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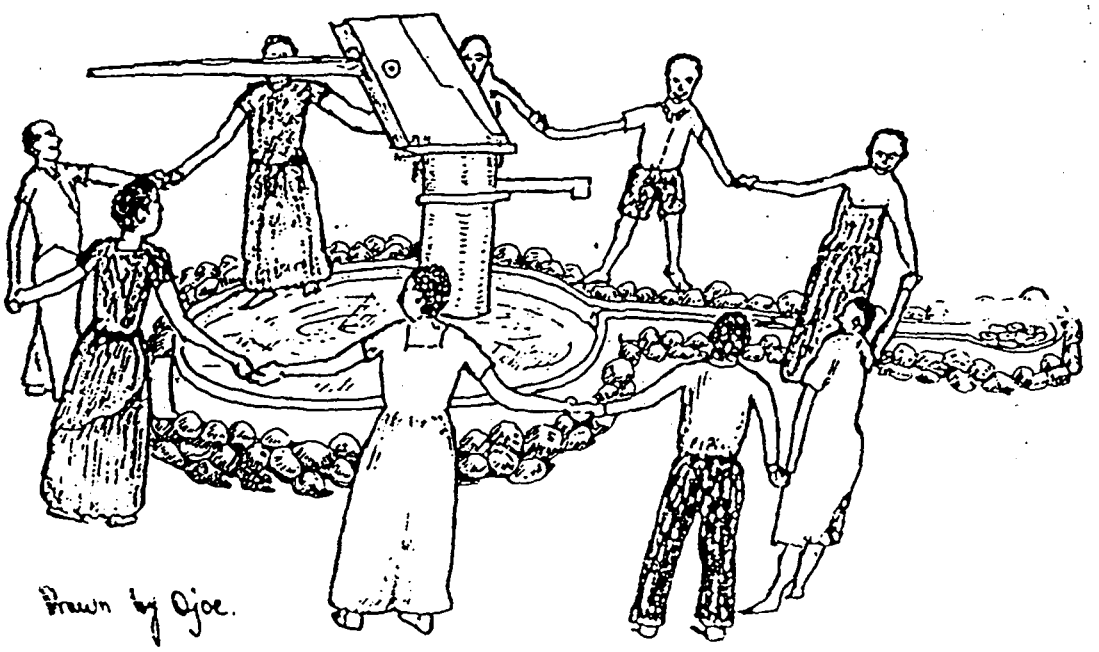
Interregional Water & Sanitation Workshop Report



Nairobi Kenya
5-9 May 1986

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OPENING AND WELCOME
JIM MAYRIDES - DEPUTY REGIONAL DIRECTOR

On behalf of Mary Racelis, our Regional Director, I would like to welcome our colleagues from Headquarters, from other countries in Africa, from Asia and from Copenhagen to this inter-regional Water and Sanitation Workshop. We are also glad to have participation of some distinguished resource persons including staff from Helvetas, UNDP/IBRD, FAO, the International Reference Centre in the Hague and from the Ministry of Agriculture.

The ultimate objective of the workshop is of course improved programmes with more beneficial impacts. These can be achieved in a number of ways : most of you are technical people and more efficient programmes and more appropriate technology is certainly one way greater impact can be achieved. But perhaps more important would be to identify a sufficiently comprehensive programme which caters to the most crucial needs which, when met, will ensure a good chance for the children's survival and development. One of the major themes in the agenda is that of evaluation. From the case histories being presented, you should receive examples both of how to do it and how not to do it. We do not see evaluations as an ends in themselves. They are part of our monitoring systems and are simply one step in effecting necessary changes in our programmes. Such changes are required not only because the world is changing, but also our understanding of the situation will change as we continually observe programme implementation and get feedback from our colleagues and from the communities and beneficiaries. One possible outcome of the workshop will be a concensus on how to evaluate programmes formally, how often this should be done and how much time and energy should be devoted to this aspect of monitoring. What you learn here should also help you to see that you get the most out of each field trip by better knowing what to look for, questions to ask, and by being impressed by the need to constantly check and test the hypotheses and assumptions on which our plans and programmes are based.

I trust that the workshop will be a valuable learning experience for all the participants. Speaking especially to UNICEF participants, I hope you will go back better equipped to identify opportunities in your countries for UNICEF to collaborate beneficially. These may include opportunities for advocacy and for project implementation.
As we look at evaluations and case histories, let us keep in mind that one of the best ways of advocating sound ideas is to support programmes that demonstrate beneficial impacts in terms of survival and a better quality of life. We want you to take away from here not only good ideas and a strong sense of purpose, but also knowledge of where you can go for help in order to fully exploit the opportunities that exist. The people you meet here and the knowledge they and their agencies represent will be of valuable use to you in your day-to-day work.

I would like to thank the agencies that are loaning resource persons for this workshop and I trust the UNICEF experiences related here and the knowledge you gain from our staff will be stimulating and will enhance interagency understanding and cooperation.

I. Policy Issues

Opening Remarks

M. Beyer, Senior Policy Specialist Water and Sanitation, UNICEF New York, stated that in UNICEF we are moving from purely technical solutions to low-cost approaches which have the possibility of spreading the benefits to a wider population. For more effective water programmes, the importance of integrating with other donors and other sectors was stressed. An effort is currently being made in the developed world through bilaterals and multilaterals, the OECD Development Assistance Committee and the regional development banks to spread water programmes through a more concerted, coordinated and integrated effort. The current workshop was very timely as it provided an opportunity to exchange field experience on integrating with other basic services.

a) Integration of WES, PHC and Education for Environmental Sanitation

i) Pakistan assessment

Ken Gibbs (Resident Programme Officer - Quetta, UNICEF Pakistan) discussed the Pakistan Water Programme. Because the programme was encountering problems, it was decided to review the programme in terms of:

1) how UNICEF handled water policy and

2) programme implementation.

According to a paper "Child Mortality and Morbidity in Pakistan with Special Emphasis on Diarrhoeal Diseases" by J. Lambert, in Pakistan an awareness of how to prepare food and handle water may be more important than the provision of food and water in lowering child mortality due to diarrhoeal diseases (which account for some 35 percent of child deaths). He pointed out the controversy between the short-term (growth monitoring, breastfeeding, weaning and ORS) and the long-term (water and sanitation) approaches and suggested that a mix of the two was most effective. The annualised cost of the water approach was US$14 while the short-term approach amounted to only US$0.60.

The review suggested that in Pakistan, UNICEF should be in the business of promoting, rather than of providing, basic services. UNICEF should act as a catalyst with its limited resources to show government and larger donors what can be done.

The report concluded the following:

- UNICEF should not be drilling or providing drilling rigs as the private sector can do this more efficiently in mosts parts of the country,
- In provinces where the Government had been supplying pipes and pumps, UNICEF should discontinue this activity,
- UNICEF should promote the production of suitable (VLOM) community handpumps and demonstrate their use,
- UNICEF should play an advocacy role with government in terms of handpumps and the improvement of existing design criteria and technologies,
- Since the way water is handled may be more important than the provision of water, it is important to work with other sectors such as education.

Discussion from the Floor

An issue that is not receiving sufficient attention is that of maintenance which is left to the Government as it is felt that communities cannot afford this. This, however, decreased funds available for other development efforts; it is therefore important that UNICEF understand all the consequences on the national economy of its programmes.

A WHO sector survey was undertaken at the same time as this review. Examining results from both a housing census and a health survey helped determine water coverage. It was discovered that many people have access to traditional sources (springs and wells) which could potentially be made safe.

It was also noted that the water programme began 15 years ago and since that time, policies and priorities have changed.

ii) Tanzania experience (I. Blakely, UNICEF Tanzania)

The Wanging'ombe Water and Sanitation Project was set up in 1978 in Iringa to serve approximately 50 villages with a potential population of 160,000. It was envisaged as a borehole project but a gravity feed scheme was found to be more appropriate, providing 270 kms of piping and community storage tanks in Phase I. In Phase II the community was

consulted regarding sanitation, with an initial 4 villages in the pilot scheme and growing by 15 villages per year. At the current time, it is estimated that a 50 per cent coverage rate for sanitation has been achieved in the project villages. For the sanitation scheme, the household provides approximately 80% of the total cost, while UNICEF supplies 15% and the Government the remainder.

iii) Somalia experience (C. Bentley, UNICEF Somalia)

Northwest Somalia has a population of approximately 650,000 and is in a perpetual semi-drought situation. About 60 percent of the population is nomadic but urbanisation is on the rise. Infrastructure is generally weak. The literacy rate in rural areas is approximately 5-10 percent - the Somalia language was put in writing in 1972. The water-related disease profile is seasonal, with bloody diarrhoea (dysentery) in the dry season and watery diarrhoea in the rainy season (starting about April). There is also trachoma in Haud area, skin diseases (scabies and ring worms), malaria and anaemia. Due to lack of rain or irrigation, few vegetables are grown and the diet is mainly milk and cereals. Very little meat is eaten.

The Northwest Integrated Social Development Programme was set up in 1982 to attempt to overcome some of the problems in an integrated approach, including PHC, water, sanitation, literacy, nutrition, education and, later, forestry. The programme was to cover 55 villages and though both PHC and water activities are active in at least 55 villages, they are not necessarily the original 55 named nor are they active in the same villages.

Problems which the programme encountered initially included:

- water had a slow start and then there was great pressure to produce wells,

- the sanitation component was implemented by sanitarians under MOH, while the Water Programme was under the Ministry of Water,

- integration was pushed by outside, not from within, and staff had enough difficulty dealing with demands of their own Ministry without trying to co-operate and satisfy demands of other ministries or sectors,

- difficult communications in a UNICEF sub office,

- on the government side, the Ministries of Health and of Water Resources were involved and were supposedly integrated by the Ministry of the Interior but communications were often difficult,

- the objectives of the government were not always the same as those of UNICEF, for example UNICEF did not find it feasible or advisable to work in border areas though these were priority for government, despite security or other practical constraints.

Once a water facility is provided, the government staff may feel that their role is fulfilled and may not be interested in impact on IMR. The water programme tended to cater to concentrated populations along the best access road; whereas, the PHC programme often went to more isolated communities who had nothing.

The cholera epidemic in March 1985 however wiped out some of the communications and other constraints mentioned above (and other difficulties with donors and with H.Q.). The emergency demanded action and, for the first time, integration actually occurred between water, sanitation, health and food programmes in an effort to contain the epidemic.

In the refugee camps, the PHC structure, which had already been put in place, provided the information which water and sanitation used to bring in services and which in turn advised health on maintenance of the hardware. The PHC structure then monitored the situation. In rural areas, a team approach was used on training households to clean water. The cholera epidemic also pointed out the importance of clean water and

not just the provision of water. Once the epidemic was contained, integration continued, at least in areas where it was possible to do something about the water problem.

Because of this felt-need and common working area, "working" integration, not imposed from outside, is possible. The health committee is the contact point in the community and water people make use of it. These committees have led to a better local knowledge of types of villages and in turn to a better channelling of interventions. The CHWs are an important part of the system. Approach and inputs vary with the villages which range from those with shops and a main street to smaller centres with satellites to very dispersed communities.

Monitoring and evaluation are an important element of the programme. Statistics are used as advocacy tools where diarrhoeal cases have been reduced due to the provision of water, for example, in La Faruq the health worker recorded 70 cases of diarrhoea in two months before the wells supply was improved and only 2 cases in a similar period after the system was brought into use. Community health workers help collect information on drought by means of rain gauges and on market prices of food. In centralised villages, a family registration form is used to help target those families having problems. In the water programme, a pictorial spare parts form has been developed for maintenance.

The importance of health education is recognised. After a first health worker training course, 10 new wells were dug and protected because the health worker convinced them that poor quality of water would lead to disease.

The lesson that programme staff have drawn from programme experience is that a common objective should be established from the onset. Once this is established the community can carry out integration; for example, in La Faruk village, once the water system was put in, a tax of 1 shilling per household per day (5 shillings per day for tea shops) was paid to the CHW who also serves as the pump caretaker. The house which the community built also serves as a health post and has a demonstration garden.

iv) Mozambique example (J.C. Espinola/S. Radojicic, UNICEF Mozambique)

Approximately 82% of Mozambique's population of 14.5 million people is rural. Estimates made in 1983 showed that approximately 6% of the rural population had access to water, while the water supply coverage rate for the urban population was about 48%. By 1985 the estimated coverage for rural water was 10% but there was no change in the urban sector estimate.

Constraints to achieving the decade goal (of 75% coverage of both rural and urban with protected water supply) include: war, drought, economic crisis, foreign exchange shortage, shortage of qualified manpower and lack of infrastructure and lack of local suppliers. The rural water supply target was one water source per 500 persons (i.e. one spring or one tap or handpump); however, in the case of taps or handpumps, it is hoped that one per 250 persons (50 families) may be provided.

UNICEF has been involved in the water sector since 1975. The present commitment includes training of basic level technicians, community participation in health education, water supplies and rural sanitation. A community participation and health education programme was launched in 1985 to complement a large-scale water supply programme in Cabo Delgado province, executed by Government and HELVETAS. The objectives are:

- to increase multi-sectoral cooperation,
- to increase community involvement, especially with women,
- to increase water consumption (from present 7 litres per capita per day to 20 litres),
- to ensure access to safe drinking water for 100,000 persons,
- to ensure 100% utilization of wells constructed,
- to decrease incidence of disease due to poor water quality.

In addition, the social communications component created the infrastructure to support the community participation project by providing film laboratories, training facilities, mobile units and trained technicians and by supporting popular correspondents. Support is

also given to the provincial water and sanitation authorities for training of animators and they have made significant impact in promoting the programme. They however, need more specific and more relevant health education materials and training.

v) Communications for Behavioural Change
(M. Kinunda UNICEF/UNESCO, K. Nimpuno Consultant)

M. Kinunda noted that while governments in the region are giving priority to education, UNICEF is not. In many countries of eastern and southern Africa, as much as one third of the budget goes for education. Education is an important component of the basic services approach introduced ten years ago as it brings about an awareness of and receptivity to other basic services. Children speak the truth and are a good source of information. He recommended fully utilizing the school and community linkage to bring about lasting changes in water and sanitation habits.

A meeting was held in Ethiopia in 1985 for people working on curriculum development for both primary schools and adult education to determine how to exploit better both education systems to bring about behavioural change. This meeting was followed by a meeting of UNICEF programme officers in Tanzania to propose ways of operationalising suggestions from the Ethiopian meeting. A further meeting was held in Nyeri, Kenya to bring together both health and education specialists from countries in the region.

