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Drinking Water Supply and Sanitation

**CO-OPERATION BETWEEN
COMMUNITIES AND AGENCIES**



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Drinking Water Supply and Sanitation

**CO-OPERATION BETWEEN
COMMUNITIES AND AGENCIES**

by

Bep Fritschi

July 1986

**International Reference Centre for
Community Water Supply and Sanitation
The Hague, The Netherlands**

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INTRODUCTION

In June 1984 a Symposium was organized in Amsterdam to discuss co-operation between communities and agencies in water supply and sanitation projects. Emphasis was put on the involvement of women as prime beneficiaries of the supplied facilities. Agency in this respect refers to an organization, governmental or non-governmental, which aims to improve or provide water supply or sanitation. Community refers to the group of people who will hopefully use the new or improved facilities.

The 30 participants from 14 countries included staff members from international, national and non-governmental agencies; field-workers as well as desk-workers. The consensus of the meeting was that adequate co-operation between communities and agencies and practical involvement of women are key conditions for successful programmes.

These, together with further development and application of appropriate technologies for water supply and sanitation and appropriate human resources development are the main pre-requisites to achieving the ambitious goals of the International Drinking Water Supply and Sanitation Decade.

A series of conclusions and recommendations were made by the participants, some of a general nature, others much more specific and action oriented. These suggestions represent a wealth of experience and although more than two years have passed, it was considered useful to further enhance their dissemination, but in a different format.

To make the recommendations more meaningful to policy makers and programme managers, they have been put into the framework of project planning, and have been illustrated by cases and project examples. It should be noted that whereas the points raised may be very valid in many situations, sometimes they may tend to generalize too much. Even then, however, they may provide a useful starting point to develop ideas. Throughout the document the recommendations are printed in bold.

1. **COMMUNITIES AND AGENCIES IN WATER AND SANITATION PROJECTS**

1.1 Experiences of the Decade

As the halfway mark of the Drinking Water Supply and Sanitation Decade has been reached, two important factors have emerged. Firstly, the key to the success of community water supply and sanitation projects is a well-balanced relationship between the functions carried out by the community on the one hand and the support of agencies and organization on the other. However, striking this balance has been found to be extremely difficult. Everyone knows examples of projects that have failed because 'the people', the users, had not been involved sufficiently. On the other hand, in some cases the advocated emphasis on community participation has led to extremely high demands on user communities, without the necessary adaptation of agency policy and support services to the community participation approach.

Secondly, the increased emphasis on community participation in many cases has brought to light, and if not, should have done so, the need to pay special attention to the interests and potential of women. Traditionally, women have played a major role in most issues relating to water and sanitation, and continue to do so after the provision of new or improved facilities. Women select water sources for different purposes; they collect and carry water, and decide its use and reuse. Moreover, generally women are responsible for cleaning, hygiene, protection of family health and education of children. They are truly the 'managers of water'.

Apart from domestic use, water is of tremendous economic importance to communities, for instance, for agriculture and cattle watering. For home-based economic activities as well, such as vegetable growing, the raising of small animals and the preparation of drinks for sale, women can benefit from improved water supply. Often water provides them with one of the few means to earn an income. It is clear that women are an important key to the success of water and water-related projects, and that successful water projects can contribute to improvement to their lives, and, through them, to the lives of the rest of their community.

1.2 Community participation

Most projects are planned 'top down'. There are also instances of 'bottom up' planning, but unfortunately very few. Finance, political preferences, social attitudes towards women and lack of trained staff are major constraints to 'bottom up' projects, which take into account views and potential contributions of both men and women.

When implementation targets are set and budgets prepared, time, money and human resources required for community participation should be taken into account to avoid project failure due to lack of community involvement.

Technical aspects of a project can be calculated and expressed in figures: the most appropriate diameter of a supply pipe can be calculated; the number of handpumps required to provide a community with a certain quantity of water per household can be calculated. But the effects of community involvement, and of women's participation are not so easily calculated. Moreover, community involvement in the planning phase may influence technical standards, calculations, and priorities. This may well be the reason why many engineers and administrators still view community participation with skepticism. But there are aspects of community participation or the lack of it which can be calculated, or even simply counted, such as the number of pumps and standposts, which although initially technically perfect, are unused and deteriorating, or new facilities abandoned after a few weeks of use in favour of traditional sources. Other aspects can be calculated: the quantity of water wasted because of poor maintenance; the number of women using polluted sources after the breakdown of new facilities; the time wasted which was originally gained by those women. With somewhat more difficulty, even the negative health impacts of unused or improperly used new sources can be measured. All this wasted material, water, time and health can be expressed in money, and wasted money. The commissioning of a newly installed shiny pump on a festive occasion is just one step in a community project. Equally festive should be the second or tenth anniversary of the same pump, still shining despite frequent use and possibly thanks to joint maintenance efforts by agency and community. Unfortunately, there is no blueprint or formula for successful joint community and agency efforts resulting in well-used, well-maintained water and sanitation systems and improved community health. Countries, regions, communities and agencies differ too much to warrant efforts to develop one single blueprint. Even villages only ten kilometres apart can show striking differences in technical economic and social (e.g ethnic) conditions, so that what may be the best solution for one village can result in total failure for another.

1.3 Steps in a community project

Irrespective of agency resources and community characteristics, two steps invariably need to be taken in a community water and/or sanitation project with agency support. Firstly, the agency needs to enter the community, and secondly new or improved facilities need to be put into use. Many projects have concentrated on these two events only. However, there are a number of intermediate steps, as shown in Figure 1.

This schedule of activities is based on the symposium discussions about various project stages and subjects, and on the symposium recommendations regarding the need for and the timing of activities in the process of planning, implementation and operation of water and sanitation projects at community level. The schedule serves as a framework for the symposium recommendations. In each of the following chapters on various project stages, a part of the schedule is singled out and the matching considerations, recommendations, suggestions for action and illustrative cases and examples are included.

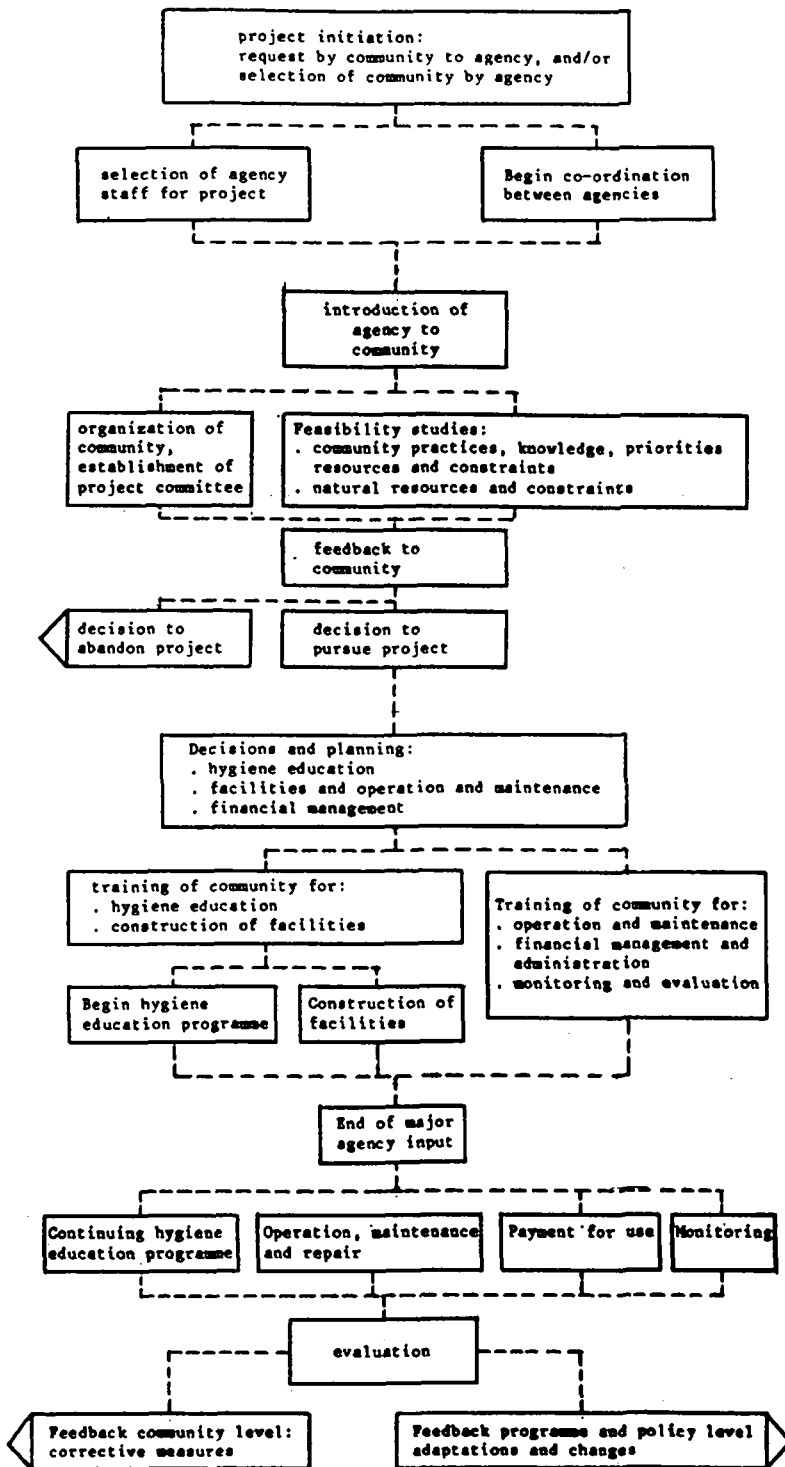
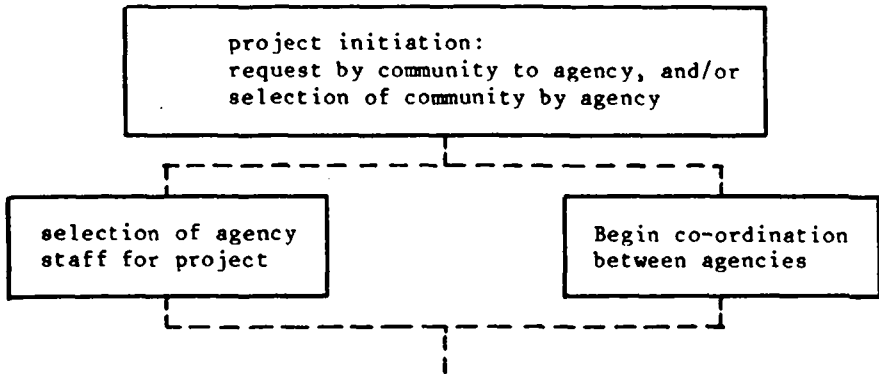


