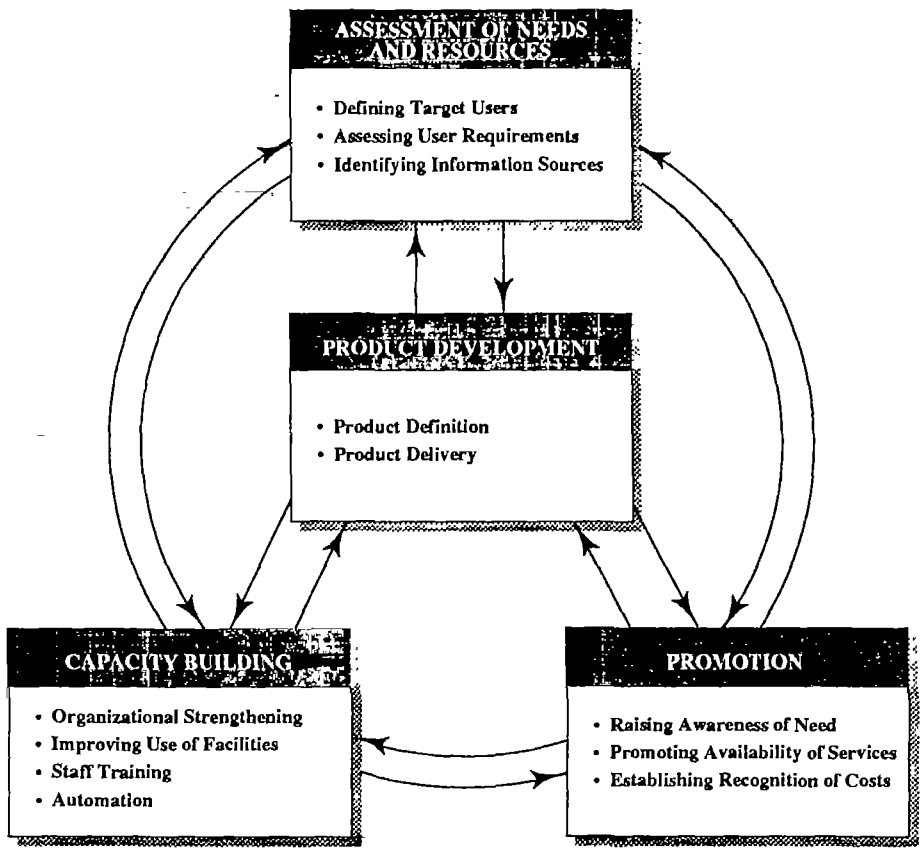
FRAMEWORK FOR TECHNICAL INFORMATION EXCHANGE



IRC
International Water and Sanitation Centre
The Hague

September 1987

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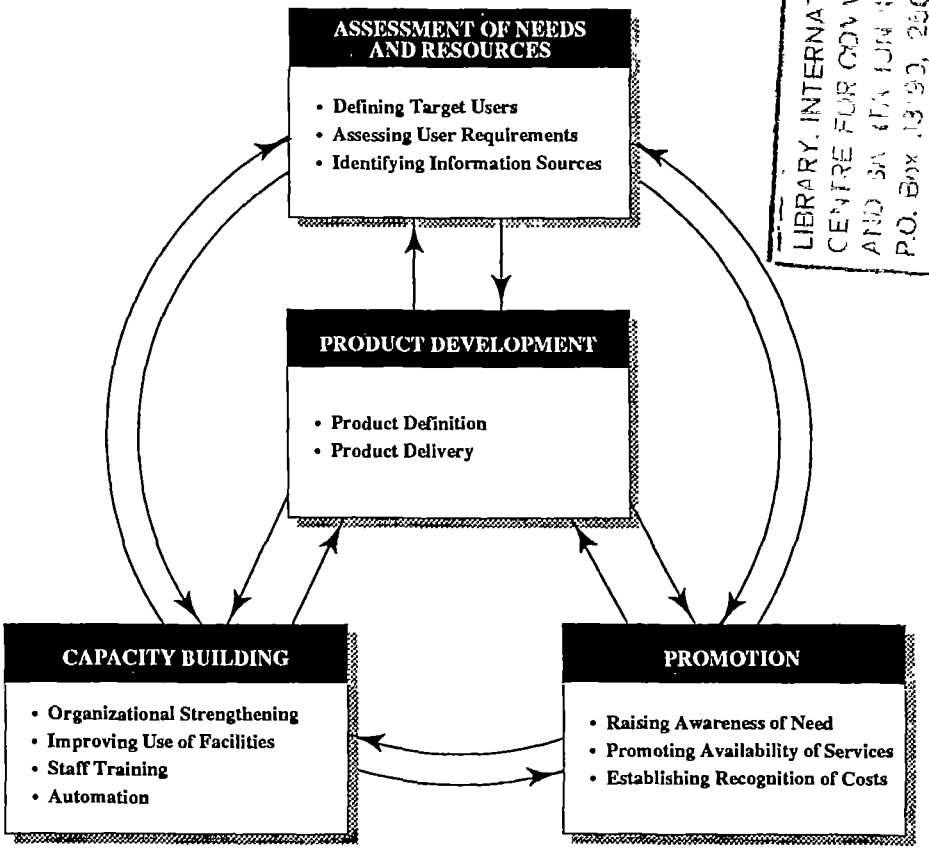

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Introduction

The June Technical Workshop and the September Working Meeting on Information Exchange for Water Supply and Sanitation sprang from consultations with the Steering Committee for Cooperative Action for the International Drinking Water Supply and Sanitation Decade (IDWSSD). At its 14th meeting in Geneva in September 1986, the Steering Committee asked IRC to present its views of outstanding needs and opportunities for improvement of technical information in the sector. The committee encouraged IRC to take a series of steps to address concerns expressed, involving actions at the local level in a few countries and supporting actions addressing regional and global needs.