K. Nimpuno then presented a different approach to bringing about behavioural change. Often development is equated with putting in hardware, while leaving cultural issues to the community. Development is, however, about change which deals with cultural issues; we should therefore be concerned with this aspect of it. To bring about this change, it is necessary to examine people's motivations which may be quite different from donor or project motivation. This leads to the conclusion that group pressure is more often more effective in bringing about change than health education. Because it is difficult to change adults, we should perhaps focus on children. In addition, surveys which focus on behaviour of adults

often produce questionable results as adults often answer what they think is expected. To overcome this bias, a survey of school children in Machakos, Kenya was undertaken. These children were asked to consult with their grandparents since they are not in the same authoritative role as the parents. New information on customary beliefs was found.

Sanitation programmes should not be seen primarily as construction programmes but as activities bringing about behavioural change and should therefore focus on children who are more receptive, more open and who can act as agents of change.

Pied Crow is an environmental magazine, supported by CARE - Kenya which can be used by teachers to get across environmental sanitation matters. Several issues were made available to participants and translation into French is being done.

b) UNICEF Experience with Community Participation in WES Programmes

i) With particular reference to women (M. Beyer, UNICEF New York)

M. Beyer outlined benefits of shortening the time needed to fetch water which is a task generally undertaken by women. These include improved health, increased time available for agriculture, childcare and rest; other benefits could be gained from including women in the planning stages of water programmes, in decision-making and in their continued participation in operation and maintenance. A booklet "Insights from Field Practice - How Women Have Been and Could be Involved in W.&S. Programmes" has been prepared giving examples of these benefits. In North Yemen, UNICEF supports training of women in water programme skills. In Pakistan, women are being trained as village promoters for sanitation which has in turn widened women's outlook. INSTRAW (the Institute for Training and Research on Women) in Costa Rica acts as a resource centre for UNICEF, among others.

The role of NGOs is important in increasing community participation and integration of water programmes. UNDP is currently funding a programme through NGOs for the advancement of women.

Discussion from the Floor

In asking women to do more, it is important to realise the time constraints women face as they are currently carrying a very heavy workload. However, while asking women to undertake more, for example, in water programmes, we should be aware of secondary income possibilities that accompany these new tasks.

In UNICEF itself, an effort should be made to recruit actively women for the water sector. Special visits to training institutions or requests for female JPOs should be made.

ii) Community based Handpump Maintenance (B. Doyle, UNICEF Uganda)

This is a new proposal for the Uganda programme. As women are mainly responsible for water, it is their responsibility to find an alternative when an existing source breaks down. In Uganda during the 1970s, a complete breakdown of the maintenance of the existing borehole system occurred. The population therefore resorted to traditional and often unclean water systems. In 1981 UNICEF therefore became involved in a handpump rehabilitation programme and after testing, agreed with the government to standardise on the U2 (India Mark 2). Because maintenance is so important, UNICEF advocated community ownership of pumps with users responsible for maintenance. The new government (1986) recognises the importance of community level inputs and understands the problems of rural areas. However, it is necessary to change traditional community attitudes which depend on government for maintenance. This would be achieved through a multi-pronged approach through CSD and water using NGOs, churches, women, etc. to achieve community maintenance of pumps. The Resistance Committees will act as administrative councils and UNICEF will support, through these committees, training of pump mechanics, provision of tools and spare parts for two years. Suggestions from the communities themselves have included:

- Mechanics should only be paid for completed repairs,

- Money to pay for repairs could be raised through community cash crop production or from a tax for maintenance of the handpumps where community crop production is not feasible.

The subcounty appears to be the ideal working unit. Each subcounty will get two mechanics trained and each could handle up to 20 to 25 pumps within a radius of about 20 km to a maximum of about 50 kilometers.

In addition, UNICEF will support strengthening of district planning capacities, and are asking technical schools to include pump maintenance in their curricula, as well as primary schools to include health education .

Discussion from the Floor

The fewer tools required for maintenance and the simpler the pump design, the more likely a community is to become involved in a water pump activity; therefore the India Mark 2 (U2) pump was being used in Uganda. The Tara pump may also present interesting possibilities but in some areas its merits and area of applicability should be field tested.

Tools and spare parts are distributed through Resistance Committees at the subcounty level and are provided by UNICEF for two years at which time Water Development will buy from UNICEF on a reimbursable basis. In Somalia, efforts have been made to involve the private sector; however, the mode of operation must still be worked out in detail and there is not much local experience in such interaction with the private sector.

iii) Labour-intensive Approach to Rural Infrastructure - Helvetas Experience (J. Bovier, Helvetas Kenya)

Helvetas is a privately run Swiss aid agency funded 2/3 by the government and 1/3 by private donations. They work in approximately 15 countries at the community level. Work is undertaken either through communal labour or through food for work. In the case of free labour, motivation is key to success as the people must feel that the project is needed and belongs to them. Organisation of the work is based on family participation with each family rotating among its members. Other key

features include quantity of work which must be realistic and the duration of the project (if it is too long, eg. more than 2 years, people lose interest). Supervision is best carried out by the department with which the project is working.

The Rural Access Road programme in Kenya uses casual labour on a monthly basis (this can legally be done for up to 3 months). Recruitment was done by lottery and supervision is carried out by the cooperating ministry. About 70 to 80 workers are organized into 3 or 4 work gangs. Activities carried out include construction of a work camp, site clearing, excavation, drainage and construction of small structures (such as culverts and bridges up to 6 meters span). Approximately six months to one year later recambering is done.

Task rates have been established for each job (e.g. 25 meters of ditch per day). Pay is contingent on performance of the task; however, certain non-routine tasks are left aside until later in the project (e.g. excavation in rock or removal of unforeseen obstacles).

Discussion from the Floor

Skills learned in this type of activity can be applied to other activities. For example, in the Wanging'ombe projecct in Tanzania, masons trained in that project are now building in their own villages. Rehabilitation of roads can be taken up on the labour-intensive basis and donors are more willing than in the past to assist rehabilitation and maintenance.

iv) Increasing Village and District-level Capacity for Handpump Maintenance and Repair - Zimbabwe Case (D. Williams, UNICEF Zimbabwe)

The case for handpump maintenance and repair was presented. As a result of a recent evaluation, project personnel realised that maintenance of pumps was a problem. Lack of standardization also complicated maintenance. A slide presentation demonstrated the various types of pumps being used in Zimbabwe.

A proposal has therefore been developed to set up a village level water committee as a sub-committee of the Village Development Committee. One person would be trained as the pump caretaker and the committee would have at least two female members. Tools are to be provided. This committee would report problems to the next tier in the system which is the overseer at the district level. District Government is therefore responsible for repairs, with community assistance.

Discussion from the Floor

Use of water by livestock is a problem as it increases demand for water by at least 100 percent. In many places, livestock are a source of wealth and therefore not sold which raises the question of whether UNICEF should include water for livestock. There is also the question of increasing water supply for livestock which leads to an increased number of livestock and ultimately to overgrazing and erosion. To attempt to overcome this problem, a range management programme has been developed for the Sahel, for example. However, a UNESCO study in Northern Kenya showed that people tend to keep only the number of cattle required to maintain their families. Even if the amount of water provided is limited to human use, livestock will still use it, thus making water points centres for potential disease. It is therefore better to provide more water points with smaller numbers of users per point (i.e. 100 or 150 persons per handpump instead of 250).

It is very difficult to show a causal relationship between increased clean water and better health, we must therefore look for other justifications such as economic ones.

Since people prefer higher yielding sources (or handpumps with higher discharge), it would be advisable to take this into consideration when determining the type of water system.

Some countries have established master plans for development of water resources for all purposes; however, as this is beyond UNICEF's limited resources, we should look to governments and larger donors to support this activity.

II. Water Programme Evaluation

a) Evaluation Procedures and Presentation of Evaluation Training Package Developed by the International Reference Centre and UNICEF(M. Seager, IRC)

Purpose of an Evaluation

Learning

To assess overall achievement of a project (donors
(political priority
(extension
(scale-up

Improving

To identify ways to develop and improve (successes
(difficulties
(cheaper
(better

Evaluation is not

- a test
- a hurdle
- done and forgotten
- done only by outsiders/experts
- backward looking only
- fault finding, blame laying
- done only at the end of a project
- a "high brow" activity
- just information collection

Evaluation is or should be:

- a valuable project and institutional tool,
- involve: - national agencies and project staff
  - communities for implementing recommendations
  - supporting donors
  - resource persons

feed forward, as well as feed back.

- positive in tone.
- regular, when required
- easily picked up by busy professionals.

Phases of an Evaluation

preparation	- initiation - formulation of objectives - selection of main questions - short investigation - selection of methods - preparation of detailed questions
evaluating	- collection of information and data - analysis and interpretation - formulation of conclusions and recommendations - report writing
using	- using evaluation results - sharing lessons learned

Stages of an evaluation are similar to community water supply and sanitation activities (CWSS).

CWSS		Evaluation
Projects		Evaluation
Facilities	⟷	Recommendations
Use		Use
Benefits		Benefits

Evaluations should be practical and used.

Evaluation objectives should attempt to determine:

. relevance
. efficiency
. effectiveness (most important)

of project interventions, using these criteria:

. functions
. utilisation
. impact

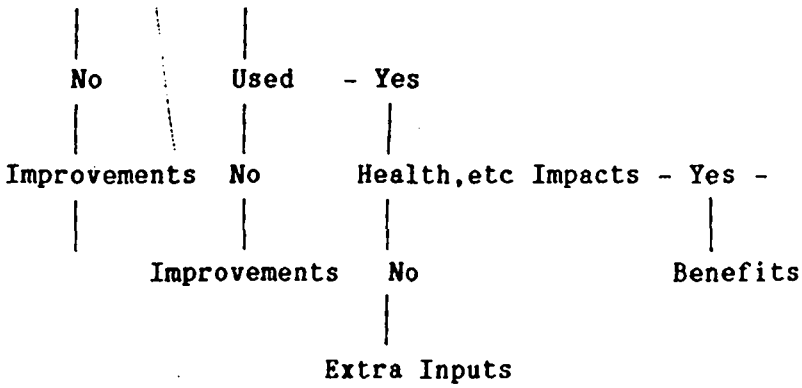
Assessed by indicators e.g. for water supply

- quality
- quantity
- reliability
- convenience

Ref: WHO "Minimum Evaluation Procedures" (MEP)

MEP Steps

Functioning / Utilisation / Impact



To facilitate evaluations of water supply programmes, UNICEF approached the IRC for help in developing an evaluation training package. The aims are :

- to share evaluation methods
- to use evaluation results
- to make evaluations more action oriented.

Components of the package include :

Course Notes : Information
Examples
Skill Development Exercise
Course Overview and Preliminary Programme
Moderator's Guidance Notes

They have been field tested in two workshops and contain built-in evaluation, feedback and further development mechanism.

Key Points for the Evaluation Training Package

"Not evaluation for the sake of evaluation but evaluation for effective improvement and better future planning."

- promotion of straight forward evaluation techniques for use, not study
- action oriented
- participants themselves make substantial inputs to the course through case studies, role playing, discussion and course evaluation
- minimum number of low-key moderators
- emphasis on practical training.

Course Overview

- aim
- participants
- methodology
- course notes
- duration
- sessions
- moderators
- output
- assessment
- qualification
- follow-up

Reference Papers

WHO "Minimum Evaluation Procedure"
IRC "Evaluation Village Water Supply Planning" (TP15)
UNICEF Programme Field Manual Chapter 15
TAG Technical Notes I and II
UNICEF Selected Evaluation Reports

The IRC attempts to promote more practical, action-oriented evaluations. For example, in the IRC-supported Public Standpost Water Supplies Project, an evaluation was carried out with the following characteristics :

- during the life of the project,
- by national participants for maximum feedback,
- cross evaluation by participants in the four countries for learning, cross fertilisation, open critical assessment and by a peer group,
- feed forward, as well as feedback,
- outside resource person for guidance and support only.

Discussion from the Floor

The above outline could be used to guide later discussion in this workshop on the country evaluations.

It is important to include junior people in evaluation training as they often are the implementors. A training session in evaluation is to be held in Nigeria from 23 June - 04 July, 1986.

The Technical Information Retrieval System (TIRS) series of evaluations could provide a good source of information (eg. evaluation of IRC-supported Water Supplies with Public Standposts).

A checklist of things to cover in our discussions was presented by E. Watanabe (Planning & Evaluation, UNICEF HQ):

- link between monitoring and evaluation (monitoring is really more important than evaluation and monitoring data is vital input to evaluation),

- it is not necessary to establish a direct causal link between a project and a health impact as this is too complicated and expensive. Therefore, in UNICEF evaluations, we should focus on functioning and utilisation criteria. If these two are ineffective, there will not be any impact. We should however be aware of health factors and perhaps should make a qualitative assessment,

- as most W.E.S projects are donor funded, UNICEF has set the following conditions to carry out evaluations:

  - negotiations must be raised at time of project approval,
  - must have agreement of government and UNICEF country office, and
  - the donor must bear the cost of the evaluation.

Too many evaluations may cause burdens to a country (especially where we have many noted projects) and UNICEF does not get the best use of results if they are done with an inspection mentality to fulfill bureaucratic requirements,

- composition of evaluation team - who should participate, eg. implementors and/or outsiders? This raises the question of objectivity and follow-up,

- indicators - what to monitor or evaluate,

- evaluation of costs - cost efficiency rather than cost/benefit analyses (which may be impossible to do with precision: however, the W.E.S. sector has been more conscious and recorded more on costs than some of the other PHC components such as EPI have been doing),

- use of qualitative information.

Discussion from the Floor

A workshop was held in Bangladesh to discuss the health impact in water and sanitation projects. Copies of the report are available.

It was generally agreed that impact analysis is difficult. Reference was made to the findings of B. Doring's paper "The Impact of Community Water Supply and Sanitation Programmes on the Reduction of Morbidity and Mortality - A Methodological Note".

(Editor's Note : Findings of B. Doring's paper are summarised as follows :

Given the serious methodological problems involved in generating the data necessary for the quantification of the morbidity and mortality rate indicators, the research process requires the commitment of considerable resources of time, staff and funds and produces at best ambiguous information at the programme or project level. These indicators are unsuitable to measure change which can be attributed to UNICEF's efforts. For programme planning purposes, indicators of intermediate programme effects are more useful. These indicators are related to specific programme activities and can be measured independently of other activities and developments in the programme area and with fewer resources).

If reduced diarrhoeal diseases is used as the only indicator of success of a water programme, how do we take into account the other causes of diarrhoeal diseases which may prevent any reduction?

UNICEF needs to provide clear guidelines on types of methodologies required in specific cases. For example, an evaluation was proposed in Ethiopia by outside experts; however, the Government intervened and insisted that the national institute carry out the evaluation. The evaluation is now well overdue and has increased costs.