Fig. 1 Steps in a joint agency and community project

2. PROJECT INITIATION AND PREPARATION



2.1 Project initiation

2.1.1 Request by community to agency

Every opportunity should be taken to encourage local initiatives.

The ideal is for local communities to organize themselves to solve their own problems of water and sanitation, requesting assistance from an agency only for those aspects which are too difficult for the community to do for itself. Agencies should be open to the possibility of providing limited help to communities for simple improvements which those communities can make largely for themselves; there will often be such possibilities in the smaller settlements of any rural area.

There will normally also be larger settlements which have more complex requirements for water and perhaps also for sanitation, and in these cases a joint community-agency project, with greater input from the agency, will be required. Where the need exists in an area where the agency has already been active, for example in neighbouring communities, the community is likely to approach the agency with a request for a project. This is a very good basis for a successful project, particularly when a large proportion of the people of the community have had the opportunity to see the success of another project nearby. If requests for projects are invited too widely and enthusiastically, the result may be far more requests than the agency can handle. This would mean that many communities would have to wait for years, which would certainly reduce the enthusiasm of the community.

In any case, the agency will need to develop criteria for selection of appropriate communities in which to carry out projects - perhaps different criteria for different technical types of project, and with support for small-scale local initiatives, where appropriate, in those communities which cannot immediately be selected for larger projects.

A good example of a local initiative which resulted in a successful joint community-agency project is the Rural Water Supply Project of Surigao City, the Philippines:

In Surigao City, an administrative area of the Philippines consisting of 53 barangays or villages, several mothers' clubs identified lack of water for domestic use as the main problem. They conveyed to the City Health Office this urgently felt need, plus the solution of bringing water from the springs in the hills to their villages through a piped system. The City Health Office informed the Ministry of Health, which, in turn, requested UNICEF for assistance. The involvement of the mothers' clubs did not stop with initiation of the project. They were also active, and activated the men in the next stages of the project, feasibility study and implementation.

An evaluation was carried out in 1982. In most barangays, the project was considered to have been successful on most issues except for organization of operation and maintenance. An unplanned positive effect of the improved water supply was the promotion of gardening and sanitation projects. (Unfortunately, the area was severely hit by a typhoon in 1984 and much work needs to be redone), Glasgow, 1983.

2.1.2 Selection of community by agency

Criteria must be established to enable agencies to respond to actual needs rather than to personal influences or political pressure.

Programme planning at regional or district level often includes the selection of communities for agency involvement. Questionnaires and formal surveys have been found to be useful for initial assessment of the needs and potentials of a region. Moreover, the information obtained may provide a basis for selection criteria, and for the assignment of priorities. For instance, communities which are the most needy, or the best organized, or the 'easiest' in terms of accessibility or technical feasibility, could be selected by the agency to be approached first. Recommendations on women's involvement in the feasibility study at the local level are given in Section 3.3. But also in the earlier regional surveys, the agency must ensure that women's views are well represented.

In the framework of a regional water master plan in Tanzania, a 'village inventory', that is a survey of all the villages in the regions, was carried out with the help of a questionnaire. Priority selection was made on the basis of the data obtained. The most important criterion was 'need', based on data on health risks, capacity, and accessibility of the present sources. Other factors that influenced the timing of implementation were estimated project cost and expected cost and problems regarding operation and maintenance, (Tanzania, Ministry of Water and Energy, 1982).

2.2 Selection of agency staff

2.2.1 Women

In recognition of their vital role as users, managers, acceptors and agents for change in water supply and sanitation, women should be involved in Decade activities at all levels. To guarantee that the key roles of the women at the local level are recognized, promoted and supported, commitments should be made to facilitate women's active participation in national and international support activities, including policy development and decision making, project preparation, planning, implementation and management, monitoring and evaluation, advisory consultancies, community development, and health education. This may help ensure that the participation of women is an integral part of community water supply and sanitation activities at the local level from the beginning.

This policy recommendation includes the need for female agency staff members for community level projects. It means that agencies should employ and train female staff members, and, since most agency staff members are male, even show a preference for women in its employment policy, until a more balanced situation has been achieved.

Women are well represented in the Imo State Rural Drinking Water and Sanitation Project in Nigeria. In addition to the female UNICEF Project Co-ordinator, three Nigerian female play prominent parts as Operations/Liaison Officer, and team leaders for sanitation education and training of village-based workers. Moreover, there are several female health educators, a female nutritionist and a female consultant epidemiologist. About 50% of the middle and higher personnel employed in the project are women, dedicated to the programme together with their male colleagues, (IRC, 1984).

2.2.2. Training

Programme planning and the timing of activities must take into account human resources available at all levels and must include strategies for human resources development.

Agency project staff members are a 'human resource'. Human resource development in this context must be seen as quantitative and qualitative development of the agency staff, to equip the agency for its project tasks. Before embarking on community level projects, agency staff members, old or recently employed, will require training for the activities that lie ahead.

Although the Barangay Water Programme in the Philippines provides water projects to communities, this is not its first objective. The programme aims to develop the financial and administrative capabilities of local governments to enable them to plan, design, finance and

install water systems to provide adequate supply of potable water to small rural communities falling within the lower 60% of the national income bracket, with a view to improve the health conditions of these communities. The programme includes training of communities, community water committees ('Rural Waterworks Associations'), community-based caretakers and technicians, and provincial administrators who in turn will train communities. Courses, meetings, teach-ins and follow-up sessions are part of the programme at all levels. Depending on the purpose and target group, the training sessions take place at national, provincial or community level, (Philippines, Ministry of Local Government).

2.3 Co-ordination between agencies

Every effort needs to be made to co-ordinate the work of government agencies at national and district levels. This is best done by emphasizing co-ordination at the community level.

Even before the first agency and community contacts, co-ordination with other agencies, governmental or non-governmental, may be necessary. Technical agencies could seek the assistance of community development and health promotion agencies if those disciplines are not represented within their own organization. Moreover, other agencies or departments may possess data and information on the project area, for instance about agriculture and demography, which could be of great value to the project agency. Whenever other organizations are active in the project area it is imperative that they are contacted, not only for possible assistance and co-operation, but also to inform them about the agency's activities.