The aim was to present recommendations to the Steering Committee meeting scheduled for November 1987 in Santo Domingo. Plans and approaches agreed by the Steering Committee would then be discussed with interested countries, bilateral donors, UN agencies and technical institutions, to bring technical information exchange activities into water supply and sanitation projects and programmes.

As a first step, the June Technical Workshop identified the key issues to be addressed by technical information exchange programmes and made recommendations for follow-up actions. Its report formed the starting point for the second step, the September Working Meeting. The meeting chairman, Mr Frank Hartvelt, from the Division for Global and Interregional Projects of UNDP, asked the 35 participants to aim for two principal outputs: a Framework for Technical Information Exchange, which could be readily incorporated into country Decade programmes; and a series of Country Sketches, which illustrate how the framework could be tailored to a specific country's needs, and which might form the basis of firmer project proposals later.

To help guide the participants, presentations were made by three representatives from developing countries — Indonesia, Kenya, and Thailand — illustrating the information needs of particular agencies in those countries and the ways that those needs were being addressed. The discussion of these presentations, which are included as Annex 2, identified new issues in addition to those formulated by the June Technical Workshop. These issues were considered by three working groups and in plenary sessions, resulting in the development of one major output of the meeting, the **Framework for Technical Information Exchange**.

Separate Task Force Groups then considered ways in which the agreed strategies might be implemented in particular regions, namely: Asia, East Africa; and West Africa. The meeting recognized that information needs in these regions are particularly critical and therefore merit individual attention, while in the Latin American region, several successful information exchange activities have been implemented over a number of years. The outcome of the Task Force discussions was a series of seven **Country Sketches**, for Indonesia, Kenya, Niger, Sudan, Tanzania, Thailand and Zimbabwe. These country sketches are included as Annex 1.

The groups also identified ways in which regional and international agencies could take specific actions to support the recommended new approaches. This resulted in **Recommendations for Regional and Global Activities.**

Representatives of donor and recipient agencies present at the meeting unanimously endorsed the Framework as an effective way of implementing information exchange activities in developing countries and each representative gave an indication of the way that the outcome of the meeting might influence strategies within their agencies.

Framework for Technical Information Exchange

Summary

A fundamentally new approach to the implementation of information exchange activities in the water supply and sanitation sector of developing countries is presented as four essential elements making up a "Framework for Technical Information Exchange".

The four elements: *Assessment of Needs and Resources; Product Development; Capacity Building;* and *Promotion*, reflect a general consensus that the constraints which face many developing countries seeking to implement information exchange can best be overcome by a phased approach. They reflect too a recognition that information exchange activities can only be sustained in the long term, if they meet the perceived needs of the beneficiaries, and if the benefits achieved can be used to support the costs.

The recommended route to achievement of a national information exchange network begins small. The aim is to illustrate the benefits of information exchange by means of demonstration projects. By organizing the activities described in the Framework to build up an information exchange component in a single water supply and sanitation project, the implementing agency and donor can achieve rapid and demonstrable benefits. The demonstration project can then be used as a promotional tool, to spread information exchange first across other projects implemented by the same agency, and then to other agencies operating in the sector.

In each stage, the Framework ensures that the information "products" match the needs of users at all levels, that the best use is made of existing staff, equipment, and distribution systems, and that potential users are fully aware of the information available and the benefits that it can bring. Staff retraining, reorganization of existing facilities, and maximum use of existing institutions mean that the information activities can generally be implemented without the need for high capital investments. It is however essential that the costs of collecting, storing, processing and distributing information materials are recognized and that annual budgets enable the process to be sustained. The Framework emphasizes the need for beneficiaries of information services to contribute to the costs..

An important part of information planning is the identification and promotion of existing information outlets. Cooperation among international organizations is making it easier to achieve compatibility in recording and distribution of technical information. This aspect is particularly important in connection with automation of information services. The Framework lists tools which help in the design of information systems and highlights hardware and software presently in use, as an aid to establishing compatibility from country to country.

There is good reason to believe that information exchange components developed along the lines described in this Framework will find favour with UN agencies and bilateral donors, as they should achieve greater efficiency and effectiveness within water supply and sanitation projects, and help to build up the capacity of existing institutions in developing countries to plan and implement those projects.

Importance of Technical Information Exchange

The urgent needs of the International Drinking Water Supply and Sanitation Decade demand that improved and new services are provided rapidly and cost-effectively. Successful approaches need to be replicated and mistakes corrected, if most effective use is to be made of scarce resources.

It follows that, at all levels, those involved in the planning, financing, design, construction, use and maintenance of water supply and sanitation facilities need up-to-date information on available knowledge and past experiences of others in the same field. With the widespread recognition that water supply and sanitation improvements achieve their aims only when accompanied by complementary activities in hygiene education, community participation, human resources development and institutional change, the required knowledge base covers a wide spectrum, including inputs from, for example, Primary Health Care programmes.

When planning information exchange activities, the word "information" needs clearer definition. It may include *management* information, *public* information, *operational project* information, and *technical* information. All are important to the success of water supply and sanitation programmes, but this analysis is concerned primarily with the sharing of *technical* information. Under that heading comes information about appropriate technology, hygiene education, community participation, human resources development, institution building, evaluation, financial resources, and a variety of other issues. The

information may be generated and transferred locally, within a project, or through national, regional or global activities.

In some developing countries, information channels have been created by which planners and practitioners can share technical information in a way which enables them to learn from others' successes and failures. More commonly, information is not readily available and time, manpower and money are wasted in developing projects or programmes in a vacuum. This waste of valuable resources cannot be afforded, if goals for the IDWSSD and beyond are to be met.

The benefits of effective information exchange accrue at all levels. For governments and external support agencies, programmes can be accomplished more rapidly and more economically. They also have a greater chance of being sustained and so achieving health and socio-economic benefits. Replication is an efficient way of obtaining maximum coverage with minimum resources. For field workers, improved knowledge brings confidence, job satisfaction and commitment, and communities benefit from reliable services. In summary, the benefit of an information exchange programme is that it facilitates and enhances the efficiency and effectiveness of water supply and sanitation projects at all levels.