There is also a need to establish guidelines on costs of evaluations. A rough estimate used by HQ is that all monitoring and evaluation activities would require about 3-5% of total project costs.

Overgeneralised evaluation guidelines may risk missing out the local situation. Therefore guidelines should form the basis for adapting to a specific country situation.

On the question of health impact studies where much time and money is involved, UNICEF should keep track of what others are doing and share relevant information within the organisation.

b) Uganda Presentation (J. Muyombya, UNICEF Uganda)

91% of the population in Uganda is rural. Since the 1930s, there has been a borehole programme which has produced approximately 5,000 boreholes. However by 1970, most were in disrepair. UNICEF therefore became involved in a series of water programmes :

- pump replacement (15 borehole maintenance units)
- spring protection (through local government and technical ministry)
- new drilling (technical assistance, drilling, training)
- water quality laboratory.

In 1984 an evaluation was carried out with the following objective:

- to look at programme objectives which were to improve health, to promote socio-economic improvements and to promote stable communities.

The methodology was designed with the participation of the implementing agencies as they would have to carry out the recommendations. The following aspects were to be evaluated : technical, organisational, institutional and resource allocation. Constraints identified included financial on the part of government which could not pay staff salaries and which in turn led to low moral, embezzlement and ineffective procedures for disbursement. UNICEF introduced productivity bonuses which did help improve performance. Another problem was the lack of planning which led to supplies not being available on a timely basis and thus to slowdowns. In addition, high inflation and poor security compounded the problems.

A major problem was caused by the fact that five agencies were participating in the projects, ie. Water Development Department, Ministry of Local Government, Ministry of Culture and Community Development, Ministry of Planning and Economic Development and UNICEF. There were no clearly formulated guidelines for each agency's participation nor were there communication links between and within agencies. Top level civil

servants did not show much interest in the project (for example, the Ministry of Culture and Community Development wanted vehicles, etc. for their headquarters and as these were not given by UNICEF, their cooperation was minimal). Committees set up to identify priority areas for water established priorities other than by critical need. Allocation of materials in the spring protection project was a problem as it was not based on criteria such as availability of materials, pressure from communities or absorptive capacity.

In the specific programmes, results of the evaluation indicated the following :

Pump Replacement

Technical - lack of spare parts, need to redraw targets

Organisational - need for technical assistance in ministry for motivation

Institutional - need for training

Resource Allocation - misallocation of inputs

Spring Protection - there was a need to take user convenience more into consideration .

Borehole Drilling - although off to a slow start, the programme is basically on target. Through the Resistance Committees, communities are now involved.

Water Quality Lab - equipment arrived late, poor communications. Only questionable sources are tested. The ministry is not convinced of the need of this project and therefore does not provide much support.

Handpump Maintenance - there is a problem of ownership and maintenance by the community.

Generally, community participation was lacking. Problems encountered with regard to the technical aspects included : inappropriate equipment; lack of local servicing; need for hydrological support and more supervision of rigs.

On the organisational side, the major problem was corruption and the question of resource allocation, overstaffing and priority to borehole drilling over pump replacement caused problems.

Discussion from the Floor

The evaluation team comprised four government, 2 donor (UNCDF and Norad), and 2 UNICEF (WET and ESARO) members. It was carried out in a period of 3 weeks which was made possible by pre-preparation of background information. Only the major recommendations were approved by the whole team while each person was responsible for a specific chapter. The Uganda UNICEF office found the report useful in its fund-raising efforts and in crystalising its ideas about the projects.

Evaluations also allow donor governments to report back to their governments. An example is the joint programme with the West German Government in Bangladesh, Nepal, Burma and later Sri Lanka. The Germans however drew their own conclusions depending on the political expediency in their own country.

It is important to carry out a hydro-geological mapping exercise and this does not have to be expensive.

c) Burundi Presentation (P. Steven, Consultant, Y. Faugere, UNICEF Burundi)

The population of Burundi is approximately 5 million who depend mainly on unprotected surface sources. In 1979, UNICEF began support to a programme including gravity supply, spring protection and rainwater catchment in clinics. It evolved into a semi-autonomous project as the implementing ministry was weak both technically and in terms of organisation.

By the end of 1986, costs will be as follows:

	end '85	US$	end '86
National inputs	0.5m population		+ 0.2
	0.3m communes		
	0.3m government		
External	1.5m UNICEF		+ 0.2
	0.3m CIDA		
	0.7m UNCDF		
	0.2m USAID		+ 0.1
	0.2m Australia		+ 0.3
		Total	$4.8m

Outputs by end	1985	and end	1986
improved springs	4800		5800
gravity systems	74 kms		119 kms
rainwater catchments	-		-
waterminders trained	141		
waterminders retrained	5		
communal administrators trained	112		

The evaluation team used the UN Joint Inspection Unit guidelines as a basis. UNCDF asked that special attention be paid to efficiency in procurement and management of materials while UNICEF was interested in intesectoral cooperation, programme objectives and future directions. The team comprised : 2 UNICEF (ESARO, and Consultant), 1 UNCDF Consultant, 2 Ministry of Rural Development, 1 Ministry of Planning and 1 from Ministry of Health. The project manager served as a resource person. The evaluation was carried out between 22nd April and 6th May 1985.

Conclusions and recommendations found that the construction objectives of the programme were well formulated. Procurement of materials was acceptable, while training was somewhat lacking. It was not possible in the short time to arrive at a concensus on unit cost with the project manager offering the following:

$300/protected spring - 100 beneficiaries
$8993/Km gravity system - 100 people/km
and therefore $60/beneficiary

and the UNCDF Consultant:

$444/Spring - 200 beneficiaries
$11210/km gravity system - 200 beneficiaries/km
$42/beneficiary.

However, the overall objectives were not clearly stated and this made the evaluation exercise difficult. The experience of the evaluation led to the conclusion that terms of reference and time required for the evaluation needed to be clearly defined and agreed on before the evaluation started. As this was not done in this case, the UNCDF consultant tended to work independently of the team and filed a separate report.

Comment by Y. Faugere (UNICEF, Burundi)

Because of the confusion about team leader and terms of reference, before the next evaluation at the end of 1986 with USAID participation, the leader will be defined and all existing information will be collected prior to the start. It is important that the project becomes fully integrated into the responsible government ministry and that it is coordinated with other efforts such as the World Bank Unit in such areas as sanitation and health education. UNICEF's role should be one of advocacy that government and the community take over responsibility for the project.

The Government is confused by the existence of two evaluation reports; therefore, a single finalised report still needs to be presented to Government. These two reports were, however, most useful in planning the next phase of the project. Since the evaluation, the project has been :

- establishing a data bank on spring capping and gravity flow data,
- where springs are being protected, other amenities such as washing blocks are being installed,

- collaboration with the ILO and the French is taking place, as well as negotiation with a private enterprise to undertake the work
- a survey of dispensaries is underway.

Discussion from the Floor

The comparability of results of evaluations was seen as a problem as terms are often not defined and when they are, they are often not equivalent between studies.

The need to improve planning of evaluations was highlighted. UNICEF should not depend too much on goodwill but should tighten up on terms of reference and should insist on clear terms where other donors are involved in joint evaluations. UNICEF should draw on other donor resources where possible for such activities as an inventory of water resources. UNICEF resources should not fund basic research, but rather investigations which can readily be translated into projects to benefit the people.

d) Rwanda Presentation (C. Massar, UNICEF Rwanda)

The purpose of the evaluation was to take stock of project activities before starting a new project (i.e. to better programme and plan as per Minimum Evaluation Procedures of WHO). Output between 1976-1982 included 170 trained waterminders and 5600 capped springs. Total costs were estimated at $2.7 million, with US$500/spring/200 persons or $2.5/person.

Terms of reference for the evaluation included:

- involvement of local authority in project,
- problem of maintenance,
- state of springs,
- provincial and communal authorities thoughts on new project.

Conclusions are as follows:

- authorities are happy with contact in mobilising local population,
- authorities had no say in type of spring capping,

- use of communal labour was good and was involved in determining priority springs for tapping,
- maintenance was not good and was variable depending on interest of local population and local authorities,
- Phase II should concentrate on gravity schemes, while maintaining spring protection to meet needs.

The AIDR which has now gone bankrupt was a private company undertaking the project. Thus, no thought was given to continuity after project completion. Caretakers were not given any materials or equipment.

Inspection of springs produced the following results:

- water flow was acceptable but there were seasonal variations,
- the presence of acidic water (PH of 5.0 to 6.0) necessitates use of PVC pipes. Acidic water also attacks concrete. During a 1977 cholera outbreak, a relationship between a low PH level and lack of cholera disease was noticed. It appeared that where there were many such springs, there was a reduced chance of spreading the disease.
- the bacteriological quality was generally good. A relationship was found between poor quality water and large variations in flow; apparently, a steady flow comes from deeper and is therefore providing safer water.
- up to 60 families or 200-300 persons used one spring.
- there is much to be done in the area of maintenance.

The team concluded that springs provided the best source of water and that services should be provided to complement these springs such as washing slabs and improved access

Discussion from the Floor

The groups attention was called to the following:

W.J. Lewis and P.J. Chilton have published a paper on "Performance of Sanitary Completion Measures of Wells and Boreholes Used for Rural Water

Supplies in Malawi" to determine the safety of groundwater supplies. They concluded that boreholes typically deliver water with less than 10 faecal coliforms and less than 20 faecal streptococci per 100 ml and protected dug wells less than 20 faecal coliforms and less than 50 faecal streptococci per 100 ml. Therefore the careful siting and good completion are the most appropriate defences against faecal pollution of shallow groundwater supplies in Malawi. This paper shows how bacteriological data can be analysed and graphically presented. This format was found useful for the data taken for the Rwanda and Burundi evaluations.

In both Burundi and Rwanda, cement is a costly item for water projects. Where water is acidic, lime can be added to it prior to mixing the cement in order to improve the quality of the concrete. If the concrete is dense and non-porous, it will not be easily damaged by acidic waters.

Additives to improve the quality of cement require precise measurement and may therefore not be appropriate in rural projects. It may; however, be useful to carry out some experiments with different additives. Because supervision is needed for quality control, it is important that governments and communities learn to undertake this activity.

When using cement, every effort should be made to ensure it is prepared properly (especially to keep a low water/cement ratio). In Malawi where they are interested in low technology, cement mixers were used to ensure a stiff mix. Where water is acidic, if possible, surface area of concrete should be reduced by using stones as they will generally resist acid attack better than the concrete.

An experiment was carried out in Zimbabwe which resulted in the conclusion that boreholes are able to rid themselves of contamination faster than dug wells. In Bangladesh, animal excreta is mixed with drilling mud wells, but this has not been a problem as it disappears quickly when the well is developed and pumped.

While it is important to obtain bacteriological data on the quality of water at source, this should be taken one step further to the quality at the time of actual use. An experiment in Tanzania showed much faecal

coliform at time of drinking. Quality was better where the water was stored in the dark.

While the private contractor in Rwanda was responsible for training and construction, it was not held completely responsible for the quality of work as contractors provided light supervision of communal labour. Communities could be trained to check quality and to certify satisfactory completion of work.

e) Ethiopia Presentation (K. Ray, UNICEF Ethiopia)

An evaluation was proposed to help with preparations for the next UNICEF country programme. Of a total population of 32m people, 87% are rural of which 12% have access to clean water.

Costs up to mid-June 1983 totalled US$8.5 million with 137 drilled wells, 386 hand dug wells and 35 piped schemes being completed with 648,000 beneficiaries. Planned costs were US$4.9m.

The evaluation is still incomplete due to a variety of factors including over busy implementors (all of whom are attached to the University), the 1985 drought and a government decision to send all teaching staff and students to rural areas to help rehabilitate drought victims.

Community participation has been lacking in the project.

Discussion from the Floor

Evaluations are necessary but just as important is on-going monitoring of project activities as this provides the groundwork for evaluations.

There is also a need to put more stress on effective management information systems in the agencies charged with water supply work.

f) Zimbabwe Presentation (P. Cross, Consultant)

P. Cross (Consultant), D. Williams (Water Project Officer, UNICEF Zimbabwe) R. Boydell (UNDP/IBRD/TAG Advisor, Zimbabwe) and J. Skoda (Regional Water and Sanitation Adviser, ESARO) undertook the evaluation of the programme in Matabeleland. The water sector in Zimbabwe is highly developed in some areas but lacks experience in rural areas. Conflict of roles and lack of collaboration are caused by the participation of seven different ministries in the sector.

The project was located in Matabeleland, a drought-prone area of Zimbabwe. The UNICEF programme began in 1982 and aimed to strengthen institutions, to increase government capacity, to support traditional technologies and to increase community participation.

Problems were encountered from the start as the project officer was located in one ministry at the provincial level with terms of reference to build the capacity in another ministry with no budget.

Technical assistance, training and materials were provided by UNICEF. A slide presentation showed project activities which included well siting by communities, and well digging (first four metres) by communities at which time the technical team moves in.

The evaluation had the following objectives:
- to assess project concept and design,
- to assess project inputs against achievement,
- to review planning and implementation procedures,
- to appraise construction.

The WHO MEP guidelines were adapted to the actual situation so that a mix of methodologies was used and included interviews, questionnaires, physical inspection/observation, assessment by local extension workers not involved in the project and case studies.

The evaluation team was composed of the following members:
- ESARO adviser
- UNICEF project officer
- outside UNDP/IBRD/TAG adviser

- consultant anthropologist
- ministry officials
- District Administration/local authorities.

However, the Government did not actually participate.

A plan for the evaluation was developed and included 1) documentation review, 2) interviews 3) sample survey (50 completed projects, 20 projects with slow progress, 10 abandoned projects and 25 non-project communities), 4) case studies and 5) field review.

The stages of implementation of the sample survey were set out as follows:

1. - define objectives
2. - prepare draft questionnaire
3. - develop draft training notes and definitions
4. - identify and train enumerators (health assistants)
5. - pilot field test questionnaire
6. - design sample
7. - revise questionnaire and training notes and print final version
8. - prepare computer programmes for data entry and analysis
9. - collection of data
10. - check data and return visits
11. - data capture
12. - initiate tabulation
13. - analysis
14. - report preparation.

Notes for key questions to be included in case studies are available in the workshop papers.

Evaluation findings included the following topics - project design and objectives (too ambitious), implementation, interim programme reviews (3 done in too short a time and most disregarded), technical appraisal, finance and costs, training and institutional support, community participation, water usage and health, and health and hygiene education. Both community participation and health were felt to be inadequate as components of the project.