An existing local framework for such contacts between agencies can facilitate matters considerably:

In the Dominican Republic, the president of the committee organizes monthly meetings for which all those responsible for projects of all types and for ministerial departments active in the area are invited. These meetings form an excellent framework for co-ordination and integration of the various activities planned for the area, (Weyns, 1984).

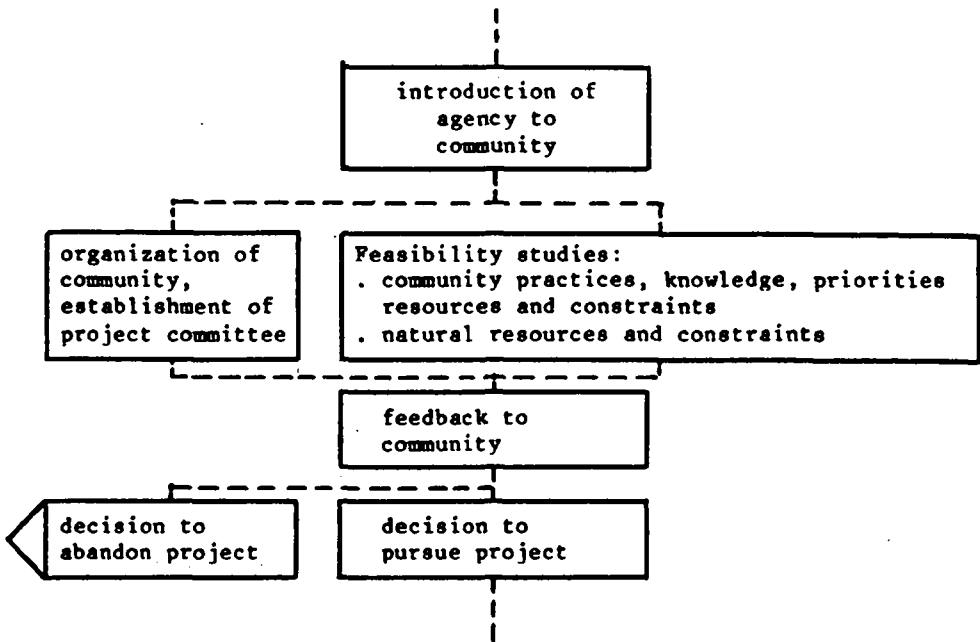
Below is an example of the various kinds of agencies involved in a rural water supply programme in Kenya:

The Kenyan Water for Health Organization keeps in touch with various organizations to co-ordinate their inputs in the programme. Regular meetings are held, numerous visits are made to offices and project sites. The following parties are involved in the Kwale Project:

- Ministry of Water Development District Office, for borehole and water point design and construction and including the involvement of a specialist consultant to the Ministry in this field;

- Ministry of Health, for ventilated improved privy design and construction supported by an external consultant;
- World Bank (Regional Office, Nairobi), for provision and testing of several types of handpumps, and for replacement of non-preferred types in due course;
- UNDP, who awarded the Kenya Water for Health Organization the community involvement and liaison work;
- District Health Office;
- District Sanitary Office;
- District Community Development Office, (IRC).

3. PRELIMINARY PROJECT STAGE



3.1 Introduction of the agency to the community

Preferably, communities should be approached through existing organizations or structures, such as village councils, or formal leaders, mothers' clubs, religious organizations, and welfare societies.

These first on-site contacts with the community can be used to emphasize the general need for community participation in all stages of the project, and the particular importance of potential and actual roles of women in water and sanitation.

These two recommendations indicate clearly the first tasks of the agency. In some cases it may be easier to approach organized groups. In Sri Lanka, the recently introduced structure of local government at the grass roots level ensures that all or most groups can be identified by simply getting in touch with the Village Re-awakening Council:

The organizational form now used in Sri Lanka is based on voluntary organizations. The president of each recognized voluntary organization becomes a member of the Gramodaya Mandalaya or Village Re-awakening Council, which covers a group of about five villages. This Council is involved in all planning and decision making in its area. Women are automatically represented through their recognized organizations, such as Women's Rural Development Societies, Mothers' Associations and Girl Guides Associations, (IRC).

In other countries, it may be necessary to consult the village committee about existing community organizations, or to interview villagers. It is necessary to find out whether the organizations also represent the weaker and poorer section of the community.

It is inadvisable not to work through existing organizations, but approaching them does not guarantee that all members of the community will be informed about the agency. At least one public meeting may be necessary to achieve this goal. The following recommendations were made regarding this first public meeting, but they are also applicable for meetings throughout the project.

If one or more public meetings are to be held for the agency to introduce itself and the project to the community at large, then it is essential that:

- information about these meetings reaches women and minority groups;
- time and venue of the meetings are favourable for women to attend;
- information from and about the agency, including visual aids, posters and pamphlets used or distributed during the meetings, is geared to the level of understanding of the community.

If it is not possible for women or members of minority groups or castes to attend public meetings, or if they did not attend the first meeting, then it is necessary that:

- separate meetings be organized for them, possibly through their own organizations or representatives;
- they be visited at home or at their places of work;
- local contacts, such as teachers, nurses and village birth attendants, tell them about the agency and its objectives.

Why is there need for special emphasis on informing women about the project? May it not be expected that, even when only men attend meetings, they will inform their wives about the issues important to them? Unfortunately, this is not always the case:

In two villages in Andhra Pradesh, India, the women did not know that a water project was being implemented in their communities, even though the council and Village Development Committee (both all male) were fully informed, (Wijk-Sijbesma, 1985).

There is ample evidence that women are often not informed by the men, and that their needs and wishes are seldom represented by men. The following is the exception rather than the rule:

The scene is a joint agency-community meeting in a small community centre in a slum in Colombo. The discussion is about water supply and water wastage in the area, and about the production of a video film, for which the community is to prepare the script. A man expresses his concern about the fact that the women of his group, a

Muslim minority, would be unable to attend the showing of the film if this were to take place in a public building in the evening, (World View International).

As with the encouragement of local initiative, the agency when introducing itself to a community, could mobilize members of communities already being served. They could play a role in introductory public meetings, and especially women could play an important role in reaching the women of the new community. The case of the 'star and moon villages' of Punjab in Pakistan may serve as example of this strategy:

The UNICEF assisted programme of the Rural Development Department in Punjab uses the word PROCESS to indicate a number of key issues of its environmental sanitation project:

Promoters
Resources
Organization
Community
Education
Selection of villages
Star and Moon

'Star and Moon' stand for the spreading of the programme, where the 'moon villages' are involved in promoting the programme in a number of neighbouring 'star villages'. Male and female promoters already trained and organized for sanitation and health education assist in spreading the agency's messages. Former 'star villages' are meant to become promoting 'moon villages', (UNDP, 1982).

3.2 Organization of the community: establishment of a project committee

The existence or establishment of a community committee representing the various sections in the community is a basic pre-requisite. This committee will be the agency's local counterpart in planning and implementation, and be responsible for supervising operation, maintenance, administration and health education at a later stage.

A committee is needed which will be responsible for water and sanitation or health. Organizing and orienting the committee will take time and effort if it is to be effective. One way of getting a committee started is recommended as follows:

It is preferable to build on existing community structures rather than to create new structures. Efforts need to be made to re-orient existing organizations to water, sanitation and health.

In a project in Malawi, project staff usually ask active village health committees to embrace the impending water activity, rather than to organize a new committee for the purpose, (UNDP, 1982).

This approach may not always be successful, as in this example from Tanzania:

The involvement of committees was most successful in siting water points, and planning and implementing village hygiene improvements. Not all committees were equally successful. Those which had other tasks in addition to the water supply project, and which were composed of male members only, did less work than those formed especially for the water supply and sanitation project, (Wijk-Sijbesma, 1982).

Every effort needs to be made to ensure that women, minorities and the powerless, poor or subordinate groups (such as the harijans or "outcasts" of India) are represented. The involvement and representation of women must be more than a token gesture.