Initiation of information exchange programmes in the water supply and sanitation sector has been inhibited by a number of formidable constraints. Fragmented sector responsibilities among different ministries and agencies hamper a co-ordinated approach and have deterred donors from supporting information exchange as a project component. Shortage of staff with the right skills in information handling, aggravated by a lack of awareness of the value of information exchange and a reluctance to record project achievements, progress, etc., in writing, all contribute to a low profile for information exchange activities.

Collecting, handling and distributing information costs money, and continuing budget provisions are needed. That will happen only when beneficiaries of information exchange are fully aware of the value and the cost of the information available.

It is rare, though not impossible, for a country to be able to overcome all of these constraints quickly. A more practical approach for many developing countries, is to introduce information exchange gradually, starting with activities linked to a single water supply and sanitation project implemented by

just one of the sector agencies. Success at the project level can be used as a powerful promotional tool for extending information exchange to larger programmes in the same agency, and to encourage cooperation with other sector agencies. Dissemination of information across the full water supply and sanitation sector in a country or region should be the long term goal.

It is important to recognize that information exchange is a two-way process. Users of data must also be providers, and ways are needed to encourage feedback. Information should always be collected and distributed for a recognized purpose. When there is a clear need, the information will be valued for the perceived benefit and the costs of collecting and disseminating it will be repaid. The provider will thus be motivated to keep supplying.

A "Framework" has been developed for technical information exchange activities which enables the products and communication channels to be planned and implemented to suit the project, national or global application envisaged. It allows too for project-related information activities to be designed in such a way that they will be consistent with future objectives of more widespread dissemination.

The Framework

Preparation of an information exchange programme, whether within a specific project or to serve a national purpose, involves four essential elements, which together lead to delivery of the necessary information "products". The elements are not necessarily sequential, but interact as shown in Figure 1. Under each heading is a list of activities needed to achieve the objective of the particular element. These activities are described in more detail later.

The fundamental basis of this Framework is that information meets the needs of the intended users and that those users are aware of the importance of the information. Once that principle is established, the programme will have a rational structure, constraints can be clearly seen, and the chances of a sustainable exchange system being established will be much greater than if the more usual "top-down" approach was adopted. Bearing in mind that many countries face serious constraints in seeking to implement widespread information exchange activities rapidly, application of the Framework should be seen as a continuing process. Initially, the four elements may be used in a simplified form to determine the information needs of a single water supply and sanitation project. Later, the exercise may need to be repeated on a larger scale, to extend the information exchange activities regionally or nationally.