The project was found to be technically successful but little attention was paid to community participation except in the siting of wells and more training and follow-up would be necessary. While communities accept ownership of wells, the chain of command for repair and maintenance is unclear. 60% of all projects had well committees who were assumed to take over management of the water projects. However, responsibilities were not clearly defined, women were little represented and were not involved in key decisions. There was no involvement of VHWs, no training materials were provided for committees and no pump minders were trained.

Because no information was provided as a baseline, this evaluation could serve for future reviews as a baseline.

Discussion from the Floor

Given the scale of project activities, self-financing by communities will eventually have to be considered by the Government which currently provides water free of charge.

The problem of clear responsibilities has been cleared up with the Ministry of Water having advisory responsibility, while the Ministry of Health and the Ministry of Local Governments have implementation responsibility.

Evaluation approaches should be tailored to the results desired and must try to match opportunities and problems with the possibilities. UNICEF's profile in a country would influence this, for example, in India where UNICEF has been assigned and plays a key role in the water sector, results of an evaluation could be expected to have an impact with Government; elsewhere where we have a low profile, this would not necessarily be true.

Benefits of the evaluation include prodding of busy programme officers to do something about known constraints and demonstrating to donors that the project is really trying to improve.

Other Information - Aerial Photography (K. Nimpuno - Consultant)

Planes and ordinary cameras can provide an inexpensive way of carrying out an aerial latrine mapping exercise. Experiments have proved 80% correct in locating latrines. In addition, where people cannot read, photographs provide a means of communication. Aerial photography provides a means of rapid, reliable data collection to monitor developments.

Discussion from the Floor

This could be a highly sensitive political issue and should therefore be cleared with the government before starting.

g) Sudan Presentation (M. El Fatih and K. Maskall, UNICEF Sudan)

With a population of 21 million, Sudan has a rural population of 81%, of which only 15% have access to clean drinking water. The UNICEF-supported water programme operates in four regions and includes borehole drilling, handpump installation, support for maintenance and upgrading of traditional water sources and, in some cases, small-scale irrigation. Nationally, UNICEF also supports the establishment and upgrading of W&S training facilities for engineers and technicians.

Through the 'Hafir' Rectification and Water Treatment Plant programme, UNICEF supports government efforts to upgrade traditional water sources. In South Kardafan, 'hafirs' provide the only source of water for 70% of the rural population. However, the quality of water is still poor and efforts are being made to install slow sand filters at some sites. 'Hafirs' are being upgraded as an alternative source of water until access to potable quality supplies can be improved through the drilling and handpump installation programme. A 1983 multidisciplinary evaluation recommended that :

- management and supervision be improved,
- government should finance cost of heavy plant operation,

- greater efforts should be made to train treatment plant operators, and
- community participation be increased through establishment of water user commitees.

A further evaluation in March 1986 revealed that these recommendations had not been implemented. The conclusions stressed the need to follow up the 1983 recommendations and, in addition, to :

- freeze future construction until operation and maintenance functions were clearly understood and carried out,
- limit rectification works to maintenance of inlet/outlet structures,
- encourage community participation on planning and implementation of all work,
- start experimentation with water pre-treatment methods such as horizontal roughing filtration, and
- UNICEF support to the 'hafir' rectification programme should continue but be reduced.

Recommendations of this review will be used to consolidate and accelerate efforts to reach beneficiaries with more reliable deep-well water supplies. UNICEF should concentrate on training and experimentation.

Discussion from the Floor

An important element missing from many projects is good management which should be supported by technical assistance in many cases.

Inspector Bertrand visited the Sudan and was suprised to see the scope of UNICEF support to water programmes which involved large earthmoving equipment. Another visitor to a local hospital found many patients had spear wounds which are often caused by fighting over water. A subsequent visit revealed that in the same hospital, patients were then suffering from disease and no longer from spear wounds as water supply had been increased. This could be viewed as pursuing the UN goal of world peace!

Where local water diviners are available, their local knowledge and support can be useful.

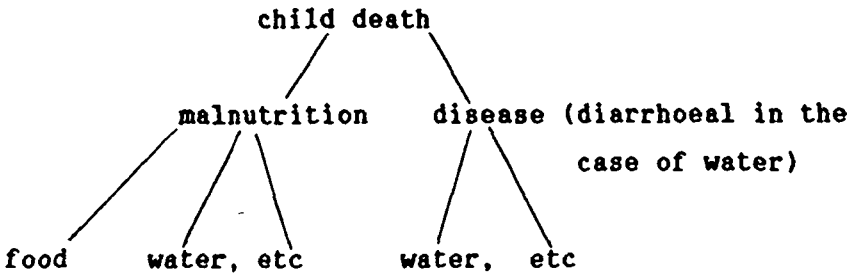
With respect to experimentation of different technologies and approaches, UNICEF should pursue this as long as the costs are reasonable, it complements other activities and the community can operate and maintain it. A bibliography is available in ESARO on sub-surface dams.

Hydro-fracturing has been tried in the Sudan with some success and also used successfully in Uganda; however, there have been problems of losing equipment in the wells.

In Sudan, the involvement of women is restricted to health committees where they represent 50% of the members (where sanitation programmes have been active these committees have helped).

h) Programme Monitoring and Programme Audit Evaluation
(K. Williams, UNICEF ESARO)

Both monitoring and evaluation are on-going activities. The framework for understanding child related problems is as follows :



If we are concerned about development and health, then there is a misconception that we are facing a production problem.

For water programmes in UNICEF, people are worried that they are too high tech oriented and that they are not integrated with other CSD components. For monitoring the situation of children, it is not possible to divorce water from these other components. Brigitte Doring of the UN Stastitical Office produced a paper "Impact of Community Water and Sanitation Programmes on Infant and Child Mortality" on this subject. (See Editor's note page 21).

UNICEF first became interested in monitoring and evaluation around 1975 when a PRO was issued on the subject. It was however too technical and, since that time, efforts have been made to demystify the subject. In the Eastern and Southern Africa Region, the Periodic Progress Report (PPR) system was introduced to monitor project implementation. Its success has been rather limited with only Ethiopia using it as an office management tool. While Tanzania has not dealt directly with the PPR, they are trying to develop a computerised financial monitoring system which should eventually feed into the PPR system. Other offices view it as an imposition from above and thus not part of their normal duties.

In an effort to overcome this lack of systematic programme monitoring and to inject programme knowledge into the programme audit, the Programme Audit Evaluation has been developed and tested in the Iringa Joint Nutrition Support Programme. In Tanzania the structure of the exercise is important as it allows for a systematic approach to a review which is based on physical, rather than financial, progress.

Only travel to the project site was required, in addition to a review of existing documentation, and interviews with governments and UNICEF participants. Discussions were also held with the UNICEF Programme Officer and the Representative to gain their approval.

It has therefore been proposed to K.E. Knutsson (Deputy Executive Director) and to Erich Buenger (Chief Auditor) that the PAE be carried out regularly using audit field staff and regional advisors. The PAE does not cost much in terms of time and finance and would thus overcome problems of long research projects which are sometimes undertaken. The PPR system would supply the base information for the PAE which could precede a mid-term review, for example, which could then focus on policy issues. The PAE could be carried out perhaps twice in a five year programme and would be more relevant than rapid assessments which are expensive and carried out by outsiders who do not know the local situation.

Discussion from the Floor

A similar exercise was carried out several years ago in Burma where the Government did not accept evaluations per se. Therefore the water programme officer, the regional auditor and E. Watanabe undertook a review of factors affecting programme implementation on the UNICEF side. This proved to be an effective use of available UNICEF personnel.

The PAE explains differences in planned and actual expenditures in the comments column. However, this is confused by the field staff use of CCF levels instead of actual expenditures which improves progress artificially as it does not reflect actual expenditure. Another problem is the lack of review of assumptions or potential constraints in designing many programmes. In Mogadiscio, in an effort to establish a national planning system, they are setting up a programme section. The CCF system needs to be changed to reflect the project and sub-project structure which is used by field offices. There is another problem in that it is difficult to get programme/project staff to provide sensible comments regarding problems in programme implementation as they sometimes confuse a programme monitoring exercise with supply monitoring.

There is a need to mark clearly recommendations in the PAE report. In addition, if audit staff are to be used, they should thoroughly understand the purpose of the PAE. Eventually, perhaps the two sections, audit and monitoring and evaluation, could be combined.

The Sudan has asked that the audit section undertake a PAE; however, the workload of the auditors makes it difficult to undertake all these activities. In addition, their management expertise is needed at the planning and implementation stages, for example for community participation in maintenance of water projects and for establishing local capacity to administer resources and activities.

Concern was expressed regarding the depth of analysis required in a PAE, as there was little discussion of functioning, utilisation, community participation and management issues. In reply, it was stated that the

awareness to include these issues must be raised and that was the aim of the PAE. Another concern was expressed about the limited scope of the PAE as it involved only UNICEF inputs. The PAE is viewed as a structured internal tool which project partners should be encouraged to use.

i) Swaziland Presentation (J. Skoda, UNICEF ESARO, Nairobi

From the onset, the project was dictated from above as it was seen as an opportunity to collaborate with UNEP. However, Swaziland was chosen for this effort where there was no UNICEF presence and no government water department with which to cooperate. Objections were raised by the area office but overruled. There was inadequate project identification and investigation. UNICEF did recruit a project officer, and eventually the government created a an agency for rural water supplies. Because there was not enough water from springs, surface water and drilled boreholes were used, many of which were inappropriate; the project was too controversial, therefore, to have even a demonstration effect. The per capita cost was approximately $200-$300; however, there was some success on the sanitation side. Baseline health data on schistosomiasis and other diseases was collected but not used because everyone lost interest.

Because of the controversial nature of the project, it was evaluated by a single expert (Clifton Bovee). He had full access to UNICEF and government officials and did a very able job of summarising what had transpired.

Discussion from the Floor

The programme was handed over to the Swazi Government which is now trying to standardise such projects through the Rural Water Supply Board. An example of an inappropriate approach were diesel powered boreholes within a few kilometers of power lines. High per capita costs were encountered because people in Swaziland live in homesteads but not villages; the project therefore tried to interconnect scattered homesteads with piped water.

The community participated through trench digging, while other civil and mechanic work was contracted out. The project supplied piped water to each homestead, as well as other amenities such as showers and latrines.

The one positive outcome was that the project accelerated the government decision to establish its own Rural Water Supply Board.

Round - Up of Item 2: Evaluations (E. Watanabe, UNICEF HQ)

Issues which must be dealt with in evaluations:

Management points:

- how to deal with divergent opinions of evaluation team (Uganda and Burundi presentation),
- need to agree with donors on terms of reference of joint evaluations prior to evaluation (Burundi),
- who carries out evaluations? national institutes, auditors or external consultants (Swaziland)?
- if more than one ministry is responsible for water, who would be responsible for implementing recommendations? (Zimbabwe, Uganda)
- allocation of funds for monitoring and evaluation earmarked at 3-5% which does not include regular staff activities.

Methodological points:

- no evaluation presentation dealt with health impact,
- a good project monitoring system allows for a quick evaluation (Uganda). Where there is not one, a pre-evaluation using nationals to collect information is good and also improves government involvement (Burundi),
- need to have clear programme objectives (Swaziland),
- need to adapt global evaluation methods (Zimbabwe),
- quick VS. quality evaluation. Not a question of either or but depends on the situation and the opportunity,
- use of PAE depends on circumstances,
- need to have a good evaluation plan (Zimbabwe),
- interesting to include water quality data (Rwanda and Burundi),
- benefits of evaluation: reminder to project management, and useful tool for fundraising.

Items not dealt with:

- follow-up action to evaluation, e.g. better use of evaluation results,
- how to better share evaluations between offices,
- how to make better use of computers in monitoring and evaluation.

TOPICS FOR GROUP WORK:

1.- evaluation guidelines
2.- further integration of water and sanitation into other activities, eg. sanitation, PHC, UCI, CSD
3.- management issues
4.- community participation
5.- collaboration with other agencies (not dealt with)

Group Presentations (for full reports, see Annexes 1-5)

1. Evaluation Guidelines (Group members: P. Cross, M. El Fatih, C. Stevens, M. Nowacki, E. Watanabe)

- Use should be made of existing guidelines such as the WHO "Minimum Evaluation Procedures".
- Types of evaluations : audit
  : pre-project studies
  : post-project studies

There is an important link between monitoring and evaluation.

- Methodologies used should fit the situation.

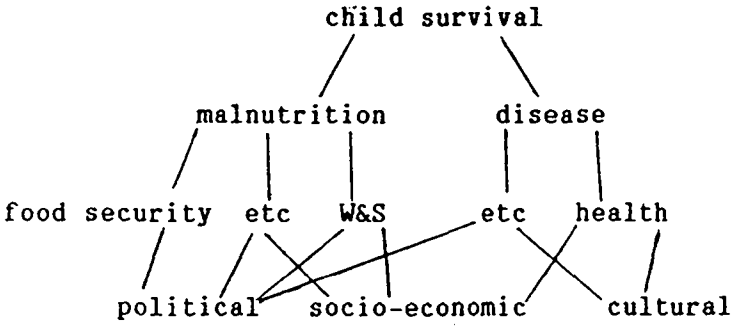
- Composition of teams should involve UNICEF and government at various levels. As it is desirable to have senior people participate, which is not always possible, perhaps evaluations should be phased to allow for their participation. Use of local institutes and consultants should be determined by the situation. A good mix of disciplines is also required.

- Evaluation exercises should be viewed as training and institution building exercises, as policy guidance and as advocacy.

A checklist of things to be covered in water and sanitation evaluations should be prepared to aid in the preparation of terms of reference for evaluations.

2. Integration (Group A: R. Anderson, K. Gibbs, C. Pflueger, J. Quarm)

We must first define the aim of UNICEF support, eg. to reduce IMR and CMR. To achieve this, we must be involved in water and sanitation activities, but not in isolation of other problems and interventions. A strategy needs to be developed to tailor to any given situation, eg. a conceptual framework.



The methodology to achieve this integration could be through

- regional responsibility
  - government implementors
  - UNICEF sub-sectors

- management responsibility
  - in programme design
  - in implementation
  - in monitoring and evaluation

Management at all levels should attempt to ensure that integration is achieved.

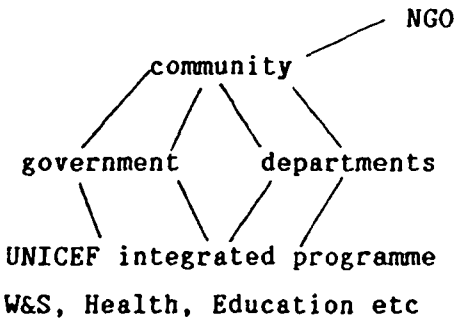
Discussion from the Floor

The point was made that we should ensure that the "D" is not forgotten

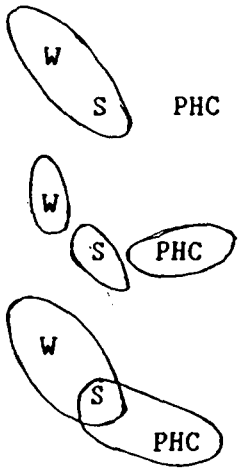
in "CSD". While one participant disagreed that UNICEF is a development agency, it was pointed out that our policies clearly include development issues.