One woman on a water committee of five or six members is an example of such a token gesture. It is doubtful whether one person can represent half the population and put forward all needs, wishes and opinions of women. The fact that she is alone in the company of men may not contribute to her assertiveness. Two women on a committee is the minimum, and 50% or 'real representation' the ideal:

In Tanzania, steps were taken to ensure women's representation on Village Water Sub-Committees (VWSC). It was decided that at least half of the members should be women. In some project areas there was deliberate discrimination in favour of women members to ensure their impact on the water project. When the women in a village realized their new role on the VWSC and that they were considered equal to the male members, they made even greater efforts than the men to keep the agreement between the village and the project, (Tanzania, Ministry of Water And Energy, 1982).

In some cultures it may be difficult or even impossible for women to be members of committees together with men. In such cases, the recommendations in Section 3.1 need to be carried out during the entire projects:

- work through and with women's organizations (mothers' clubs, religious groups etc);
- stress importance of representation of women's views by the men (the husbands) of the community;
- visit women at home;
- get women's views through intermediaries such as teachers, nurses, midwives, etc.

The recommendations on organization of the community place an extremely heavy burden on the agency in the initial stage of the project. In some cases assistance may be available:

Community organization efforts could be co-ordinated with government or non-government community development organizations active in the areas. Often they have experience and staff which the project agency can use. In some instances, non-governmental organizations (NGOs) may be particularly valuable in reaching needy groups, using government (project) funds allocated for community organization.

As the community organization develops, outside support can be gradually decreased. The initial heavy input in terms of funds, time and human resources is justified and is intended to make the project more cost-effective. The objective is to make the community more self-reliant and to ensure adequate maintenance and use of future facilities.

3.3 Feasibility studies

3.3.1 Community involvement

Assessment of community knowledge, needs, resources and constraints should be a joint effort by agency and community. Informal consultations, dialogues, meetings, interviews and observations are likely to produce more useful information than formal household-level surveys and questionnaires.

Information obtained, or lack of information during this crucial stage of project planning at the local level, could influence project success considerably. The following examples illustrate the need and advantage of early informal consultations about needs, resources and constraints:

The women in Surigao, the Philippines, knew where the sources were for the piped supply to their villages. The feasibility study team saved a lot of time by making use of their knowledge and assistance, (Glasgow, 1983).

In a village in Tanzania, three wells were constructed at locations which were technically feasible at first sight. However, the village chairman knew from experience that these sites could be flooded during the rainy season. More detailed consultation with the old man could have helped determine whether an extra concrete ring and a raised access path would have been advisable, (Wijk-Sijbesma, 1982).

In a project in Malawi, extensive consultations with the future users of wells were not part of the terms of reference of the borehole siting teams. They only marked the site for the drilling team who would arrive sometime later, possibly months later. In the meantime, the villagers sometimes moved or even removed the peg. In one village, the team was even informed that the pump would never be used because it was sited too close to a graveyard, (UNDP, 1982).

3.3.2 Commercial requirements

The present and future water requirements of the community for other than domestic use need to be investigated.

Water is often not used exclusively for domestic purposes, such as washing, cooking and bathing. Especially in rural areas, there may be an additional demand from within the community or from others, for instance, for watering cattle or for irrigation. This should be taken into account:

In the southern half of the island of Jamaica, where drought is often a problem, there is constant conflict with consumers who insist on using domestic water supplies for irrigation on a larger scale than assumed in the design stage. In one area, Pedro Plains, where a new water supply was built, consumers regarded this as the answer to their need for irrigation water in the dry season. Water from the new system was cheaper than that transported by truck. In an adjacent area, Bull Savannah, water use for irrigation at the lower elevations has deprived consumers at higher elevations of a reliable supply. The agency feels that it may not have taken sufficient cognizance of this need for irrigation water in the design stage, and secondly, that it has not been able to persuade consumers of their responsibility for proper use of the system. However, the development of an irrigation system for the Pedro Plains area is now being pursued, (IRC, 1984).

3.3.3 Health and hygiene

Needs, resources, constraints and practices need to be studied beyond their relation to water, even if water is the main concern of the agency. Equally important as the needs related to water supply are those linked to health and hygiene. In most cases, improved health is a direct or implied goal of water and sanitation projects. Unfortunately, health does not necessarily improve automatically with improved facilities; health-related behaviour may also need to change. Such a process of change requires as much planning as any other aspect of a water and sanitation project. Health and hygiene education should incorporate as many local resources and people as possible and be developed in consultation with the community. Community members can be involved in developing the plan, both in terms of its content through the discussion of which habits it will be most sensible to try to change, and in terms of the way it can be carried out. A dialogue approach should continue during the education campaign itself: the designers should remember that they are involved in an interactive process in which an unsuccessful effort should be seen as a feedback or corrective mechanism. The designers should also remember that a community is more than just the leaders. Therefore, the participating audience in the interaction must be the community at large.

An NGO active in India discovered that in a number of villages there was a commonly held belief that a child has to cross 12 rivers before he becomes a healthy adult. The NGO used this story as a framework for its health education programme. Each of the 12 rivers was used to symbolize a danger or disease related to bad health habits. The correct habits and measures to overcome the dangers represented the 12 bridges, (personal communication seminar participant).

3.3.4 Finance

Consultation of the community on their capacity and willingness to contribute to capital and/or recurrent costs is essential as is investigation into whether commercial users are willing and able to pay.

This type of investigation should be more probing than the simple 'are you willing and able to contribute to the project, and if so, how much?'. More appropriate are discussions with the community on financial schemes, such as spending and saving systems, and co-operative funds.

Both men and women in villages in Bangladesh have been borrowing money from the Villagers' Bank for income generation to raise themselves above poverty level. Their record of paying back these loans is excellent. This situation was the basis for a combined tubewell income generation loan programme undertaken by the Grameen Bank and UNICEF, (personal communication seminar participant).

In many cases, the siting of improved water facilities nearer to people's homes will result in time savings, especially for women. Where this is likely, discussions can well be held with the community about how the extra time might be used. This time can be used for much needed rest and more leisurely or deeper involvement in domestic tasks including hygiene, but could also pave the way for income generation activities and increased productivity. It may also be that the new water supply itself can be used for worthwhile or gainful activity, including the growing of vegetables for family use or the preparation of drinks for sale. Such possibilities can also be discussed.

3.3.5 Minority groups

The needs and priorities of minorities need to be identified, and efforts need to be made to ensure that these groups benefit from the facilities.

Sometimes, it may even be necessary to manipulate the situation somewhat to achieve this end:

During discussions with the community the harijans (untouchables) approached the agency secretly and said: 'whatever you do, we are not going get the water'. A strategy was required to ensure that the harijans would

receive water and at the same time that the organization would not be thrown out by the high caste section of the community. Thus when the time came for 'assessment of natural resources', a water diviner was called in and told: 'to walk through the village, but to make sure to find water in the harijan section'. In this manner, the organization was able to get water to those who needed it most in a way acceptable by all, (IRC, 1984).

3.3.6 Women

The involvement and participation of women in the feasibility study is essential. As 'managers of water and waste' they are possibly the best and most reliable source of information for most issues to be investigated.

Efforts need to be made to involve poor women in this stage of collection and sharing of information. They especially could benefit from such involvement in terms of increased status within the community.

When women tend to be timid or silent during consultations and discussions, they need to be encouraged to speak up, to express their views, and to share their knowledge. Such a change in behaviour, and the acceptance of it by men, cannot be expected to occur immediately and it may even be necessary to train women to express themselves.

In the PMO/IRC project in Tanzania, separate women's meetings were organized to educate and train women for their new roles. It was found that, when women were encouraged to stand up at meetings and to discuss project issues with men, they gained self-confidence and became increasingly aware of their new role in village development, (IRC, 1984).

Often, agency field staff are men only. While men are as able as women to implement recommendations on women's involvement, from the point of view of the women, it may be easier to communicate with female workers. In some societies, it may even be impossible for men to visit women at home or at their work places.

A recommendation on the need to employ female agency staff is made in Section 2.2.1. However, if arrangements are not made at the programme level for female field-workers, discussion with male field-workers may be very useful concerning the ways in which the full involvement of local women can best be achieved.

3.3.7 Men and children

Women, and their influence in decision making, have been neglected, yet polarization leading to conflict between the sexes can damage a project. Therefore, women need to be consulted but not to the exclusion of men. Also, especially with regard to health education, separate dialogue with children may be necessary.