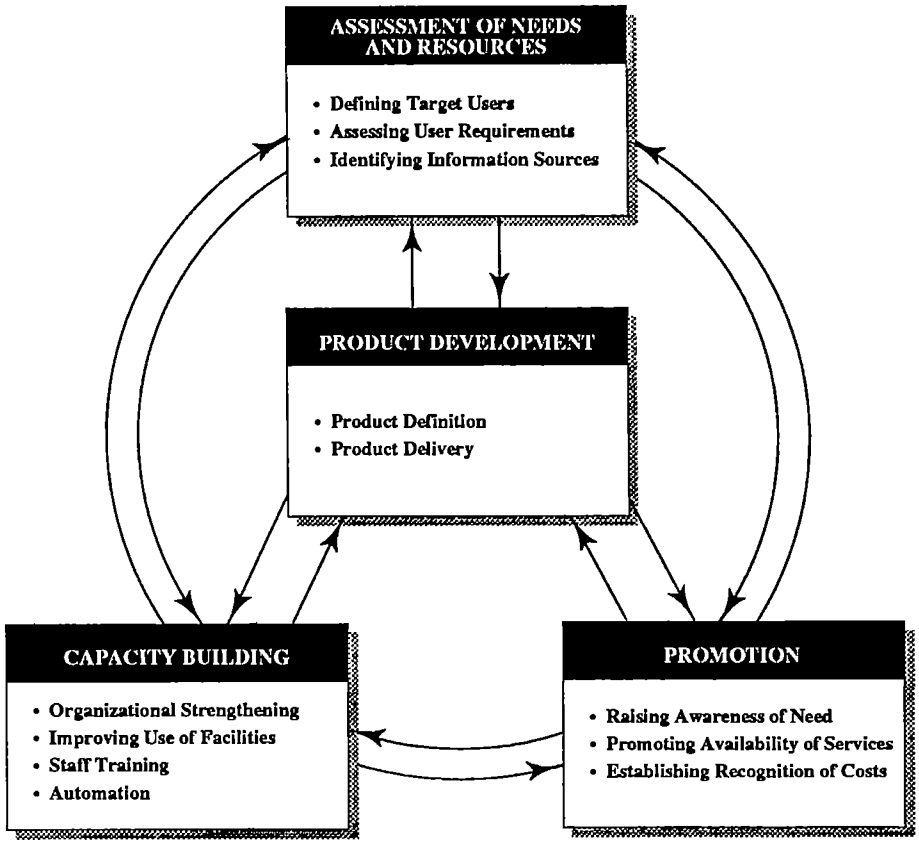
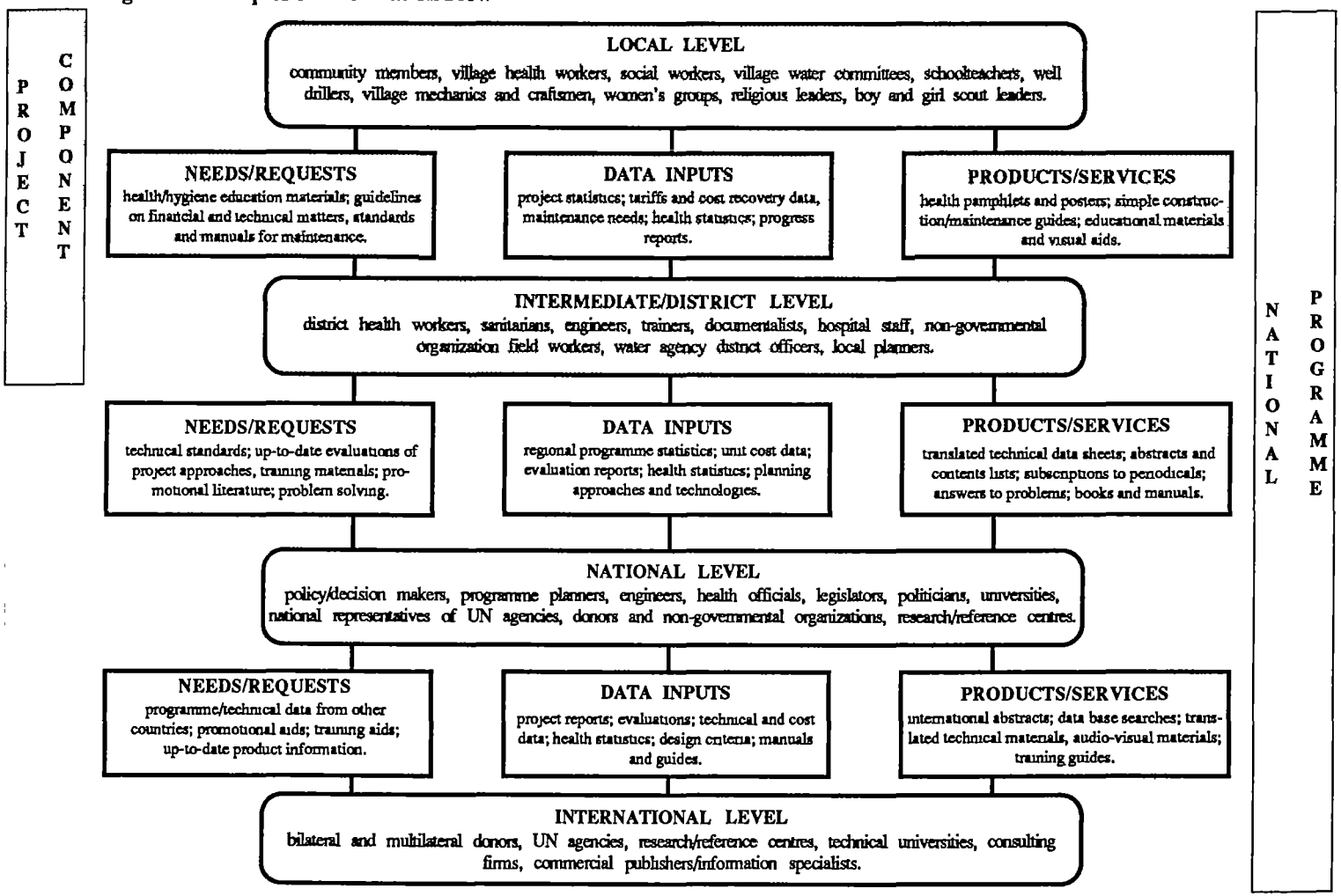


Figure 1. The Four Elements of the Information Exchange Framework

By introducing information exchange components initially into technical projects, implementing agencies and donors can achieve rapid results for comparatively small investments. These can then become demonstration projects, providing valuable data for applying the four elements of the Framework to cover a wider area. Success breeds success, and results from small scale activities by one sector agency can be powerful ammunition to persuade other agencies to cooperate in widening the communication channels.

The types of information needed and the mechanisms for information exchange will vary from project to project and from country to country and complete definition is impossible. However, the concepts can be more readily evaluated if the reader can fit them into a familiar context. For that reason, Figure 2 has been compiled as an example of the types of "information" which

Figure 2. Examples of Information Flow



might be considered important at each level in a typical information exchange programme. It demonstrates too the two-way process in information exchange, with end users of products and services also contributing data inputs to improve and extend the services.

Implementation of any proposed information exchange activities will depend on the means available to finance them. If needs have been properly assessed and will be reliably met, many information exchange activities can be made self-supporting. In addition, the development of self-reliance and capacity building within the water supply and sanitation sector can prove an attractive element for donor support.

Assessment of Needs and Resources

The starting point for any exchange programme should be clear definition of its purpose. While this may seem self-evident, the fact is that many information services do not adequately fulfill the needs of intended users. The objective of a Needs Assessment, whether for project purposes or on a national level, should be to identify all potential users of proposed information services, and to establish what information products will be of value to them. A parallel Resource Assessment can save needless duplication, by seeking out potential information sources or facilities which may be unrecognized or underutilized.

Definition of Target Users

Potential users of an information exchange system may come from any or all of the groups listed below. Primary target groups — i.e. those who may have a direct practical need for technical information — are shown in bold print. The remaining groups on the list may be seen as secondary targets, either as indirect users or distributors of information, or as important sources of information, for whom data inputs will be helpful. Not all those listed will be relevant for any particular analysis, but the checklist may help to prevent important potential users from being ignored in the planning of information exchange programmes.

In developing countries

Individuals

— community members
— village health workers
— social workers
— community development workers

— school teachers
— **field technicians**
— **trainers**
— **sanitarians**
— **engineers**
— **programme planners**
— **policy/decision makers**

Institutions

— **Ministries of Works/Water libraries**
— **National Planning Offices**
— universities and schools
— specialized UN agencies
— non-governmental organizations
— consulting firms

International

— **bilateral donors/development agencies**
— **multilateral/regional development banks**
— **UN agencies**
— research/reference centres
— technical university libraries
— consulting firms

Heading the list are users and workers at the grass roots level in developing countries. Lack of appropriate technical information is a major handicap for these groups, and measures to provide such information in a useable form can mean speedier and more successful projects, with lasting benefits. At the project level, these will be the key user groups to be considered, with information services planned in such a way that they can be linked to more far-reaching systems in the future. When the aim is to establish a national information network for the sector, the target groups may include all those listed above, and a "market analysis" approach will be needed to identify the "demand" for information and the value attached to each item.