2. Integration (Group B: S. Radojicic, J.C. Espinola, J. Muyombya, M. Beyer)

The aim is to integrate at the community level; as we do not have enough influence on governments, we should start with UNICEF itself and use committees, but as few as possible.



Different approaches have been used in water and sanitation programmes, eg.



The third which is the integrated model is the most effective. Motivation and training for integration should be carried out at all levels.

The role of women is important at the village level, but there must be a balancing male role for effective progress.

Discussion from the Floor

An argument for increasing the number of committees was presented as too few committees allowed : 1) politicisation of the problem with no counter-balancing force and 2) spatial problem depending on technology. In addition, there is the problem of non-contributors which should be allowed for as any water system should be voluntary and structured around one type of technology.

3. Management Issues (D. Williams, B. Doyle, Y. Faugere, K. Ray, C. Massar, J. Skoda)

The issue of clearance with government is sometimes a problem for project officers. It is not a requirement, but a UNICEF country office may wish to share informally a potential candidate's C.V. with the government or meet with them if being interviewed.

In order to achieve and maintain a level of efficiency, the project officer should sit in the UNICEF office where it is not as likely that the government will sidetrack the officer to other duties, often unrelated to the project.

Because water projects usually involve significant volume and technical details, project officers should have authority delegated by the UNICEF representative to them for these projects. In addition to technical know-how, project officers should be well versed in UNICEF procedures and other management issues and have the full support of the administration and finance section. Officers need to be encouraged to correspond as part of WES knowledge network and some time must be budgeted to allow for participation in training and workshops.

Most water projects receive noted funds which are deposited with UNICEF in advance and earn interest. Some of this interest should be available for project management and support and to allow for some flexibility and/or to meet unexpected needs.

4. Community Participation (B. Pacaud, N. Tackie, M. Seager, A. Amor, K. Maskall)

The group made the following suggestions:

1.- technical staff should have communication skills (through training, if required) and have access to appropriate materials,
2.- social planners should be aware of technical and management issues,
3.- objectives should be stated in the long-term,
4.- there should be no standard community participation solutions,
5.- the potential of children and women should be fully utilised,
6.- monitoring and evaluation exercises should help justify the need for more community participation,
7.- budget allocations for community participation should be increased,
8.- replicable and realistic demonstration programmes should be used to promote the community-based approach,
9.- cost recovery and sustainability should justify an adequate financial allocation to community participation,
10.- motivational factors which may positively influence community participation should be identified and fully exploited.

III. Management of WES Projects

i) Management Information Systems Uganda Example (B. Doyle, UNICEF Uganda)

The Uganda UNICEF water section recognised the need to establish cost analysis guidelines to a) determine costs of boreholes, b) to determine how the project could be streamlined to reduce costs and c) to determine comparable private sector cost.

With regard to the latter, when Government first requested UNICEF to start a drilling project, UNICEF was not in a position at that time to do so. They therefore obtained a quotation from a private company for drilling a borehole. The company quoted US$ 10,000 per borehole which did not include siting, a handpump, training or testing (and under certain circumstances this could go as high as US$ 14,000 per well).

Factors which affected the cost of drilling included keen able management, good training of project staff, good field logistics, prior borehole site selection and completion of one site before starting a new one.

The recent evaluation was effective in that it brought government agreement to cost effective changes such as a central storage unit and a mobile maintenance unit.

Discussion from the Floor

The cost estimates from India were made available to Uganda. The World Bank also has some useful material on costs of wells.

Cost of crew mobilisation must be kept to a minimum (i.e. finish work in one area before moving on).

The decision as to which technology to use must include economic considerations and be relevant to the local situation. It is good however to compare costs of different technologies. Often governments opt for the high technology option; therefore it may be necessary for UNICEF to demonstrate that this is not always the best solution.

In Uganda, a bonus system was used. In order to check quality as production increased, supervisors with checklists were used on technical matters, while the district administration and the community were used for other matters.

Borehole failures are minimal in Uganda (15 out of 75, but 10 or 12 of these failures can be recovered by hydrofracturing); they should however be included in total project costs.

In the UNICEF programme manual, the section on water and sanitation should include information on cost guidelines which also calculate cost/ beneficiary. The question was raised whether this should be present or future beneficiary; UNICEF needs to clarify this issue.

ii) Supply Management Procedures (B. Pacaud, UNICEF Copenhagen)

A distinction should be made between supply and procurement activities. Supply deals mainly with UNIPAC matters while procurement deals with heavy equipment being shipped from the supplier to the country. Therefore UNIPAC handles only a few items for water programmes which usually require large items. Specialised procurement officers in conjunction with field officers respond to water programme needs.

UNIPAC can also authorise regional or country procurement if justified. UNIPAC is scrutinising these requests more carefully; country offices must therefore plan better and not rely on local procurement to compensate for bad planning. Reasons justifying local procurement include lower price, urgency, problems specific to landlocked countries and refusal of local agents to handle overseas procured materials.

Copenhagen and regional offices can work together in obtaining bids which are required for all major items, while the technical and price evaluation takes place in Copenhagen. Freight is an important factor in evaluating cost and often precludes countries where freight costs may be higher, eg. USA, Canada or Australia.

Basic commodity orders (including freight) go to the lowest bidder, while more sophisticated items go either to the lowest bidder or to the best of the merit point system which is based on after-sales service, availability of spare parts or the possibility of standardisation.

UNICEF does not keep a formal register or short list of suppliers. Priority is given to companies in major donor countries which may cause confusion when a procurement officer also tries to promote infant industries in recipient countries.

Few suppliers attend the formal bid opening session. Commercial tabulation precedes technical evaluation and is undertaken by people with no commercial background which creates a weak point in the procurement process.

Bidding times are short given the unrealistic target dates set. Lead times given to field offices may not be realistic. It takes approximately four to five weeks for a CCF to complete the administrative circuit before reaching the desk of the procurement officer. Bidders have between six to eight weeks to prepare a bid. Commercial tabulation takes one week, while technical evaluation takes one or two weeks.

Copenhagen is aware of the consequences of missing a target date, especially when the active participation of a rural community is involved. It would however seem that management sets a premium on meeting TADs even to the detriment of quality or appropriateness of materials provided, if CCFs are not clear.

Problems faced by procurement officers include: nearly systematic bidding, purchase to the lowest acceptable quality, supply lists are received piecemeal, procurement officers are commodity oriented and orders are often placed by different people leading to the possibility of mixing standard measures, etc.

However, the largest problem comes from donor countries which are increasingly demanding that goods be purchased from them. Before procurement officers had to give a fair chance to donor countries' suppliers, now, they must give them a fair share. It is becoming increasingly difficult to reconcile technical requirements and donor country demands.

Early cooperation between field offices and procurement people is essential to avoid potential problems and delay.

With regard to the World Bank handpump testing programme, their recommendations may help eliminate chaotic and whimsical handpump purchases from country offices and may help check unethical suppliers such as Pumpenboese in Germany. UNICEF often gives in easily to government pressure as to pump specifications. Copenhagen can help with information in this area. UNICEF has shown much interest in the India Mark II and has been following the development of a manufacturing capacity in Mali. While UNICEF has a commitment to support local industry where feasible, quality

and price must be taken into consideration. The Mali version of the India Mark II is already more expensive.

On the question of rising mains suitable for corrosive water, information is available on a rising main in HDPE with a permissible tensile strength on the threads of 400 kg (with a triple safety factor).

The OLGA manual should be updated shortly by a consultant and be presented in a loose leaf manner to allow for constant updating. Suggestions from the field are welcome; the possibility of computerising should be explored.

Submersible pumps are required to replace vertical turbine pumps for ease of maintenance and smooth running. Attention should be paid to the type of motor and correct installation.

Copenhagen tries to standardise on the type of engines, e.g. Lister in East Africa, and Zambardini and sometimes Deutz in Western francophone Africa.

In case of drill rig breakdowns and need for spare parts, it is recommended to telex in the morning with complete specifications and to use speed service delivery facilities. For normal procurement, the more information supplied the better, e.g. depth of drilling required.

Spare parts for motorised equipment should be carefully ordered as this usually represents 10-15% of the order. More attention needs to be paid to fast moving parts such as air, fuel and oil filters.

PVC casing and screens are often requested without accessories which cannot be made in the country.

Information on environmental conditions are important for pump orders, e.g. water quality, temperature, altitude, and humidity.

Procurement officers should receive regular information on performance of equipment which would help improve procurement. Technical information

can be obtained from Copenhagen; however, if field staff must approach suppliers directly, no commitment should be made.

Discussion from the Floor

We should be aware of the World Bank handpump testing programme, while adjusting to realities and the need to be flexible.

Panic is often created by bad planning of a programme officer; in this case, procurement should still be done properly.

UNICEF needs to improve its financial monitoring system and dissemination of financial information.

UNICEF management needs to address the issue of tied funds.

Footnotes can be used on supply lists to provide shipping instructions; these need to be closely adhered to.

IV. Areas for Potential Activity/Collaboration

a) Investment Needs for East Africa and the Role of the UNDP/IBRD Sector Development Team (T. Skytta, D. Grey IBRD)
Accelerating Decade Implementation in Sub-Saharan Africa - T. Skytta

Population and Investment Requirements:

1. Population

	Total	1990	Increase
Total	200m	240m	40m
Urban (5% increase)	40m	54m	14m
Rural (2.5% increase)	160m	186m	26m
Coverage			
Total	60	131	71m
Urban	29 (70%)	38 (70%)	10m
Rural	32 (20%)	93 (50%)	61m

2. Investment Requirements by 1990

Urban	10 x $150/capita	$1.5 billion
Rural	60 x $40/capita	$2.4 billion
		$3.9 billion
		or $800m/year

3. Funding for East Africa

Current levels:

World Bank	$40m/year
Other	$120m/year

$160m/year available while $400m/year required. Therefore 60% will have to be financed by governments.

The World Bank approach consists of sector development teams located as follows:

Nairobi office

Country level network (Kenya, Tanzania, Zimbabwe, Malawi, Botswana, Lesotho)

UNDP Country programme (Ethiopia, Tanzania)

Benefit Cost Studies (D. Grey)

The World Bank paper "Rural Water Supply: Time for a Change" Annex A cost/Benefit Calculations concentrates on benefits through time saving, rather than health impact.

Attempts to justify water on the basis of health factors have been unsuccessful. For this reason, the bank is using other justifications and fuel cost recovery (i.e. investment appropriate to income and service level appropriate to value of time).

As pumping lift increases, pumps become less cost effective. Water cost is a function of use and power input; pumps with high discharge are more used than other pumps (i.e. preferred by public). Handpumps are appropriate where the value of time is low and pumping heads moderate.

Choice of water systems has traditionally been made on technical grounds; the World Bank model proposes to include financial and economic considerations . Another consideration is the capacity of people to manage; with handpumps, minimal skills are required.

Handpump wells are a point source water supply and are a first step water supply offering a low level of service at an affordable cost to meet a low level of demand. Other point source water supplies include protected springs, rain water storage, etc. Handpump wells offer the advantage of having capacity for upgrading as the aspirations of the community rise.

Handpump wells are appropriate when there are resource constraints such as institutional, financial or water. The World Bank project learned that the most important issue in water supply development is institution building to create a utility within the community fully capable of sustaining the water supply. The key issues are institutional and social, not technical and financial.

Sustainability of handpump wells can be assured if the community:

1. want the handpump,
2. can afford to pay for its upkeep,
3. can do the maintenance,
4. can obtain the spare parts,
5. can organise themselves for 1 - 4 above.

Therefore pumps must be designed for easy maintenance and require minimal skills and tools, be robust, have low-wearing cheap components with readily obtainable, easily replaceable spare parts. Local manufacture of spare parts is therefore required, as well as standardisation. Production should be competitive, preferably commercial and unsubsidized. Government responsibilities should be as follows: standardisation, specification, procurement for public sector programmes, external quality control, policy support including tariff reduction and foreign exchange availability.

"Low cost" shallow wells can and should be lower cost than they are today. Wells in Africa are the most expensive in the world, while labour is very inexpensive. There is a strong justification for subsidizing the capital cost of a well as it has a long life, is upgradeable and is a national resource. There is also a strong justification for cost recovery of capital and recurrent costs of handpump given the short life, the need for complete or partial replacement and the importance of community ownership. Credit is therefore an important factor. There is much evidence that people are willing to pay as they prefer to pay for handpumps which work rather than not pay for pumps (or piped schemes) which do not work.

Different models for reliability and maintenance of rural water supplies can be illustrated as follows:

Serviceability	Reliability
A. Village level maintenance	1. Community Management
B. Area mechanic maintenance	2. Shared management
C. Centralised maintenance	3. Centralised management

Shared maintenance is increasing. Based on a study in Kwale District in Kenya, models for community management have been developed. Other factors have been discovered which affect water system use and viability such as clan boundaries (large piped schemes which cross such boundaries are less viable). The models calculate cost based on:

Model B - Area Mechanic Maintenance System.

1. Funds: 50 families
   KSh 1 ($0.60)/family/work
   Total KSh 2600/year

2. Costs	KSh monthly	KSh annual	Notes
a. village caretaker	30	360	plus free water
b. area mechanic	10	120	maintenance contract
(serving 100 pumps)	(1000)	(12000)	(total income)
c. spares	20	240	annual replacement seal, bearing, bobbins
d. capital cost recovery	100	1200	5-year soft loan from revolving fund
e. reserve fund	40	480	major breakdown or other development activity
TOTAL	200	2400	

Model A : Village-level maintenance
Costs : similar (slightly less assuming paid labour)
Advantages : no dependence on possibly unreliable outside mechanic.

Discussion from the Floor

For community management, one has to look at the institutional basis of use of a pump. Modules have been developed around different technologies and different institutional systems (eg. ten households around a well). In addition, community financing schemes should include training in such matters as accounting. Where systems are built to benefit from economies of scale, social problems such as clan divisions are often introduced. Piped schemes often create or increase drainage problems.

There should be some balance between recurrent and capital costs. Donors are often willing to support high capital costs where this implies lower recurrent costs. The I.R.C. is working on a description of options for cost recovery.

The World Bank study is limited in that it includes only time as a benefit. It is not meant as a guideline but rather a start to a new line of thinking into other factors. The real value of time is not known; this is the subject of the Kwale study.