Health, water and sanitation are general issues for all members of the community. Men cannot be excluded, in the same way that women have been excluded, and are still being excluded, in consultations, planning and decision-making. Moreover, there are specific roles and responsibilities for men, for instance when heavy work is involved. Sometimes, it is necessary to involve the men before the women can be reached:

In some areas covered by a water and sanitation programme in Pakistan, men must be convinced before women can be influenced. The agency staff must have the support of men, even when they direct their efforts to women, (personal communication seminar participant).

3.3.7 Partnership

Stationing government officials in villages would increase mutual understanding and the chances for genuine 'partnership'.

The best way to obtain information from people is to spend time with them. Interesting things with regard to water and sanitation tend to happen early in the morning, not only during the agency's 'normal' working hours. Discussions with people in the evenings, in a relaxed atmosphere, may bring to light knowledge and views that would otherwise not be expressed:

The original set-up of the Buba Tombali rural water supply project in Guinea-Bissau included a number of one-day visits of the project team to the villages. The result did not meet expectations and the approach was changed. In the new set-up the first time the team visited a village they would stay for several days to introduce the project, to consult the community including the women, and to discuss their findings with the community in a general village assembly at the end of their stay. This team consisted of one man and one woman, recruited and trained by the project. Where possible, these promoters were recruited from the areas in which they would operate. The two promoters consulted the villagers on several topics, using the checklist given. Moreover, they drew up a plan of the village, marking the houses and existing sanitary facilities, and already at this stage they discussed, especially with the women, the preferred sites for new wells, (Visscher, Hofkes, 1981).

Although attention was paid to hygiene practices and the need to change habits, the women were not very interested, mainly because the relationship between hygiene and health was not obvious to them. This was clearly a weakness in the programme in 1981.

Checklist* for survey on water situation in the Quinara and Tombali regions

1. Name of the village
2. Name of the chairman of the village council
3. Type of village; centralized or dispersed
4. Number of inhabitants
5. Ethnic group
6. Which water sources are available?
7. Which sources are used for drinking water; if not all, why not?
8. Which water is used for cooking?
9. Which water is used for laundry purposes?
10. Which water is used for washing and personal hygiene?
11. What kind of cattle are present in the village?
12. Where are the cattle watered?
13. Are clay blocks made for housing?
14. Are there gardens? If so, from where does the water come for irrigating them?
15. Which vegetables are grown in the rainy and which in the dry season?
16. Are there special problems not mentioned so far?

* The checklist is only meant to be a tool for systematized exchange of information beyond the posed questions, (Visscher, Hofkes, 1982).

A more intensive approach was followed in Mexico. The inhabitants of villages in Mexico were asked to prepare a 'village book' describing in text, figures and pictures various village topics. The book not only provided great insight into the life of the village, but also gave the people a feeling of pride and sense of their own community and history, (Iwanska, 1971).

3.4 Feedback to the community

Findings of the feasibility study must be presented to the community, through its various organizations and preferably also at public meetings. The community must be given the opportunity to discuss and to react to the findings.

In the Buba Tombali-Project in Guinea-Bissau the information obtained by the promotional team was summarized in a brief report in the local language and discussed in a public meeting with the villagers, (Visscher, Hofkes, 1982).

The feasibility study may well reveal that the community does not at all perceive a need for what the agency has to offer:

Felt needs present a dilemma. When the expressed needs of the community differ from those seen by the agency, the agency may need to raise the awareness of the community.

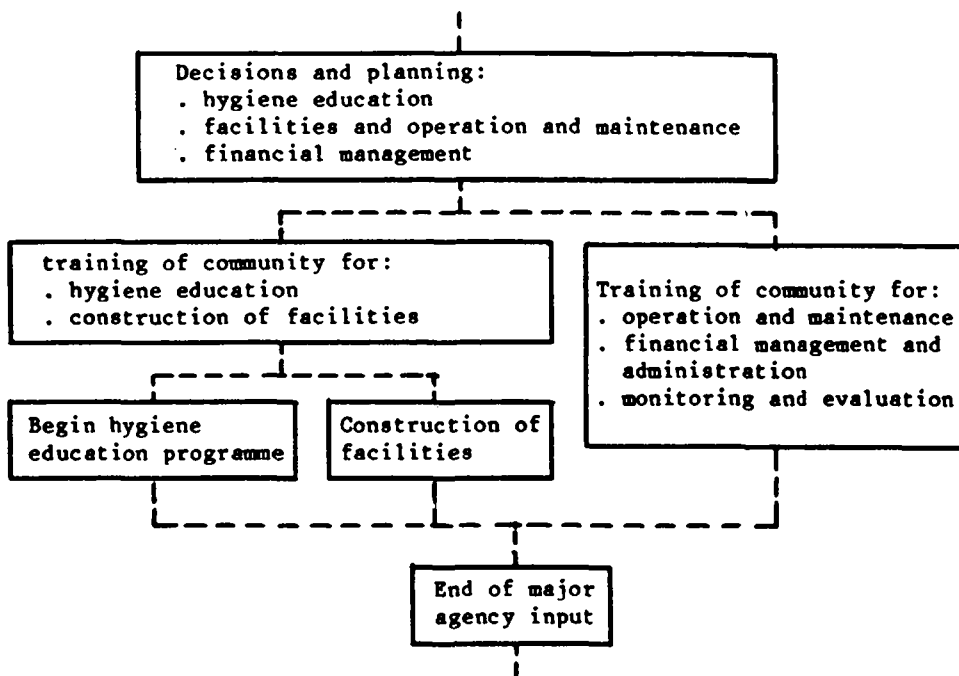
When asked about their priorities, the people of the villages came up with water, food, education, employment and shelter. They did not mention 'health', yet health was the organization's main concern, (IRC,1984).

When the expressed needs of the community differ from those seen by the agency, or those which the agency is equipped to meet, the agency may try to convince the community of the value of its own type of project, e.g. in water or sanitation; or it may look for other solutions, perhaps by involving other agencies.

Few communities will mention the poor bacteriological quality or their water; nor will they be very concerned about sanitation, whereas these may be obvious priorities in the eyes of agencies concerned with health.

The community may express other priorities strongly, whether they are to do with water or not. For instance, the community may be concerned with the distance to its existing water supplies, or about the colour of the water. If the felt need is for improvement in these respects, the agency will be well advised to take it into account, either by meeting the need or, for instance, if the colour is unavoidable and does not mean that the water is harmful to health, by explaining this situation carefully and with sympathy for the community's view. If the community wants a road or a school it may be impatient with an agency talking only about latrines. The agency will be well advised, in this case, at least to contact the relevant other agency about the community's most urgent priority. If the community cannot be assisted with its own priorities, it may sometimes be necessary to postpone action on water or sanitation until it is wanted; but this is rare.

4. DECISION-MAKING, PLANNING AND IMPLEMENTATION



4.1 Hygiene education

To achieve the fullest impact on the health and socio-economic conditions of communities served, with optimum use of the limited means available, water and sanitation programmes should take into account the broader framework of primary health care and community development. This will provide sufficient scope for full community participation, including hygiene education to improve the community health status.

In recent years, those associated with safe water and health promotion efforts in Malawi have recognized that the potential for improved water supplies to reduce the incidence of diseases in the villages was not being fully realized. A high level of contamination was found in drinking water storage pots even though water in the tap was safe. Women continue to use polluted rivers for bathing and washing clothes. The systems are designed to provide enough water for good sanitation and hygiene practices, yet water is used at about half the per capita levels considered necessary for acceptable personal hygiene and household cleanliness. Clearly health education and sanitation promotion are necessary in the villages to realize the potential benefits of convenient, safe water, (McCoy, 1983).

On the basis of dialogue with the community during the feasibility study, which will have to be continued during the following stages of the project, the first steps can be taken to get hygiene education activities off the ground. As the schedule indicates, this should happen before completion construction of 'hardware', such as pumps, piped systems, and latrines. Whether hygiene education begins well in advance of or shortly before construction will depend on the resources of the agency and the situation in the community. Whatever the time span, it should allow for a beginning to achieve the objective:

A plan of action (for hygiene education) needs to be developed in consultation with the community; its objective should be to change specific habits relating to water and waste where these are judged to be dangerous for health. The plan needs to be developed on the basis of the findings of the feasibility study, especially on the needs and problems of the community in relation to the specific pattern of disease(s) in the area.

4.1.1 Changing habits

A hygiene education plan linked to a water and/or sanitation project should focus on promoting actions by men, women and children to prevent or reduce disease, such as hand and body washing and environmental sanitation, rather than to provide medical details and detailed explanations of disease transmission routes.