Assessment of User Requirements

The Needs Assessment should include review of the tasks undertaken by the various individuals, and compilation of a list of types of information which would be of assistance to them. These needs vary widely. On one project: a sanitarian may need to know about experiences in his own and nearby countries with water-seal latrines; primary school teachers may need to learn about available options for school hygiene facilities and how pupils can support community environmental activities; an engineer may want to know how to prevent water from a slow sand filter from becoming green; staff of the district public health training centre want training materials, including operation and maintenance manuals, for community organizers; in the capital, programme planners need baseline data for future evaluations of projects; and so on.

Compilation of this information check list is one step in the process of assessing information needs. Ideally, it should be accompanied by an assessment by the intended user of the real value of each item, or at least an indication of ways in which benefits might come from the increased knowledge. It is important to recognize too the interaction between the Needs Assessment and Promotion. Greater awareness of available materials generates more requests, as well as a recognition of the need to input information into any planned system.

If the information exchange activities are to be linked to a single water supply and sanitation project, information needs can be determined in some detail while the technical project is being planned. Needs within the implementing agency may relate to planning approaches, design criteria, operation and maintenance needs, tariff structures, and training aids. Contacts with health centres, schools and community groups may identify additional needs to promote improved hygiene and community participation in the proposed project.

In a national setting, existence of a national water plan and associated institutional structure will itself provide a framework for determining information needs. Coordination among agencies is a problem common to many desirable components of water supply and sanitation projects (hygiene education, community participation, human resources development, etc.), and information exchange is no exception. However, early evaluation of information needs in each agency can be a valuable promotional tool to assist future collaboration.

In some countries, important data for the Needs Assessment has been obtained from a National Workshop on Information Exchange in Water Supply and Sanitation. This may be followed up by questionnaires, or by visits to each collaborating agency. Another approach is to employ an outside consultant experienced in water supply and sanitation. Teams of researchers from national universities can offer a cost-effective way of conducting the Needs Assessment.

Cost data are vitally important in evaluating the needs of each target group. Here the Needs Assessment information interacts with the development of products and delivery systems, and some pruning may arise when full costings have been carried out. The aim should be to develop as full a list as possible of prioritized information needs, along with the type of distribution arrangement required to meet each need.

Identification of Sources of Information

One critical problem of information exchange in developing countries is a lack of awareness among policy makers and others in need of information, that it does in fact exist. Before the need for facilities can be determined, an inventory is needed of information sources and production equipment already in existence, and ways in which they can be made more effective.

Government offices often have stocks of documents, books, reports, maps, and so on, but no system for recording their existence or making them available. It will usually be more economic to introduce a cataloguing system and measures to circulate information about available documents than to build up new facilities. As well as documents and storage space, the Resource Assessment should endeavour to evaluate staff resources and equipment (printers, photocopiers, computers, etc.) which might play a part in a future information exchange programme. This information will be important when assessing training needs, as redeployment or retraining of existing staff may be more cost-effective than starting from scratch.

An important potential source of documents and technical advice on information can be the offices of UN agencies or donor organizations, where it may also be possible to tap into global data bases. Regional information centres too should be contacted for advice and assistance. In some cases, they can be especially useful in providing translation services, or supplying materials from their own or other countries with similar social and economic characteristics.

The outcome of the Assessment of Needs and Resources should be identification of the gaps to be filled by an information exchange project.

However, collecting, collating, reproducing and delivering information involves costs which someone must bear. If the producer has to carry the costs, production will not be sustained for long. In principle, the beneficiary of the information should pay, and with proper promotion or marketing of appropriate information products, this can be largely achieved. In other cases, information transfer may need to be subsidized. Translation of the initial Needs Assessment into cash and resources needs in the next elements of the Framework may prompt review of the needs themselves, if costs cannot bet met. The process is an iterative one, in which the estimated costs of serving the identified needs cause review of the needs themselves.

Product Development

Each of the "needs" identified results in an information "product", a "delivery system" and associated manpower, organizational, and cash commitments. In the Product Development element of the Framework, these commitments are estimated and the results compared with available and/or proposed resources. Considering the project example described in section 3b for instance, the engineer's desire for knowledge about operation of slow sand filters may be translated into a one-off purchase of appropriate text books, retrieval of abstracts from an international data base, and, in combination with other needs, subscription to one or more journals covering the field of interest. Responsibility and resources commitments for supplying those needs have to be evaluated and matched against anticipated benefits and potential sources of funds. If the commitments can be met, the proposed item may be adopted as a firm part of the information exchange project; if production seems impractical or uneconomic, the Needs Assessment may be revised and other options analysed.

Product Definition

The Needs Assessment results in a list of priority information items for each target group of end users. Typically, it may include as one item, the need of 5,000 extension workers in different regions of the country for up-to-date information on low-cost sanitation technologies suitable for self-build programmes. In this phase, that need might be converted into: a list of books, reports and manuals, perhaps in translated form; multiple requests for documents from the UNDP/World Bank TAG programme; production of construction/maintenance guides in local languages; establishment of regional/ local documentation centres; etc.

The challenge of effective information exchange is (i) to identify the type of information products (books, reports, magazines, data bases) appropriate to answer specific demands from project personnel and field staff; and (ii) to know how to deliver the selected products. A great many information sources already exist in the water supply and sanitation sector, and the right advice during this phase can save considerable time and effort. It would be pointless for instance for an individual Asian country to propose its own scanning and abstracting of international journals for relevant water supply and sanitation references, so that a digest could be compiled and published in the country. The Environmental Sanitation Information Centre (ENSIC) in Thailand performs that exercise, and can make the output available much more economically. Basic reading lists and standard libraries are also becoming available from different sources. IRC, for example, has prepared for UNDP/WHO a basic reading list for policy makers and engineers, which includes abstracts and details for ordering relevant items.