Mechanisms for cost recovery have not yet been worked out. In Kwale and Nyanza Districts, committees are being registered with the Ministry of Culture and Social Services. However, there have been problems in opening bank accounts. In Kwale, weekly collections of money are made at the well, while non-payers are reported to the water committee. In other places, an upfront payment is required.

The cost model includes credit from the revolving fund for tools and bicycles but does not include a shadow price for community inputs.

Other sectors (education, PHC, etc.) could benefit from considering the cost and benefits related to time.

b) Rural Sanitation (J. Broome, World Bank/Ministry of Health, Kenya)

In 1981, a programme was started to promote low-cost sanitation. The Government saw this as an attempt to provide second best facilities. The programme therefore uses all appropriate technologies and then examines the institutional aspects. The programme is supported by the World Bank and has a total of 20 "sanmen" throughout the world. In Kenya there is one in the Ministry of Health and one in Water Development. The emphasis is on training trainers to build latrines while there is a need to look more at institutional and social issues.

The feasibility of sanitation systems is being addressed. There is a need to set up a planning system where a development programme can be established and suitable technologies implemented on a phased basis. Production of prototype sanitation equipment is being developed.

The conclusions of "Rural Water Supplies - Time for a Change" on the subject include:

- the demand for sanitation may not be strong in urban densely populated areas as there may be more effective means;
- the decision as to which technology should be made at the household level. Communal facilities are rarely acceptable;
- high payoffs would therefore be achieved in densely populated rural areas and urban fringe areas;
- replicability depends on limited subsidies;
- small-scale contractors are the most appropriate means of construction. Investment should not be in construction but in health education to stimulate demand for sanitation, and in training and assistance to contractors;
- because health benefits are difficult to quantify and both donors and governments are interested in results, economic justification is used. Results are however difficult to achieve without health education which needs to be redirected to become more effective. Rural sanitation should be subsidised, especially by governments but a demand and a willingness to pay is being created. Private sanitation however is approximately ten times more expensive than a communal water supply.

Discussion from the Floor

It is difficult to compare effectiveness of ORS programmes (curative) with latrine programmes (preventive).

Use of excrements (eg. on farms) is not common or acceptable in Africa.

A study in Bangladesh showed that people valued latrines for convenience and privacy, rather than for health or cost reasons. TAG has done work in this area entitled "Social Feasibility Analysis".

D. Nyamwaya was employed by the Rural Sanitation project to carry out social research. Results of his work show that it is difficult to identify change agents for sanitation matters and that ultimately, each person is his/her own change agent. It is however useful to promote public discussions to encourage a concensus and then individuals can make their own decisions without fear of failure if they are following what was

generally agreed as worth trying. A latrine programme should not be imposed on a community which should discuss the issue and decide for themselves.

Figures published by governments on sanitation are misleading as each has its own definition.

c) Rural Water Supply Handpump Testing and Development and some State of the Art of Ideas (D. Grey, World Bank)

Handpumps have not had the research and training required for the investment needed except for the India Mark 2 of which there are between 600,000 - 700,000 in use globally. It is used as a standard to judge by but is difficult to maintain in Africa where it has a life of approximately four years.

Community management and village level maintenance of water systems are still an ideal. To achieve this, the objective of pump design should be a design which requires minimal skills and locally made spare parts. Scheduled maintenance is an obvious need but is never included. This would reduce the number of breakdowns and the diagnostic need of caretakers and would simplify budgetting for spare parts.

Since it is expensive to experiment with different pumps, the programme buys the best expertise available to solve a specific problem. A UNICEF consultant (Mr. Teague) suggested looking at yacht equipment because it experiences similar stress factors, large number of loading cycles and has to resist corrosion. Dupont in Geneva is currently working on corrosive resistant engineering plastic components.

"Afridev" is the pump system currently being developed which is modular in design and proved at 60m and therefore can be used at 2m. It is simple to install and to maintain and requires minimum tools and skills. Scheduled servicing eliminates breakdowns. It is suitable for use in aggressive groundwater and minimises stresses. It is low cost both in terms of capital cost (US$ 500 for 30m depth) and recurrent costs (less than US$ 50 per year).

A possible solution to the rising main question is use of stainless steel which is however expensive.

Current pumps have large diameters, short stroke systems which require high handle leverage and high load rod force and large inertia forces. To reduce forces required, parameters have been altered to a small diameter and large stroke. This reduces both pump rod force and the forces on the bearings. The volume per stroke is maintained but a higher force by the user is required, while all other forces are reduced. To date, good results have been obtained from this model (mechanical advantage ranging between 3:1 and 5:1).

The "Afridev" system has the following components :

- plastic bearings which were at first on fixed steel pins and needed a bush to allow movement. Next an experiment with two polymer materials was tried which allowed for replacing the whole assembly in one go and for being run dry, although wear is reduced with lubrication. It is important to exclude dust and the lubricant seems to help keep dust out. The bearings can be removed by loosening but not removing any nuts and bolts. A one year life below ground is easily obtainable. These bearings are light, corrosion resistant and easy to manufacture.

- foot valve and plunger which snaps into place and therefore reduces the number of tools required. In an effort to reduce the number of components and the forces in the system, these two components were combined into one and made interchangeable. They are designed for injection moulding (plastic bearing to cost $1.50 made in Kenya and perhaps as low as $0.50 in Switzerland and foot valves to cost $2.50).

- pump rods - pressure on rising pump main can be reduced by reducing the quantity of water. This is achieved by a higher displacement pump rod made of stainless steel and coated for protection. Hook joints make pump rod connection possible by hand (i.e. buckle free rods with no screwed joints).

rising mains - there is potential for plastics or PVC but stretching may lead to failure of the rising main. There are no threads but solvent cemented joints which may have their own problems.

A possibility of standardising on 50mm plungers in direct action and deep well pumps is being explored.

Discussion from the Floor

The project is still demonstrating concepts and is not yet ready to sell pumps. The aim is full cost recovery in pump manufacture, except for the design phase.

During the 1984-85 emergency, US engineering designers offered their services free of charge to UNICEF to work on design of the India Mark 2 pump and packaging of ORS (see reference above to Mr. Teague).

Professors in universities in Sweden, England and Switzerland, as well as the Swiss Centre for Appropriate Technology (SCAT) are participating in developing components for the World Bank pump testing programme. Funding is received from a variety of donors, including W. Germany, Sweden, Switzerland, Finland, Denmark, Netherlands, Canada, England and UNICEF. UNDP provided the seed money but is becoming less involved. The aim is to solve the pump problem together.

Other developments in pumps are being kept track of while they are not currently as appropriate as the traditional piston pump. One such development is that of fluid valves (where fluid friction and head loss may be 90 times greater for flow in one direction than for opposite direction).

d) Project Evaluations of Small-Scale Irrigation (W. Scheltema, Ministry of Agriculture, Kenya)

Small-scale irrigation is appropriate for smallholder farmers, it requires high input but has less risk of failure than large scale irrigation. Characteristics of small-scale irrigation schemes (less than 100 hectares) can be summarised as follows :

- huge amounts of water (1 litre sec/hectare)
- high cost (approximately US$ 250 per household or per acre)
- only part of the community involved
- increasing demand for female labour in field work
- no recovery of installment cost (farmers maintain)

- water association established - almost no money involved
- irrigation group consists of a maximum of 30 farmers
- water losses amount to approximately 50% from the schemes.

Schemes can be powered either through gravity fed (offtake from a river), storage dam, windmill or solar energy.

A problem comes from the fact that irrigation may be economic with pumps or solar energy for groups of people; however, individuals may have different rates of adoption.

Smallholder irrigation schemes involve communal water distribution with individual crop production. To ensure success, cash required for operation and maintenance cannot come from increased production and should be independent of this. Gravity irrigation is possible using a reservoir from offtake from a river, spring water or a swamp.

Organisation of a scheme is based on a maximum of 30 farmers who form irrigation groups. They choose a leader who represents them on the scheme committee. Each group works independently with members deciding on precedence of water distribution between members. Each scheme has to have a self-regulating distribution structure in case of flooding. Informal organisation is based on local initiative and contributions and is managed by the farmers. Formal systems are expensive to fund, operate and maintain, are centrally managed and are production oriented.

Farmers' participation is needed at all stages - feasibility, design, implementation, operation and maintenance - although different people may be involved at different stages.

When a problem is encountered, it is better to halt a scheme, rather than to continue (without resolving the problem).

When designing a scheme, self-reliance should be built in and the scheme should be based on local manageability and operating and maintenance skills. A low key approach should be used with a modest, initial target, good use of limited resources, low initial technical efficiency and low inputs. This will lower risk of failure and lead to higher economic efficiency.

Conditions which must first be met include resolution of land issues before design, clear statement of land use, equitable water distribution, agreement with farmers on their contribution, group by-laws and a water permit.

Basic ingredients required to establish a system include knowledge of natural resources (soils, topography, water availability and requirements) and socio-economic factors such as existing farming systems and motivation. Time required to establish a scheme has been reduced from six years to one year.

Project appraisal must take into account investment costs (KShs 10,000 - 20,000 per hectare), recurrent costs and benefits. Technical factors include natural resources and design and construction of the scheme.

Institutional problems include availability and capacity of staff while financial problems are encountered in terms of materials and staff costs.

Discussion from the Floor

Health problems such as schistosomiasis increase with irrigation.

e) FAO Activities (F. Olson, FAO, Nairobi)

Projects where co-operation is possible with UNICEF were presented :

-People's Participation through Promotion of Self-Help Groups Programme : since the early '70s, FAO has been experimenting with ways to get the "poorest of the poor" to participate in and benefit from on-going rural development programmes. FAO provides funds to start operations, to pay group promoters and for a guarantee risk fund. There are now 40 projects throughout the world. The programme is still considered experimental; therefore, monitoring is important and closely linked to implementation.

Problems faced by the programme came from FAO's lack of experience with the human element. Good group promoters who speak the language but not

part of local group, family or clan, are considered the key to success. The local power structure presented other problems, as did the small budget, and government preference that people do not organise and administration of the fund;

- water conservation and spring protection
- seed multiplication research.

Many projects have failed, not for technical reasons, but due to a lack of attention to social factors.

Discussion from the Floor

In UNICEF, family food production is becoming more important. In the Sahel, work is being carried out on food production and irrigation. Small engine pumps are placed in rivers to irrigate for food production which can either be eaten or sold.

Ten years ago in Mexico, FAO and UNICEF collaborated on a spring water and food production project. Currently in UNICEF, two specialists are dealing with this subject. One deals with gardening in different climatic conditions and mixed cropping, while the other is a sociologist. The number of farmers in management of a scheme must be only a handful or the group becomes unmanageable.

UNICEF and FAO have a large potential for collaborating where FAO could provide the technical inputs and UNICEF the local experience. Therefore UNICEF staff should keep in touch with local FAO people using "food-for-work" if necessary (i.e. working lunches).

During the drought in Ethiopia, swamps were recommended as sources of irrigation; however, conflict may arise if these swamps are used as drought time grazing areas by nomadic herdsmen.

In FAO parlence "micro-irrigation" means drip irrigation or other means of reducing evaporation and reducing water requirements. It does not mean small farm or small-holder irrigation.

f) Information Needs and the IRC (M. Seager, IRC, Netherlands)

The IRC facilitates information transfer while it is the field workers' responsibility to share information and to ensure its use. The IRC can ensure that the right information, in the right format is made available, that feedback on positive and negative experiences takes place and that duplication is avoided.

IRC achieves this through publications, advice and evaluation, training and demonstration projects.

It would be useful if participants could supply the IRC information on:

- the information needs of UNICEF and of its counterparts,
- gaps in information,
- how to get across information effectively, and
- how IRC can help.

Discussion from the Floor

The IRC newsletter has a wide distribution but its format could be improved. Longer papers are distributed which could be made available in a shorter form or extracts.

Discussion regarding Sanitation

The question of operation and maintenance of latrines was raised. No one knows how to empty latrines. In addition, not enough attention is paid to the technology of latrines. There is a need to educate people either to dig new latrines or to empty a full latrine and to use its contents.

In UNICEF, we are not looking so much at the design of sanitation systems. Rural and urban areas are beginning to blur together due to growth. Low-cost models are suitable where appropriate materials are available.

"The Good Daughter-in-Law" poem in China is a good advocacy tool as it depicts a woman carrying buckets from the latrine to the fields. There are, however, health dangers to which UNICEF needs to pay more attention.

It is too early or inappropriate to opt for one technical model of latrine as several options are still being tested. User studies are also needed. A range of possibilities is being developed.

Problems have been encountered from differing agency policies. In Lesotho, urban sewerage and water have been subsidised, in addition to rural water supply. In the new rural sanitation project, the World Bank project staff insisted on full cost recovery but this does not appear feasible and is way behind schedule.

V. WORKSHOP RECOMMENDATIONS, AND FUTURE ACTIVITIES

1.- The training workshop on the IRC evaluation package in Nigeria in June has room for several more participants. In addition, other country training exercises can be carried out. Please inform E. Watanabe.

2.- Please include Planning and Evaluation, HQ on mailing list of evaluations.

3.- In future workshops, include a technology clinic in the agenda.

4.- On the question of bringing water in from the "fringe" and integrating with other CSD elements, insure that water is part of CDD programmes and that people are invited to PHC activities and workshops.

5. - The question of head work designs (delivery point such as pump, standpost, etc.) needs to be explored.

6. - The guidelines for evaluation presented by the IRC delegate were well received. The question of when and how often to go for a full scale evaluation and when only certain components are needed is a matter of judgement applied to the particular circumstances. Integration and participation issues would have come out through the

evaluations even if separate agenda items had not been provided.

7.- The Regional Adviser in Water and Sanitation should address the issue of "kicking water off the truck".

8.- Future meetings :

Regional - yearly (or 18 months)

Interregional - every two or three years and should be combined with alternate regional meeting

Global - once a decade with other agencies. The next one could provide direct dialogue with high level policymakers and should include evaluation of the water decade and collaboration

9.- Government counterpart participation should be considered for such a global workshop (but there should be ample preparation and time to digest results and prepare report).

10. - On shifting priorities for advisers who are now required to write and read more on their specialities and thus to spend less time in the field, this may have negative implications on programme implementation as loose programme management may get worse with less supervision.

11.- To improve the image of water, workshops, reports and establishing a direct link between water and reduced IMR are not what is needed. Water has more experience than other sectors in community participation; this message should be communicated to policy-makers, along with using this experience and water as an entry point as in Uganda. Local production and skills training in water programmes also generate employment.

12. - As the Board clearly indicated, UNICEF should be involved in basic services and as donors continue to give money for water programmes, attention should focus on delivering effective and efficient programmes.