Working with this recommendation clearly presupposes a sound knowledge and understanding of the community and its resources. Where there is no soap, or no money for soap, promotion of its use is unlikely to be successful. Other solutions, for instance using ash, may be more appropriate. Where the resources for improved sanitation, such as construction of ventilated improved pit latrines, are not available, elaborate discussions on its importance may only led to frustration. General advice would be to start simply and gradually increase the scope of the programme. In a water project, start by focussing on habits that are linked to the project, such as keeping well surroundings clean, taking care that wastewater drains do not become clogged, taking measures to avoid water becoming contaminated during transport and home storage:

The Togo Rural Water and Sanitation Project has a hygiene education component which is defined as a continuous learning process, a process ending in action, not only in knowledge. The hygiene education plan provides for six campaigns of different themes each lasting 4-6 months. The theme of the first campaign was: 'our pump, our responsibility, our health'. Village health co-ordinators organize slogan contests, meetings, demonstrations, short dramas and lessons in the village, supported by a regional programme of posters and radio announcements, (Flanagan).

4.1.2 Hygiene educators

Generally, the staff of the water and sanitation agency is not in the community long enough to make the continuous effort required. Staff of rural development agencies and health agencies and of NGOs may have longer and more frequent contacts with communities, but world-wide experience has shown that the best and most successful health workers come from within the communities:

Community-level health workers are the most effective in promoting the desired changes in health habits; female volunteers and motivators need to be involved to ensure hygiene practices are improved.

In most cases, the water and sanitation committee, women's organizations or the leaders will be able to select or suggest suitable and willing candidates:

In most of the eight villages in Yemen in which an NGO initiated a health/hygiene education campaign linked to a government water project, it soon became apparent which woman was going to be the local assistant. If the headman had an energetic wife, she was chosen. Otherwise, the woman who showed most interest in the work and had the time to pursue this interest became the local assistant, (Ansell, Burrowes, 1981).

Experience in the Jamkhed health education programme in India showed that the community could make appropriate selection of the women they wanted as health educators. The criteria used for selection include motivation, desire to change old habits, thirst for knowledge and sensitivity to people. Formal education and literacy are not considered to be important: most of the village health workers in the programme have never been to school, (IRC).

These promoters need training. This is the major task of agency staff; they must be the trainers of those who will be responsible for improving health and hygiene in their communities, through discussions and dialogues and by setting examples. These promoters are not expected to lecture their fellow community members, therefore it is not advisable to lecture them in a classroom situation:

When training hygiene educators at the community level, it should be realized that people generally teach in the same manner as they were taught. Therefore, hygiene educators need to be exposed to a wide range of teaching techniques and approaches.

In the two examples cited, women were selected as hygiene educators. This seems only logical since many issues in a health education programme deal with household hygiene. But, as with all aspects, men should not be excluded, as they have an important role in hygiene education, both as promoters and targets:

One lesson learned from evaluation of the hygiene education components of the PMO/IRC project in Tanzania was that emphasis on local discussions had been mainly on female-related tasks. Far less or no attention was paid to general village hygiene and to the need for maintenance of the water supply system from a health point of view. The conclusion was that some topics and training channels should be directed especially at village men, (Kirimbai, Wijk-Sijbesma, 1983).

In the Imo model water/sanitation projects in Nigeria one man and one woman for every 500-1000 population are chosen as village-based health workers, and receive the same training. Once active in their villages, a natural division of tasks occurs between male and female workers. Men are more effective in organizing communal labour, enforcing environmental sanitation, supervising maintenance and building latrines. Women are more directly involved with the household and child care, improving personal surroundings, treatment of infant diarrhoea, and storage of water in the house. Both male and female health workers play important parts in referring sick villagers to health clinics for treatment, (IRC, 1984).

4.1.3 Teaching materials

Both agency staff members and the community-based hygiene educators use training and discussion materials: pictures, brochures, slides, posters, and cassette tapes. Some may be more suitable than others, depending on the culture and background of the trainers.

Whatever material is used for training purposes must be geared to the level of literacy and understanding of those to be trained.

There is a well-known story of how villagers reacted to blown-up pictures of flies and mosquitoes; they were quite relieved, because such terrible creatures had never been seen in their area. But sometimes potential lack of acceptance and understanding may be less evident:

Even though a cassette tape of dialogues on hygiene habits was quite effective in a project in eight villages in Yemen, it also had its drawbacks. The concentration of many listeners wandered because they were not accustomed to tapes as teaching tools, and because tapes are generally played as pleasant background noise. Pictures were also used in the programme. In some of the Muslim villages the fact that the pictures showed people was unacceptable, because Islam forbids visual representation of people. Sometimes the women of the villages felt that the pictures were quite interesting but had no real relevance to their situation: the women depicted were clearly urban women of a different group to them. One reason that the tape was more effective for some messages was that the pictures could not communicate the required frequency of correct habits, such as hand and body washing, (Ansell, Burrows, 1981).

One poster used as discussion material in villages in Tanzania was intended to show the need for keeping pump surroundings clean. However, because the poster showed a foot pump, some people thought that hand pumps, which were also used in the programmes would have a lower risk of source pollution, (van Wijk-Sijbesma, 1984).

Good ways to ensure that teaching materials are understood is to have them made locally by a village artist or by children, and to test and revise materials before extensive use is made of them.

4.1.4 Children

Children are an important target group for hygiene education, both at community and national levels. It is easier to instill new attitudes and habits than to change old habits. Agency health educators and village-based promoters can reach children through their mothers and schoolteachers.

In a project in Pakistan, water-seal latrines are to be constructed in all schools and health institutions in the villages, as a practical demonstration to encourage private households to undertake construction of similar facilities, (personal communication seminar participant).

A campaign in the People's Republic of China included, apart from changing water supply and sanitation methods, the elimination of snails that cause schistosomiasis (bilharzia). An 'army' of sharp-eyed village children, armed only with a pamphlet picturing different kinds of snails, search the irrigation channels and drainage ditches for the particular snail species which transmits schistosomiasis, (Chauhan, 1983).

4.2 Water and sanitation facilities

4.2.1 Improvement of existing systems

Special attention needs to be given to the rehabilitation of existing systems and to the reduction of water losses.

The idea behind this recommendation is twofold. Firstly, money and time saved by the agency could be spent in other communities. Secondly, communities may react favourably to the improvement of known and familiar water sources. Two examples of successful rehabilitation of existing supplies:

The water supply of five villages in Tanzania, of more than 7000 people, was improved with the aid of one bag of cement and a few meetings. The cement was necessary to repair a leaking regulating overflow. The meetings were held to request reduction in the use of water for irrigation and to prevent clothes washing in the spring above the intake. After these simple measures were taken, the five villages which previously had been 'dry' had flowing water. Balancing the system by adjusting the gate valves solved the last problem of one domestic point not receiving any water, (Tanzania, 1982).

The inhabitants of kampong Awiligar in West Java, Indonesia had sometime in the past constructed a spring capping for one of the two water sources. They had done this on their own through mutual aid efforts. However, there were quite a number of problems: the spring capping was leaking and the water at the central outlet (a public bath and washing facility) was polluted. Moreover, the wealthier households benefited more than the poorer sections of the community; the latter walked to the spring and joined the queue whereas the former could afford to construct piped private connections. This resulted in social tension. The plan that was decided by the village and the IRC-supported Public Standpost Water Supply team included reconstruction of the spring capping, redesigning and construction of the bathing and washing facilities, a small 'mushola' or prayer room and four public standposts, (IRC/PSWS,1984).

The above examples of rehabilitation of existing supplies dealt with piped systems. A similar approach may be possible in the case of existing wells, for instance, by redesigning and reconstructing the well, by constructing concrete rings, apron and proper drainage, or by providing separate laundry facilities. The feasibility of rehabilitation must be determined carefully:

In some villages in Guinea-Bissau, wells were rehabilitated by deepening and lining them. However, recharge problems continued, and the fact that the number of wells remained the same did not increase the availability of water. In some cases, the water quality deteriorated after further excavations of the well because of the intrusion of brackish groundwater, (Visscher, Hofkes, 1982).

4.2.2 Implications for operation and maintenance

Technologies, designs, and maintenance systems must be planned and decided simultaneously; the implications of the technologies for operation and maintenance need to be considered by agency and community before final decisions are made, as they may influence the choice of technology.