It is generally more difficult to identify existing materials which will serve the needs of users at the community level. Among new activities which may be needed are:

— production and distribution of local periodicals/newsletters;
— provision of selected basic reading lists;
— translation and adaptation of existing documents into local languages;
— publication or co-publication of specialized documents;
— connection to existing or new data bases;
— secondary information services, including:
  - question and answer services
  - current awareness services
  - distribution of abstracts (journals)/bibliographies
  - state of the art reports.

In a later phase, particularly when information exchange activities are linked to human resources development programmes, extra components may be added, such as:

— curricula development for training courses
— curricula development for demonstration projects
— education/training activities for new users.

Any information dissemination depends for its success on adequately motivated, trained and equipped staff. It depends too on the right choice of institution/organization to collect and distribute each item in the package. The types of duties which will have to be undertaken include: compiling, editing and printing of newsletters, circulars, digests, abstracts and bibliographies; scanning, collating, and abstracting of technical publications; and selecting, adapting and translating existing materials into local languages.

Product Delivery

Reliability and effectiveness are the parameters which most influence the success or failure of information exchange services. Satisfied users will continue support and often help to develop new products or outlets. Dependable equipment and staff and efficient delivery systems for requested information are sound investments, while cost-cutting which restricts the level of service provided will rarely be worthwhile. The challenge is to reach end users promptly with the right materials, without submerging them in irrelevant literature. Links with commercial firms for direct supply of periodicals, books and scanning services may help to ensure that information is provided in time and in a useable form. When planning an information exchange project, speed and quality of response are prime criteria. This links directly to the next element in the Framework — Capacity Building.

Capacity Building

Effective information exchange is achieved when properly trained staff have all the necessary facilities to collect, produce, store, and deliver information which meets established needs. Initially, few of the institutions to be involved in a national information exchange programme will have the specialist staff and equipment they need. Extra facilities may have to be provided for storing, cataloguing, and duplicating documents, and in some cases microcomputers may be the most effective way of maintaining links with other information centres. Trained documentalists may be needed, or existing staff may be retrained to take on the role of information specialists.

In the case of a project-based information exchange component, the needs are simpler, but equally important. If the system is to be effective, and replicable, it will need to establish links with outside information sources. The service provided will have to be properly promoted, so that project workers and beneficiaries are aware of facilities available to them. And, the delivery system will need to be dependable and speedy. Again, that means skilled staff, the right

facilities, and a recognition in the project management structure of the key role of information exchange.

Organizational strengthening

In planning the information products needed, responsibility for production and delivery of the products has to be assigned to specific organizations. In some cases, new organizations may have to be established to fulfill the information role, but this will be the exception. Usually existing institutions, with assistance, will be able to adapt their structures and take on the extra responsibility. In the WASSDOC project in Sri Lanka described in Annex 2, for example, the library and documentation facilities of some ten existing institutions, government departments, and non-governmental organizations will be linked to the network developed by the National Water Supply and Drainage Board. The key point is that the responsibility, and the way that costs will be covered, should be clearly defined for both users and providers of information.

Generally, implementation of an information exchange role will involve some restructuring of the organization, both to accomplish the allotted tasks and to take advantage of the new products internally. For example, the library of a water resources ministry in a West African country may be seen as a potential focal point for collection and distribution of technical information for use by field workers, perhaps including a question and answer service. To equip the library for its proposed role, it will need a trained documentalist with experience of the water supply and sanitation sector, storage space for items to be collected, a cataloguing and recovery system for stored documents, duplicating facilities, links with other information centres in the national system, and access to data from regional centres such as the Centre Interafricain d'Etudes Hydrauliques (CIEH) in Burkina Faso. In addition, facilities will be needed for maintaining a circulation list and distributing regular information items (technical digests, abstracts, contents lists, etc). In all probability, it will be cost-effective to equip the library with a microcomputer and appropriate software for data handling and electronic connection to other data bases.

Even for an information exchange activity confined to a single water supply and sanitation project, the concept of establishing the right facilities and lines of responsibility remains important. While no fundamental changes to management structures should be needed, information skills and motivation are crucial, and the need to produce the right information quickly and in a practical form means appropriate facilities for storing, sorting and duplicating. The

likelihood of future connection to a wider network of information exchange is a key criterion in planning a project information component.

Improving Use of facilities

A great deal of the facilities needed for information exchange will already be in place in the various institutions involved. By upgrading or reallocating facilities and adding new one where necessary, an information exchange centre (documentation unit) should have these basic requirements:

— **Space** to store documents, to allow visitors to work, and for staff to conduct their daily tasks.

— **Equipment**, including shelving, cupboard and drawer cabinets, desks, tables, chairs, and access to photocopiers, and typing facilities. In some cases, usually after the system has been in operation for some time, larger centres may add microfiche readers/copiers, personal computers, and printing and binding equipment.

— **Staff arrangements** which ensure that enough professional and support staff are available to the documentation unit.

— **Budget** commitments which safeguard salaries for key personnel and support staff, stationery, mailing costs, subscriptions to periodicals, purchase of documents, office rent, maintenance of equipment and facilities, and travel. Cost allocations should also be made for periodic additional training of professional staff.

A number of "tools" have been developed specifically for information exchange in the community water supply and sanitation sector. These include the *Interwater* tools (see panel), the Human Resources Roster on Information Specialists and the International Training Network (ITN) training module on the Use and Value of Technical Information. Use of these tools encourages compatibility of working methods (working methods should always be tailored to local needs but, if these can be based on more widely accepted systematic approaches, future exchanges of information with information centres elsewhere will be made much easier).

INTERWATER TOOLS

Interwater Thesaurus on Community Water Supply and Sanitation (English, French and Spanish). 1987.