ANNEX 1

GROUP WORK TOPIC 1 REPORT

EVALUATION GUIDELINES

1. Definition of Evaluation.

2. Matrix of types of evaluations by project phases.

3. Sequence of activities for a general project evaluation.

4. Standard terms of reference/list of contents for ongoing project.

5. General notes on evaluation guidelines

   (a) Evaluation/monitoring.
   (b) Methodologies.
   (c) Composition of evaluation teams.
   (d) Use of evaluations.
   (e) Evaluation training needs for UNICEF programme staff.

TEAM Eimi Watanabe
Prescott Stevens
Mohammed El Fatih
Michel Nowacki
Piers Cross

1. Definition of Evaluation

"Project evaluation is a learning and action oriented management tool and process for determining, as systematically and objectively as possible, the efficiency, effectiveness, impact and relevance of activities in the light of their objectives, in order to improve both the current activities and future planning, programming and decision-making of all the parties concerned."

2. Matrix of Types of Evaluations by Project Phases

Stage of Programming	Type of Evaluation	Purpose	Tools	Focus
Planning	Prospective Appraisal (analysis of cost and potential impact of projects before being initiated)	To develop feasible projects	- baseline survey - field survey - situation analysis - statistical profile	Socio-economic indicators of communities technology/ strategy options, population profiles, sector profiles, socio-economic stastistics.
Implementation	On-going Evaluation (analysis of the functioning and utilization of project during implementation)	To take corrective action, learn lessons, generate funds	- monitoring (incl.PPR) - programme implementation - programme audit/evaluation - Minimum Evaluation Procedure - Rapid Assessments - Mixed method evaluations	Performance indicator against plan. Performance against plan. Performance against plan, especially financial. Early implementation phase - functioning Mature implementation phase - utilization Achievements/problems Functioning, utilization, effectiveness, relevance
Post-Implementation	Ex-post evaluation (analysis of relevance, effectiveness and impact after completion of project)	To reformulate project, learn lessons, generate funds	- MEP - Impact evaluations - Mixed methodology Evaluations	Functioning and utilization impact. effectiveness, relevance, impact.

3. Sequence of Activities for a General Project Evaluation

1. The project agreement should, inter alia, spell out specific short term objectives and a staged programme for achieving them; assign responsibilities for reporting; stipulate administrative and technical reports to be prepared and their dates; provide for joint evaluations to be made by the contracting parties at certain milestones in the project; include resources needed for carrying out the evaluation; and make provision for adjusting and if necessary reformulating the project following the evaluations.

2. Before each evaluation the parties should consult and agree on the terms of reference of the evaluation, including the scope, duration, expertise, data processing facilities, and the report to be prepared. The scope should as a minimum cover the points in the UNICEF definition of an evaluation.

3. A pre-evaluation study by a national team may be advisable, (a) to gather data where routine reporting has been incomplete or (b) to involve responsible national officials in the evaluation process.

4. Reference documents should be assembled, including as appropriate:
- the project agreements, plans of action and amendments,
- administrative and technical project reports,
- annual reports of the responsible national executing agency,
- administrative, geographical and hydrological maps,
- population and housing censuses,
- health statistics and surveys, and
- sector studies and reports of previous evaluations.

5. The evaluation team should meet, choose a coordinator and decide on their programme, method of work and distribution of tasks. Typing, copying and data processing facilities should be confirmed. The reference documents should be read by all.

6. Directors of national and external sector agencies and coordination bodies should be interviewed by the evaluation team. Through them, as appropriate, interviews should be arranged for individual members of the evaluation team with key staff of these agencies at central and peripheral offices and at various levels (chiefs and operators). The interviews should cover predetermined questions concerning organization, operations and achievements.

7. Selected communities should be visited by all or part of the team, in order to interview community officials, technicians and householders, and in order to inspect the water supply and distribution installations, the public sewerage and drainage installations. Other public facilities such as public baths, laundry washing tables and some household latrines.

8. About halfway through the evaluation, the evaluation team should agree on the outline of its report, the distribution of responsibilities for writing the various sections of the test and the annexes, and deadlines for completing the drafts.

9. Also about halfway through the evaluation, the evaluation team should agree on and draft its main conclusions and recommendations. These should be typed in enough copies for distribution during the final meetings or debriefings.

10. During the last few days of the evaluation, the evaluation team should meet with the senior local officials of the organizations which have authorized the evaluation in order to debrief them on the main results of the evaluation. This debriefing might take place at individual meetings or at a combined meeting of the National Action Committee and the Technical Support Team. The team's conclusions and recommendations could be distributed at these meetings.

11. All sections of the report which have been completed in draft before the team breaks up should be typed and distributed to the members of the evaluation team. The team coordinator should prepare and agree with the team members a list of remaining tasks and a procedure and schedule for completing them.

12. The team coordinator should circulate the final draft to evaluation team members for their comments, edit the report accordingly, and submit it for reproduction and distribution by the organisation designated in the evaluation terms of reference.

4. Checklist of Subjects to be Covered in an Evaluation of an On-Going Project

1. Updating the information available on the current status of project implementation;

2. Review of the main factors impeding the timely implementation of the project activities;

3. Review of the substantive and technical content of the project, including the specifications of the inputs and outputs contained in the project agreement;

4. Identification of means to improve the efficiency of proposed project implementation and justify adjustments to the project design;

5. Assessment of actual project implementation in relation to established targets and schedules for inputs, activities, outputs and with special emphasis on the expected duration of activities, timely delivery of outputs and costs;

6. Determination of the rate of implementation of expected outputs;

7. Analysis of quantity, quality, cost of inputs and outputs, with special emphasis on :

Imported and local materials
Cost of water supply systems
Contribution of beneficiaries
Number of water supply systems constructed
Technology, strategies and approaches.

8. Assessment of efficiency of implementation arrangements for delivery and utilization of inputs, as for example :

Direct support and supervision provided by counterpart agency
contribution of the technical assistance project;
Analysis of the advantages and disadvantages of the institutional modality adopted.

9. Adequacy of financial and human resources and timely delivery in construction works, national and expatriate staff.

Community contribution to construction.

10. Assessment of the reporting requirements and monitoring activities;

11. Identification and assessment of factors which are contributing or limiting the efficiency of project implementation;

12. Validity of the immediate objectives of the project.

13. Assessment of the capacity of the outputs produced and to be produced to achieve the project's immediate objectives, including water system standards acceptability, quantity and quality of water, beneficiaries;

14. Assessment and recommendations concerning the operation, maintenance and utilization of the produced outputs;

15. Identification of factors which have either contributed or limited the effectiveness of the project;

16. Identification of possible means for improving the efficiency and effectiveness of the project operations, including proposals for any adjustment with regard to : project objectives, inputs, timing, implementation modalities, activities, utilization of outputs, budget review.

5. General Notes on Evaluation Guidelines

Guidelines for evaluations can be of great assistance eg. MEP and others particularly in developing the principles and premises behind evaluations eg. when to evaluate, at what level to pitch evaluations, what level of proof of causation is necessary.

In the final analysis however, most evaluations need to be custom-made. The following notes are intended to be of assistance in the fine-tuning of evaluation terms of reference :

a) Monitoring/Evaluation

The depth of analysis required, and hence the level of evaluation, will depend largely on the effectiveness and scope of monitoring systems.

b) Methodologies

Different types of information are best collected in different ways. Attitudinal and community response information often requires a simple system of checks to ensure its validity.

One way of achieving this, and gathering the range of information necessary is to use several different methods for gathering information. Techniques that may be considered include :

i. Interviews;
ii. Analysing documentation;
iii. Questionnaires;
iv. Case-studies;
v. Field reviews;
vi. Participatory evaluation techniques; and
vii. Workshops.

c) Composition of Evaluation Teams

In choosing the evaluation team, most choices will be easy and follow logically from the design of the evaluation itself. The following ideas might be borne in mind in composing teams :

(i) UNICEF involvment. Management by regional or headquarters staff provides continuity between country and regional evaluations, and ensures close accordance with UNICEF's mandate.

In-country Programme and Project Officers need to be centrally involved because they have most intimate knowledge of projects and the exercise serves as a training experience, but to ensure objectivity, they should not bear the major responsibility for findings. Use of programme/project officers from neighbouring country programmes or regions, when available, should be encouraged : this provides continuity within UNICEF policy and promotes staff development.

(ii) Donors. Participation of donors on evaluation teams can be useful in assuring donors that projects are adequately managed, and may assist in securing further funding.

Requests for donor personnel with special qualifications can also broaden the scope of evaluations. Involvement of donors should be according to UNICEF terms of reference and each case should be considered on its own merits.

(iii) National Government Representatives. National participation is essential both from the training aspect and the design of future activities. Provincial and central government personnel should be involved, where appropriate. Key senior representatives can join desk and field reviews, or local personnel from national evaluation institutes can undertake more in-depth studies.

(iv) Private Associations. Where appropriate, use of personnel from local NGOs, universities, local pressure groups and research institutions should be considered.

(v) Consultants. Consultants should be considered in special situations where it is necessary for an outsider's opinion; or where special disciplinary skills are needed.

(vi) Disciplinary Mix. Given the interdisciplinary nature of water and sanitation development, it is often useful to compose a team with a disciplinary mix drawn from those skills in :

- relevant technical subjects (eg. engineering, hydrogeology);
- management, institutional or financial analysis;
- epidemiology and public health;
- community studies, social anthropology, sociology;
- education, training, media development.

d) Use of Evaluations

Prior to evaluations, consideration should be given to their use. Very often evaluations can have several uses. These include :

(i) Improve Project Design. Pre-evaluation studies, evaluations of on-going projects and ex-post evaluations are an integral part of UNICEF's project cycle and are used to modify and improve project design of existing and future projects.

(ii) Assist in development of Government Policy. Certain evaluations may be useful in assisting further development of Government Policy.

(iii) UNICEF Long-Term Policies. Certain evaluations have bearing on UNICEF long-term policies and plans.

(iv) Training. Either in the course of implementation, or by reviewing findings, evaluations can assist in training local personnel in project design and implementation.

(v) Community Development. Where appropriate, reporting back evaluation results to beneficiaries can be a training or mobilization tool for use in further phases of project implementation.

(vi) Sector Development. Evaluation findings distributed to other agencies in the sector can promote general sector development.

e) Evaluation Training Needs for UNICEF Programme Staff

The group identified a need for institution-building with respect to design, management and implementation of programme evaluations. It was felt that the locus for such institution-building would be at the country level to improve management of project evaluations.

(i) People to be Trained

- Resident Representatives;
- Programme and Project Officers including planning officers, supply officers, and administrative and finance officers;
- Assistant Programme and Project Officers.

(ii) Types of Training

- Workshops;
- Short training courses;
- Inter-country exchanges by seconding officers from neighbouring countries on evaluation teams.

ANNEX 2

Group Work A Topic 2 Report

INTEGRATION OF WATER AND SANITATION IN PHC, CSD, UCI.

Members

Joseph Quarm	Accra
Juan Carlos Espinola	Maputo
Ken Gibbs	Quetta
Roger Anderson	Dar-es-Salaam

Conclusions of Group Discussions

1) That the AIM of UNICEF assistance is to REDUCE INFANT AND CHILD MORTALITY RATES and therefore aimed towards CHILD SURVIVAL.

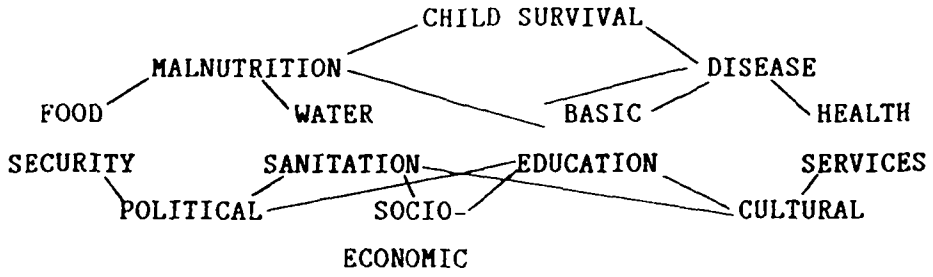
2) That CHILD DEVELOPMENT is a result obtained by tackling interventions leading to Child Survival.

3) That INTEGRATION should address those activities tailored to fit specific situations:

- Statistical Profile)
- Situation Analysis) Needs Assessment
- Programme to fit needs

4) That Water and Sanitation interventions therefore can not be seen in isolation.

5) That the overall STRATEGY to fulfill the integration follows a conceptual framework as below:



6) That Water and Sanitation interventions can be seen as the promotion to fulfill integration.

7) That the METHODOLOGY for integration should be based on:

a) Geographic Responsibilities

b) Management's Responsibilities

8) That the Geographic Responsibilities should be adopted by:

i) Government Implementors

ii) UNICEF - Sectoral responsibilities to be made subservient to integration

9) That the Management's responsibilities means that integration should be included in programme design, in implementation and in programme evaluation and monitoring.

10) That the Periodic Evaluation Reports for UNICEF Programme/Project Staff should reflect integration.

11) That Management within UNICEF (H.Q. to Country Representatives) are responsible for ensuring that integration is fulfilled.

12) That UNICEF has a role to promote/ensure that the government counterparts emphasize the integration approach on National and Local Level.

13) That the integration approach is understood on village level.

> Provision of water to a community is not an end in itself. It is a means to an end. The end is better health for children.

ANNEX 3

Group Work B Topic 2 Report

INTEGRATION OF WATER AND SANITATION IN PHC, CSD, UCI

Martin Beyer	New York
Steven Radojicic	Maputo
John Muyombya	Kampala
Christian Pflueger	Hargeisa

Integration between WES and Health Programmes for the promotion on CSDR on Country Programme level

1) To carry out CSDR the aim is to integrate WES and Health programmes at community level.

2) We should start the integration process inside UNICEF if UNICEF wants to be successful in advocating integration in government.

3) The vehicle of integration between the two components should be the field of sanitation.
Water team should give technical expertise while the health team should mobilize existing community health structures for education.

4) If integration is to be regarded as one of the major objectives of a programme, then it should be applied on a small project area for a certain period, monitored, evaluated and then, if successful, spread.

5. Motivation and training within countries should be carried out on all levels:

a) on village and district level to implement programmes,

b) on national level to institutionalize.

6) Women's and men's role at village level should be carefully assessed in order to promote a balanced utilization of their potential.

7) Project Support communication activities should be strengthened to encourage integration at the community level.

ANNEX 4

Group Work Topic 3 Report.

MANAGEMENT ISSUES

Recommendations of the group work

There are several management issues, which were raised during the meeting.