In Guinea-Bissau villages in a programme where adequate maintenance could not be guaranteed, the 'rope and bucket system' had to be accepted. Even though it was seen as a minimal provision to be improved as soon as conditions permit, a survey of the bacteriological quality of water indicated that these wells provided much cleaner water than traditional wells, (Visscher, Hofkes, 1982).

One of the objectives of a PVC hand pump programme in Sri Lanka was maximum decentralization of maintenance responsibilities to the community level. However, the technology of the pump used in the programme was not suited entirely to this objective. Leakage within the pump due to inadequate sealing, and rapid deterioration of polyethylene rings made simple local maintenance without continuous outside assistance impossible. But, the technology was adapted and the problem overcome. Instead of a PVC rod a wooden core was used, and the rings were replaced with leather cup seals. This wood and leather design made local repair and manufacture of spare parts possible, (Rogers, 1984).

4.2.3 Cost

Taking into account subsidies that may be part of the agency's policy, the community's share of the cost of the project should be based on their present economic capacity and willingness to pay. It is inadvisable to base a water/sanitation system on possible improved income generation in the future.

The more flexible a programme in its options for facilities, the more easily it can be suited to the local financial situation:

In the Barangay Rural Water Supply Programme in the Philippines, communities are offered several options, with the financial consequences to match:

- ° piped system with domestic connections
- ° piped system with one or more public standposts
- ° tubewells with hand pumps, (Philippines, Ministry of Local Government).

Not only the cost of the pump, pipes, or other provisions should be taken into account but also the cost of keeping the system operating. In most cases community and agency will share the cost. The financial capacity of the community to pay for water, to pay the caretakers, and to finance minor repairs, will influence maintenance options, and thereby the choice of technology.

4.2.4 Women

Women's needs should be taken into account and the women need to be involved, either directly or indirectly, through their organizations and intermediaries (see Section 3.2), in decision-making about technologies, designs, operation and maintenance. This must include issues of specific importance to them, such as siting of facilities and hours of service.

Women have always selected the sources for water, and will continue to do so. If the location of a new tap is unacceptable from a social point of view, or because it is too far away, or because the colour or taste of the water is unacceptable, women may return to using traditional water sources. Even the most convincing arguments of the most enthusiastic promoters may fall on deaf ears. Ease of operation is another important issue for women and their children. Showing them the technical options available, allowing them to test them, possibly in communities already being served, would be ideal.

Various types of taps are used by agencies which construct public standposts in Colombo. Neither men nor women are consulted or even informed about the choice of tap. One type used is the 'push tap', which is very difficult to operate, especially for children. Often these taps are removed, so that the water runs freely, or they are fixed in running position with a strong piece of rubber. Another tap frequently used is a self-closing type. This is easy to operate, but women are unable to hold the tap open and do their laundry or bathe a child at the same time. These taps are fixed with small sticks, wire, ribbons, or with earth. The last method damages the tap and is unhygienic. Telling the women not to do these things after the tap has been installed seldom results in a change of behaviour; the dialogue has started much too late. (Pritschi, 1984).

In the Buba Tombali project in Guinea-Bissau, initially foot-operated deepwell pumps (Kangeroo pumps) were installed. This pump was difficult for the elderly and children to operate. Moreover, the required method of operation was unfamiliar and unpopular. A new hand-operated design, (Buba pump) which met the requirements and preferences of the women was introduced, (Visscher, Hofkes, 1982).

Sometimes, a new water source of good taste and colour may be located nearby, but because of the large number of users at peak hours, the waiting time is so long that some women prefer to spend the same or less time walking to the old source. Sometimes this problem may be solved very simply; in other cases solutions will be much more complicated but need due attention:

In a programme in Thailand, where necessary and possible, two or more pumps were installed on wells. This reduced waiting time for the women considerably, and also reduced the inconvenience of a pump breakdown, (personal communication seminar participant).

Women's needs with regard to the water supply are not limited to the provision of sufficient quantities of clean water. Certain activities and practices require appropriate designs. If the designs are not suited to their needs, women will find their own solutions:

The women in the villages in West Java are accustomed to doing their laundry in the river. Thus, when NGO installed a public standpost, the women dug an earth drain, and washed their clothes in their self-made parapet walls, the open side was closed off by the women to create a small 'pond' from which they could draw water in the same manner as from the river. The NGO is now designing community water supplies together with the women, (Dian Desa, Indonesia, 1984).

The cases and examples illustrating the recommendation regarding women and decisions on technologies and design all deal with water. The recommendation also applies to sanitation technologies, designs and locations of toilets (domestic or public) and solid waste disposal systems:

When Nepalese women learned that a public toilet was to be constructed for them, they were just in time to make their design preference known to the agency. They asked for one large communal space, rather than the separate cubicles that were to be provided, (Saubolle, 1980).

It should be restated:

Consult the women, and do not forget the men!

4.2.5 Construction of the facilities

The involvement of the community and women in water and sanitation projects has too often been limited to the construction stage. They are asked to dig pits and drains, and to cut roads without ever having been consulted or involved in decision making. The IRC symposium focused attention on other less common aspects of participation, and little was said about the construction stage. However, all recommendations imply two aspects regarding construction:

Community participation cannot be limited to labour contributions to construction. Keeping the community well-informed and collaborating with them at all stages will lead to more enthusiastic involvement in construction work and may even promote self-initiative.

Through a health education programme in India, the women of a village women's club (Mahila Mandal) became aware of the importance of drainage of waste water. Unfortunately, they could not convince the village council of the need to construct drains and soakpits. One night, they dug pits in front of every house. Subsequently, the village council completed the work that the women had started, (IRC, 1984).

Local artisans and entrepreneurs, both men and women, could be involved in construction by encouraging and training them to produce (parts of) the facilities, such as hand pumps, water containers, and latrine slabs.

In Thailand, village craftsmen have been taught to produce concrete cylindrical rain-water catchment tanks. Four years ago the Sanitation Division of the Ministry of Public Health built three demonstration tanks in the village of Ban Phet. Five local craftsmen were involved, and were trained for ten days. The village liked the new rain-water tanks, and employed the services of the five men. Now Ban Phet has 480 rain water tanks ranging in size from 3 m³ to 12 m³, (Flanagan).

In Malawi, the tanks required in the gravity piped water supplies are built under contract by local builders. In a new area, a suitable local builder is found and sent to work with a construction team currently building a tank. He then returns to his own area and builds an identical tank under strict supervision (Glennie, 1983).

4.3 Maintenance: community-based caretakers

The agency and the community project committee together should select the caretakers or workers who will be responsible for maintenance and care of the facilities:

- it is advisable that more than one person be trained to ensure continuity of maintenance;
- preferably the caretakers should live in the vicinity of the facilities;
- where the culture permits, women should be considered seriously for selection; they are likely to be interested in and motivated for the task.

In a programme in Tanzania the training of scheme attendants was carried out in the villages, instead of in a regional centre, with the objective of making training accessible to women. However, in most of the villages, the choice of women as caretakers was made after heated discussion. Often the male village secretary declared that there were no women capable of doing the job. When the issue was discussed with the women they came up with suitable candidates who were accepted by the village council, (IRC, 1984).

In the Imo model projects in Nigeria, the male and female village-based workers are trained as health promoters and pump attendants at the same time, (IRC, 1984).

To be a caretaker takes time and effort. Except where very little work is required, it is not realistic to expect that volunteers will do this work regularly and continuously without some type of payment.

Agreements must be made with the community project committee and the community for the local maintenance workers to be paid through the committee.

The village-based caretakers will report to, and be supervised and supported by the local project committee. Not only do the village-based caretakers need training, but also the project committee must be made aware of its supervisory and supportive task, which may include the storage and provision of spare parts to the caretakers. This brings us to a possible role for the private sector in maintenance and repair.

Local artisans and entrepreneurs (men and women) could be trained to produce spare parts and to undertake repair of the facilities that go beyond day-to-day maintenance.

Maintenance and repair will be a shared responsibility of agency and community. The balance between these two will depend on the technology and will also dictate the training of caretakers. Maintenance of rain-water catchment tanks may require little training and no agency assistance whatsoever; hand and foot pumps will in most cases be easier to maintain than powered pumps; and gravity fed systems are generally easier than pumps. Maintenance of sanitary facilities is another matter:

Maintenance of private latrines must be the responsibility of individual users. Therefore training for maintenance should be directed to them; here also, the project committee could play a supervisory and supportive role. Maintenance procedures and training in these procedures could follow the same pattern as recommended for water facilities, possibly with a higher financial remuneration for caretakers because of the nature of the job.