Interwater Directory of Sources of Information and Documentation on Water Supply and Sanitation. 1986.

Interwater Glossary of Terms. English version 1988, French and Spanish versions later.

Interwater Classification System. 1987.

Staff Training

Skilled staff are essential for the proper functioning of any information activity. It is noticeable, and not surprising, that many information staff in documentation centres have little understanding of the water supply and sanitation sector. Ideally, where an information exchange programme is being designed specifically for the sector, it is better to add a knowledge of information handling to the training of a technician already knowledgeable about water supply and sanitation than to attempt to graft the technical knowledge onto the training of a documentalist. The initial commitment to the sector makes the information extension worker more likely to stay with the job when training is completed. This principle reinforces the case for starting with an information exchange component linked to a single water supply and sanitation project. In this case, the information specialist is most likely to be a retrained engineer/technician, who will later be able to play a part in the training of information specialists in a wider network.

Regular developments in information sciences, specifically information management, automation aspects and introduction of new technologies, require ongoing education of concerned professional staff. Attendance at regional conferences, seminars, etc. offers excellent opportunities to increase current knowledge, to maintain contacts with colleagues and to receive information on new technologies. The rapid pace of change also puts a duty on the staff to keep up their skills through study of available literature in the information sciences field.

For general professional education, a variety of well established training institutions are available around the world. Most regions have good library schools. Sometimes special refresher courses designed for information extension workers may be more satisfactory, specifically when new administrative techniques are being introduced in the parent organization or when new information system techniques are being made available. Also, the introduction of working methods related to certain information exchange networks require special instruction. For instance, REPIDISCA in Latin America, RESADOC in West Africa, and AGRIS worldwide (the acronyms are listed in Annex 4) have developed special instruction manuals for professional information and documentation staff. Also, some international organizations such as UNESCO are able to organize special in-house short term (2-6 weeks) refresher courses for information specialists.

Automation

As in so many fields, automation is becoming increasingly important in the work of information specialists at all levels. Although in many developing countries application of automation is still in the early stages, it is evident that automation will be a fundamental part of water supply and sanitation information exchange activities in the near future.

Transfer of many kinds of information (management, technical, project type) will be facilitated through automated systems, and evaluation of possible automated systems, including their demands in terms of equipment and skilled operators, must be part of the planning process.

The ISIS related software, developed by ILO and UNESCO, is specially designed to process information and documentation data, for a variety of situations and applications. The Micro/CDS-ISIS version runs on IBM-compatible PC's and has a number of advantages: optimum compatibility, with good potential for database exchange; widespread availability of expertise; and availability to users in developing countries free of charge.

Other software/hardware packages also serve the needs of information specialists in libraries and documentation centres around the world. New communications channels for information transfer include computer links by telephone and satellite.

There are several regional and international information systems which contain water supply and sanitation data. Exchange of information among these systems can avoid unnecessary duplication and enhance each system. To make exchange possible, the different agencies need to collaborate and agree on a common logical record description, and on technical aspects like the density and formatting of tapes and/or diskettes. The potential for exchange of complete data bases through CD-ROM technology merits investigation, though it can be comparatively expensive if restricted to the water supply and sanitation sector.

Circumstances permitting, automation should be encouraged, but introducing it too early can be counter productive. It is advisable to start with small scale activities on a manual basis and build up experience, skill and credibility, and grow into a situation where automation can be introduced gradually to take over routine duties and improve service.

As a general guide it is prudent to include automation in central (national)

information centres from the start. District and local centres may be automated later, but will generally not have the skilled staff initially to operate computer systems.

Promotion

In general, decision makers, project personnel and field staff acknowledge that information is important in their daily work. Still, many information sources are relatively underused. Often this has to do with the fact that prospective users believe that they do not have time and/or money to consult with these services when they need information. It can also be impossible for them to collect information, due to poorly functioning communication channels. However, in many cases, the reason is that they simply do not know of the existence of an information and documentation centre and of the services that can be called upon. When setting up information activities, active promotion of the services already available and those soon to become available should begin during the early planning phases of projects or programmes.

In effect, what is needed is a marketing approach to information. Prospective users have to know about potential sources and the benefits they can bring, before they can provide accurate assessments of their future needs. As well as recognizing the value of information, users need to be aware of the costs. Good marketing shows how the benefits of access to appropriate information far outweighs the cost of acquiring it, but also makes clear that the costs are significant, and must be paid in some way. It is essential to raise users' awareness of the value and use of information at an early stage. Sector personnel should be reminded (i) that information is important (ii) that it can be obtained, either nearby or through wider channels and (iii) that production and delivery involve costs.

Raising Awareness of Need

Many project personnel and field staff are trained for their tasks through "in-house" courses. These can be based on internally developed training materials, or the use of external materials (such as the World Bank ITN-modules) adapted to specific local circumstances. This is a good opportunity to make new as well as experienced staff aware of the value of technical information. Establishment of a library or documentation centre linked with a training centre is attractive. Close co-operation between information centres and training institutions (universities, colleges and in-house centres) is mutually beneficial. Students and trainees should be introduced to the use of information, visit the centre and

be encouraged to make use of the facilities and services when conducting their studies/courses and preparing theses, etc.

During the Needs Assessment, researchers should have available examples of the many different forms of information which could be part of a future information exchange programme, and should be able to discuss ways in which they can be used productively to help in the daily work of potential users.

Promoting Availability of Services

Once information activities are established, every occasion should be used to "advertise" the products available and services rendered. This can be done in different ways: (i) participate in and contribute to meetings, seminars, conferences, when water supply and sanitation issues are on the agenda; (ii) (Co-)organize special workshops/seminars when information exchange is presented as an indispensable contribution to water supply and sanitation efforts; (iii) regularly publish newsletters, Decade publications, in-house journals on information issues with emphasis on the effectiveness of its use in programmes/projects (case histories); (iv) organize promotional campaigns. Travel is indispensable for information staff, as information activities can only be carried out effectively when staff remain in touch with professional colleagues at other documentation centres and with users of their services at the field level. If there is one fundamental difference between the role of a librarian and that of what might be termed an information extension worker, it is this active involvement of the latter in seeing that those who need information receive adequate products and can benefit from them.