1. Clearing the programme or project personnel through government.

It is the practice of UNDP and other agencies to clear programme and project personnel through government, by presenting their curriculum vitae, (C.V.).
In UNICEF, on the contrary, only the Resident Representative is cleared through government channels; before the Resident Representative can arrive into the country, a formal approval is needed from the Ministry of Foreign Affairs.

All other UNICEF staff - project, programme or consultant - do not need to be formally approved by government to be assigned in a country. It is the prerogative of UNICEF management to decide who is going where and when he or she is going.

By courtesy and for information, the government is consulted about the per cent of project budget and the number of project staff envisaged.

2. Where do WES staff sit and work? In government offices or UNICEF offices?

WET staff are UNICEF employees and have some responsibilities towards UNICEF.

Working in government offices, they may be treated as government employees and be assigned jobs that are not related to the project. Therefore it is important that the Resident Representative provides WET staff with office space within UNICEF offices so that WET staff can do their work without interference from government officials. This situation is variable from one country to the other. A project which runs smoothly with supplies arriving on time, training being done at the right moment, has to be well planned and thought out. To arrive at that situation, reasonable working conditions and office space should be provided to the WET staff.

3. Water and Sanitation projects are often capital intensive, in the order of 0.5 to 1.5 million dollars per annum.

The Programme Project Officer (P.O.) is entrusted the responsibilities of managing the project. This means also that the Resident Representative needs to delegate certain responsibilities and authority to the P.O. to manage the project, to write letters to government officials, other UNICEF offices and other organisations; send telexes when necessary. However the P.O. must keep the Resident Representative fully informed and all major decisions should be jointly discussed in advance.

4. As stated above, Water and Sanitation projects are relatively capital intensive. However, for the project to be well managed and to run smoothly it should have several ingredients:

a) The P.O., recruited for his technical knowledge and abilities, must be trained in management with UNICEF procedures: funding, expenditure (cash call forward and supply), monitoring and evaluation procedures and letter writing.

b) The project must receive the total support of the Administration and Finance Section. That section should assist the P.O. in administrative and finance matters and may assist in the field of supply from local or overseas origin, the daily operation of the project by paying for all the bills, fuel and maintenance of vehicles and all casual and regular labour, DSA etc.

5. Financing of the Project

Most of the water projects are financed by "Funds in Trust", or are Noted Projects. These funds are deposited and bring in interest (which would be in the order of 8 to 10% per annum). It would be good if some of this interest revenue were available to help managing the project or to call in consultants, either from within UNICEF or from outside the organisation.

ANNEX 5

Group Work Topic 4 Report

THE ROLE OF COMMUNITY PARTICIPATION IN THE DEVELOPMENT OF WATER AND SANITATION PROJECTS

I BASIC UNDERTAKINGS

1. Basic is the understanding that water and sanitation projects aim at the broader goals of development for the community.

2. Rather than considering community participation as simply support from the community to the project, it would be better to view the project itself as a community development effort, incorporating full participation, with supporting inputs from project staff and resources.

3. Water and sanitation projects are basically concerned with the promotion and sale of a change in lifestyle.

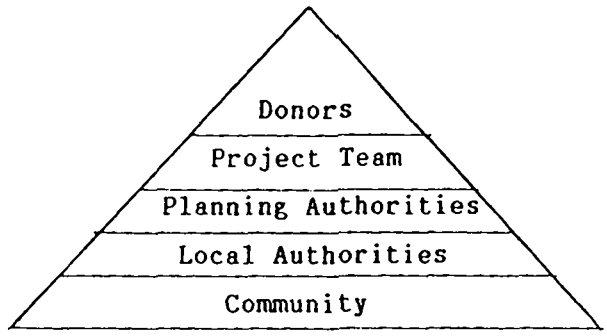
4. Water and sanitation services provided should not be free. Users should pay fully for such services, in the same way as for commercial services. In this case, the projects should be 'marketed' to create effective demand.

5. Even though the community may not always fully know their needs, services should not be imposed on them. They should be guided in their choice of services.

6. The main participants in a project were identified as :

(i) the community;
(ii) local authorities, political bodies and NGOs;
(iii) planning authorities;
(iv) implementing agencies;
(v) funding agencies.

As shown in the diagram below, the community forms the base of the project and decision making should be made from the "bottom up" as much as possible:



7. Natural roles in many communities are often perceived as :

Women	: Managers
Children	: Change agents
Men	: Decision makers
Leaders	: Catalysts/sanction givers
Local Authorities	: Support and regulation

Greater efforts should be made during the planning and implementation phases to encourage the merging of these roles and widening of responsibilities.

II SOME PROBLEMS

1. Time constraints imposed on the project scheduling by funding and implementing agencies.

2. Demand for 'progress' in measurable quantities (eg. hardware).

3. Artificial imposition of roles, neglecting natural division of responsibilities within communities.

4. Fragmented communities suffer from their inability to reach collective agreement on self-management principles.

5. Training and orientation of technical staff is geared more towards delivery of 'hardware' than sensitising them to the needs of the community and vice-versa for non-technical staff.

6. Project implementation is often seen in terms of client-consultant-contractor delivery with no role for the community.

7. Combining community participation, women's development and social equity confuses the issue.

8. Projects often fail to make appropriate demands on communities served in return for benefits provided.

9. Poor programming and delays in supply can dampen initial enthusiasm of beneficiaries.

10. Polarisation of skills between technical and non-technical people limits communication.

III SUGGESTIONS FOR IMPROVEMENT

1. Technical staff should have or be trained in communication and community development skills, and have access to appropriate materials.

2. Social planners should likewise have awareness of technical and project management issues.

3. Objectives should be geared towards long-term success.

4. There should be no 'standard' community participation solutions.

5. Children as future 'users' and women as natural managers should be fully utilised.

6. Monitoring and evaluation excercises should be used to help justify the need for more community participation.

7. Budget allocations for community participation should be increased.

8. Replicable and realistic demonstration programmes should be used to promote the community-based approach.

9. Cost recovery and sustainability should be used to justify adequate financial allocation to community participation.

10. Motivational factors which may positively influence community participation should be identified and fully exploited.

ANNEX 6

REPORT ON THE TECHNOLOGY CLINIC

A short "Technology Clinic" was held after formal business concluded on 08.05.86. The following notes summarise the subjects covered, and actions necessary :

1. Terram Fabric (by I.C.I.) or similar

This is a synthetic fabric which behaves much as a soil when placed between clay and gravel. It allows water to pass freely. It has the equivalent grading associated with it. There appear to be a number of applications possible.

Mr. Pacaud is asked to obtain samples and specifications and circulate to engineering field staff.

2. Well design using Roboscreens

The principle of the Roboscreen was noted, as was its large open area compared with plunge cut screens.

Mr. Pacaud is asked to keep interested field staff up to date on types, sizes etc. now available.

3. Use of upvc riser pipes

According to one staff member, upvc is not used as riser pipe where the pump setting is deeper than 30 to 40 feet, in both Ghana and Nigeria. Reasons why this should be were discussed, since upvc appears to be the ideal material where aggressive waters are encountered such as in the two named countries. It appears that the top connection has often failed, where a threaded joint has been used. The rubber collar as used in the Afridev was noted, and the details should be available from the World Bank Handpump Advisor (Mr. David Grey) on 09.05.86. It was thought that stainless steel was a very high cost alternative.

4. Aggressive waters

The ways and means to handle acidic spring water had earlier been discussed. (Use of lime and/or higher cement content; masonry etc.; to reduce deterioration of structures).

However, it was felt that demineralisation, effects of corrosion and other facets of aggressive waters represent such a wide subject area, that time did not permit a discussion on this item.

5. Iron pollution and removal

Simple iron removal by aeration was discussed. Mr. Quarm from Ghana is to receive any material which can be gleaned from UNICEF, Bangladesh. Mr. Gibbs to initiate. Two solutions will be sought: a brick/handpump arrangement from Bangladesh, and a fibre-glass/handpump arrangement from Orissa, India. Both are thought to be known to UNICEF, Bangladesh.

6. Flouride removal

Mr. Kalidas Ray noted work done by a consultant in Ethiopia. This focussed on the use of bones from the local abattoir. Plain, raw, crushed bones to a grading of 0.1 to 0.3 mm, mixed 50/50 with sand in a bed 1 metre thick gave 60-70% reduction in waters having a flouride content of + or - 8 ppm. In waters having + or - 25 ppm flouride, up to 90% removal was achieved. Using burnt bone gave even better removal rates. Bed areas per litre per day, and flows were not remembered, but Mr. Ray has shared the consultant's report with both Dr. Beyer and Dr. Skoda, from whom the data may be sought.

Another method to achieve flouride reduction to a maximum of 2.5 ppm had been tried, by dilution with sweet unpolluted waters. This was not favoured since, if one can obtain sweet waters which represent 75 to 80% of the blend, why not use it without mixing ?

In addition, Zimbabwe University is undertaking a study of de-flouridation. This work will be sent by Mr. D. Williams to Dr. Skoda.

7. Submersible pumps

Mr. B. Pacaud indicated the different types of submersible pumps; requesting staff to consider the options carefully before ordering. He also stated that if design criteria changed after the pump(s) had arrived, it was perhaps better to make direct contact with the manufacturers to determine how many stages should be added or removed to obtain the required performance.

ANNEX 7

WATER AND SANITATION WORKSHOP
5 - 9 MAY 1986
NAIROBI, KENYA

AGENDA

Date/Chairperson	Agenda Item	Presenter
SUNDAY, 4 May	Arrival in Nairobi	
MONDAY, 5 May/J.Skoda		
8:30 - 8:45	Opening and Welcome	J. Mayrides
8:45 - 9:00	Administrative Matters	K. Eilbert
M. Beyer	I. POLICY ISSUES	
	a) Integration of WES, PHC & Education for Environmental Sanitation	
9:00 - 9:30	i) Pakistan assessment	K. Gibbs
9:30 - 10:00	ii) Tanzania experience	I. Blakely
10:00 - 10:30	C O F F E E B R E A K	
10:30 - 11:00	iii) Somalia experience	C. Bentley
11:00 - 11:30	iv) Mozambique example	S. Radojicic J.C. Espinola
11:30 - 12:00	v) Communications for Behavioural Change	M. Kinunda/ K. Nimpuno
J. Quarm	b) UNICEF Experience with Community Participation in WES Programmes :	

Date/Chairperson	Agenda item	Presenter
THURSDAY, 8 MAY/ S. Radojicic		
8:30 - 09:30	Group Work reports	
	III. MANAGEMENT OF WES PROJECTS	
09:30 - 11:00	a) Management Information Systems Uganda example	B. Doyle
10:30 - 11:00	C O F F E E B R E A K	
11:00 - 12:30	b) Supply Management Procedures	B. Pacaud
12:30 - 14:00	L U N C H B R E A K	
	IV. AREAS FOR POTENTIAL ACTIVITY/ COLLABORATION	
14:00 - 15:00	a) Investment Needs for East Africa and the Role of the UNDP/IBRD Sector Development Team	T. Skytta
15:00 - 15:30	b) Benefit Cost Studies	D. Grey
15:30 - 16:00	C O F F E E B R E A K	
16:00 - 16:30	c) Rural Sanitation	J. Broome
17:00 - 18:00	Technical Clinic	

Date/Chairperson	Agenda Item	Presenter
FRIDAY, 9 May/ C. Massar		
08:30 - 10:00	d) The RWS Handpumps Project Handpump Testing and Development and Some State of the Art Ideas	D. Grey
10:00 - 10:30	C O F F E E B R E A K	
10:30 - 11:00	e) Guidelines for Small Holder Irrigation	W. Scheltema
11:00 - 11:30	f) FAO Presentation	F. Olson
11:30 - 12:30	g) Information Needs and the IRC	M. Seager
12:30 - 14:00	L U N C H B R E A K	
14:00 - 15:30	Group work continued and plenary discussion	
15:30 - 16:00	C O F F E E B R E A K	
16:00 - 17:00/ J. Skoda	V. WORKSHOP RECOMMENDATIONS AND CLOSURE	

ANNEX 8

LIST OF PARTICIPANTS
AND ADDRESSES

NAME	POSITION	ADDRESS
Joseph QUARM		UNICEF, P O BOX 1423, ACCRA, GHANA
Kalidas RAY	Chief/WES	UNICEF, P O BOX 1169, ADDIS ABABA ETHIOPIA
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Bernard PACAUD	UNICEF Engineering Procurement	UNIPAC, UNICEF PLADS - FREEPORT DK 2100 COPENHAGEN, DENMARK.
Roger ANDERSSON	Project Officer	UNICEF, P.O. BOX 4076 DAR-ES-SALAAM, TANZANIA.
Ivan BLAKELY	Project Officer	UNICEF, P.O. BOX 4076, DAR-ES-SALAAM, TANZANIA.
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Claude MASSAR	Project Officer	UNICEF, B.P. 445, KIGALI, RWANDA.
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Juan C. ESPINOLA	Programme Officer	UNICEF, P.O. BOX 4713, MAPUTO, MOZAMBIQUE.
Brian CLEAR	Chief Supply Officer	UNICEF, P.O. BOX 44145 NAIROBI, KENYA.
Jim MAYRIDES	Deputy Regional Director	UNICEF, P.O. BOX 44145, NAIROBI, KENYA.
John SKODA	Regional Adviser WES	UNICEF, P.O. Box 44145, NAIROBI, KENYA.
Martin BEYER	Senior Policy Specialist (Drinking Water and Sanitation)	UNICEF A-6M, 866 UN PLAZA NEW YORK, NY 10017.

II.a) Purpose of Evaluation, IRC

b) Manual on U-Two Pump Installation, Uganda
Major recommendations, Uganda
Advocacy materials, Uganda

c) Burundi Rural Water Supply Project Evaluation, Government of Burundi, UNICEF and UNCDF.

d) Evaluation du Programme d'Amenagement de Sources au Rwanda, Rwanda
"Performance of Sanitary Completion measures of Wells and Boreholes used for rural water supplies in Malawi," W.J. Lewis and

e) Evaluation of Water Projects accomplished with UNICEF assistance Ethiopia - a case history, K. Ray - UNICEF Addis Ababa.

f) Evaluation Objectives, Zimbabwe, P. Cross
Checklist of topics for Well Case Studies, P. Cross

h) UNICEF Programme Audit Evaluation of WHO/UNICEF JNSP Support to the Iringa Nutrition Programme, UNICEF, ESARO

III.a) New Borehole Drilling Project - Analysis of Construction Costs - Uganda.

IV.a) "Accelerating Decade Implementation in Sub-Saharan Africa" - Discussion draft, IBRD.

b) Annex A - Cost/Benefits Calculations, IBRD

c) - "India Handpump Maintenance Systems - Case Study" IBRD

- Handpumps Project - Kwale Water Demand Study, IBRD.