Establishing Recognition of Costs

A serious stumbling block to establishment of permanent information exchange systems in developing countries has been provision for funding the activities on a long term basis. Governments and external donors can help with initial purchases of equipment, institutional changes, training and recruitment of staff, and most of the one-off costs associated with implementation of an information exchange programme. However, the only realistic way to keep the system operating year after year is to match the expenditure with recovery of costs from beneficiaries. It may sometimes be necessary to distinguish between *users* and *beneficiaries*. In the case of a water agency distributing maintenance manuals to district mechanics, for example, the benefits accrue to the distributor, not to the user.

For each product involved in a proposed information exchange programme,

the intended beneficiaries need to be clearly defined. Before receiving the service, the beneficiaries have to be made aware of the costs, and the project plans must include budgets showing how the costs of collecting, preparing, publishing and disseminating information will be met on a long term basis. Costs to be taken into account, include those for the upkeep and eventual replacement of equipment, training and retraining of staff, and of course staff salaries, office rents, etc. Again the benefits of an initial project approach will be apparent. The information exchange component can be established for a comparatively small additional capital investment and a regular annual budget for running costs, while providing the opportunity to identify the best way to extend the system economically and efficiently later.

Where to start

The Framework outlined above provides an opportunity for countries to tackle information exchange constraints and to demonstrate to donors a commitment to sharing of information, with all the benefits of improved performance and capacity building that successful implementation can bring.

One possible progress route to establish an information exchange component in a donor-supported water supply and sanitation project is outlined below. It is based on the common situation, where responsibility for water supply and sanitation is divided among several Ministries/Agencies, and one of those agencies has an interest in promoting information exchange.

The starting point should be an individual water supply and sanitation project to be implemented by the agency. In the preparation of the project for financial support, donors should be invited to assist with a preliminary assessment of information needs, leading into development of an information exchange component in the project. Financial demands will be low, but the early Needs Assessment will allow proper provision to be made for information exchange when the organizational aspects of the technical project are being planned. A preliminary contact with other agencies operating in the water supply and sanitation sector should be made at this stage, to assess their willingness to share information in the short and long term.

Failure to mobilize enthusiastic support from other agencies need not halt progress. Even if the initial inquiry produces only luke warm reactions from other agencies, donors have expressed their willingness to support well-designed information exchange components restricted to a single technical project. The reasoning here is that, as well as benefitting the technical project

directly, a successful information exchange project carried out by one agency can be a powerful promotional tool to encourage others to follow suit. If the four elements of the Framework are followed in developing the project-linked information exchange component, the project may be seen as a demonstration project, and should be able to show rapid benefits.

The next step will be to use the results in revived contacts with other agencies operating in the sector, including those in the complementary field of primary health care and hygiene education. Agencies should be asked to express a willingness to participate in wider information exchange activities and to nominate the sponsoring agency as a focal point for project preparation. With the backing of the other agencies, an approach can be made to a donor for pre-project support for a Needs Assessment and National Workshop.
Once the Needs Assessment is complete, it will be the job of the lead agency, perhaps with assistance from outside consultants, to convert the findings into a project proposal for information exchange. In consultation with donors, the proposal may then be included, in whole or in part, as a component of a technical project seeking financial support and/or technical assistance.

How the International Community can help

The project proposal route outlined above requires encouragement from an external support agency. The potential rewards for such support were spelt out at the beginning of this Framework, and they can readily justify investment in the information exchange component. Donors can further promote the spread of information exchange activities in the sector by themselves advising countries on the desirability of such components in water supply and sanitation projects, using the Framework as a basis for developing them.

Donor support for national initiatives will be needed once the project approach has produced demonstrable benefits. A step-by-step approach has obvious attractions, and the aim should be to build up the capacity of institutions already functioning in information exchange activities, by linking the demonstration project and other similar projects into a regional/national programme. Links may then be established with regional and global information activities.

Co-ordination activities among donors are already having a positive impact on the success rate of IDWSSD activities, following the adoption of "Global Sector Concepts" (see panel overleaf) in the formulation of technical projects. A component covering technical information exchange is part of the key elements that countries are encouraged to incorporate in project proposals,

giving extra stimulus to countries hesitating because of the numerous constraints that they face.

Access to the right technical information is acknowledged to be crucial to the successful implementation and upkeep of water supply and sanitation programmes. Promotion through donors' increasing coordination activities could have a substantial influence on more widespread adoption of information exchange components in future.

An additional activity which could have a positive impact on Information Exchange in the sector, would be donor support to extend the outreach of regional information centres, which presently provide cost-effective services, but to only a limited number of countries.

SIX GLOBAL CONCEPTS

Six Global Sector Concepts have been agreed in consultations among donors active in the water supply and sanitation sector*. They address six key issues:

1. **Institutions** responsible for sector activities in developing countries are frequently inefficient and financially weak.
2. **Cost recovery** is generally ineffective.
3. **Imbalances** exist between the provision of water supply and of sanitation facilities, and between sector inputs in central urban areas and those in urban-fringe and rural areas.
4. **Operation, maintenance and rehabilitation** receive insufficient attention, and the problem is aggravated by application of inappropriate technologies.
5. **Community participation and hygiene education** efforts are inadequate.
6. **Coordination and cooperation** is inadequate among external support agencies, between those agencies and the national water supply and sanitation sector agencies, among the sector agencies themselves, and between the water and sanitation sector and related sector programmes.

* *Global Sector Concepts for Water Supply and Sanitation*, WHO, 1987. Available from the CWS Unit, World Haelth Organization, 1211 Geneva 27, Switzerland