Even more so than in the case of water facilities, maintenance and care of sanitary facilities are related to hygiene. Therefore, training of users is an important task of the village-based health workers.

All material used for training, such as manuals for caretakers and posters for users, needs to be geared to the level of understanding and literacy of the community, and to be tested before use.

4.4 Financial management

Financial arrangements at the community level must include recovery of recurrent costs for operation and maintenance and as far as possible, for repayment of capital investment.

If earlier recommendations regarding investigation of the community's capability and willingness to contribute financially, and choice of technology are applied, potential problems with financial planning will be minimized. However, there are several aspects that require consideration at this stage.

4.4.1 Commercial use

The community project committee will require assistance to set up a simple bookkeeping procedure and a collection system for charges.

As with the system for operation and maintenance, the type of system will influence the complexity of the financial plan and the collection procedures, and the required training and assistance. Where water is piped to house or yard connections, it will normally be possible for a water committee to charge the connected households a sufficiently high water rate to cover the recurrent costs of fuel, operation, and maintenance. There are greater problems in recovering costs from those using communal water points, and it is rare that the high cost of fuel for powered systems can be recovered from users of public taps. One intermediate solution which works in some countries (e.g. the Philippines) is a tap shared by a small number of households who agree to collect the water rate among themselves.

In some countries or communities, collection of regular contributions for recovery of capital investment may be difficult; people may feel water is free. This should have been discussed at a very early stage of the project, but may remain a sensitive issue.

Collection of revenue for operation and maintenance of water supply systems is to be done through a method of charges in Tanzania. A development levy will be collected by the village government and delivered to the district government, with part being retained for use in the village. The village council will allocate some of this money for the water system, (personal communication seminar participants).

When preparing the 'financial plan of action' with the community and the project committee, not only should the cost of the system and operation and maintenance be taken into account, but also the economic benefits for commercial users. It is appropriate that water used for productive purposes is paid for, according to the quantities used.

In the dry zone of Burma, water used for domestic purposes is free. Households owning cattle pay for water, according to the number of cattle, (personal communication seminar participant).

4.4.2 Income generation

In Section 4.2.3. it was recommended that the system should be based on the community's existing financial situation. However, for many communities and individual villagers, income generation will be of great importance, especially if they are to contribute to the cost of the system. A note of warning:

Water and sanitation agencies are not appropriate agencies to promote income generation activities other than those directly related to the project.

To include income generation in the financial plan is beyond the scope of work of the agency unless it is an organization with wider goals, such as a rural development.

In small rural communities in particular everything depends on everything else and if limits are not set the project may become hopelessly unwieldy and impracticable, (IRC).

Still there is a special case for women:

If women wish to use the time saved from water collection for income generating activities they should be given all the support possible; a portion of their earnings may be contributed to a water fund.

This recommendation combined with the previous recommendation shows once more the importance of co-ordination with other government agencies and non-governmental organizations:

In the Buba Tombali project in Guinea-Bissau, a co-ordinating link was established with the Ministry of Agriculture, which supplied the water agency with seed for vegetables. Seed was sold in the villages, and this was very much appreciated by the inhabitants, (Visscher, Hofkes, 1982).

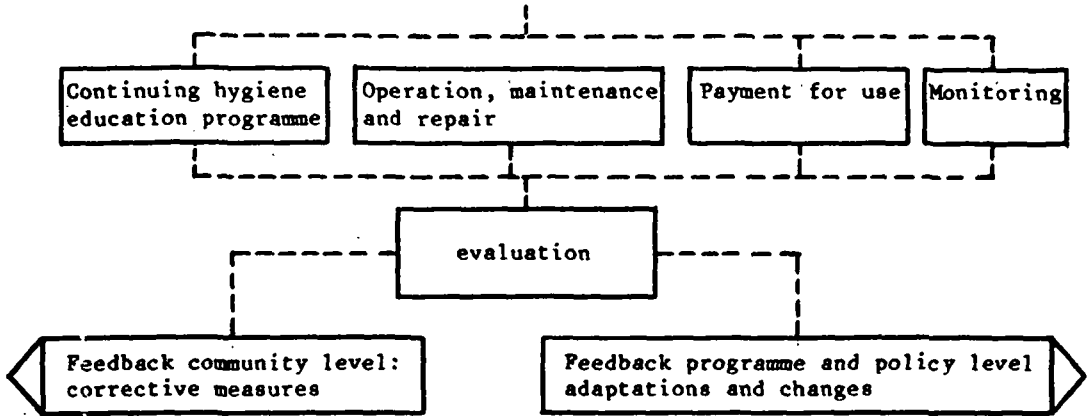
4.4.3 Alternative financing

When preparing for financial mechanisms and revenue collection systems innovative alternatives, such as informal local credit systems, co-operative funds, or revolving funds should be explored.

In many African countries, there is a well-known system of communal production revenues: villages have communal fields which are cultivated for cash crops. The revenue from the sale of crops is used to pay for public services, such as a village health worker, a village warehouse or a village water pump, (IRC, 1984).

In the previously mentioned project in Thailand, where three rain-water catchment tanks were constructed by the agency in a village, using local craftsmen, the recipients had to pay for their tanks. These payments became the basis for a revolving fund from which small loans were provided to other villagers who needed financial assistance to pay for a tank, (Flanagan).

5. OPERATIONAL STAGE: MONITORING AND EVALUATION



Monitoring and evaluation must be an integral part of the project and should start immediately after construction of the facilities; simple procedures that focus on proper functioning and use are most appropriate.

Continuous monitoring of use of the facilities and of the process of hygiene education and habits will facilitate joint agency and community evaluation. These are important tasks for the project committee and village-based caretakers and health workers. They will all need training for these tasks, which may include the filling out of simple monitoring forms. In the early stages of the operation of the system, regular agency assistance and supervision of monitoring would be advisable. If the agency waits too long before returning to the community to monitor or evaluate, adjustments may be difficult to make. It is not reasonable to rely immediately on the community and the committee to report difficulties to the agency; the community needs time to become accustomed to the new facilities, the new procedures, and the new habits. Initially, frequent agency support in monitoring will help them.

After a period of intensive monitoring support, the agency will be able to phase out its community-based activities, and limit them to matters such as provision of spare parts when necessary and to project evaluation:

Ideally the first evaluation of a project's technical, organizational and health education aspects should take place after about one year of use of the facilities. Evaluation should not be 'fault finding' but should concentrate on functioning and use of facilities, on changing health and hygiene habits, and on the formulation of corrective measures.

The evaluation should be carried out jointly by the agency, community project committee, the village-based caretakers, health workers, and the community. The same methods as recommended for the feasibility stage (dialogues, meetings with women and men, home visits, attention for minorities, etc.) can be applied to evaluating the impact of the project and obtaining people's opinions. The results of the evaluation must be made known to the community.

Many examples have been given in the previous sections of how corrective measures were carried out at the community level and how elements of programmes were changed as a result of project evaluation. A final example is presented to illustrate how evaluation brought to light the need to involve women:

In a health and sanitation project in two villages in Tonga, evaluation after four weeks showed definite improvements, after eight weeks a standstill was reached, and after one year conditions had returned to their previous state. Analysis of the project and an anthropological study revealed that, because of the high status of the women within the family, their lack of involvement in the project had had a negative impact. Another pilot project was initiated in which men and women were involved from the start; the women's health committee was revived and responsibility for implementation was given to this committee. Evaluation after three, six and twelve months showed success, and more villages have implemented similar projects, (Famanu, Vaipulu, 1966).

Often evaluation will reveal difficulties, problems, and disappointing results. There is no reason to lose heart:

There is nothing 'wrong' with unsuccessful efforts. View them as sources of feedback leading to corrective measures that will contribute to the eventual success of the project, of regional and national programmes and policies and of the International Drinking Water Supply and Sanitation Decade.

6. RESEARCH RECOMMENDATIONS

More information is required from projects and programmes in developing countries to illustrate and test the recommendations of the IRC symposium. The participants recommended to IRC that further information be collected for dissemination to programme and policy makers. Thus IRC would like to request readers to submit case histories, experiences and examples of relevance to the symposium recommendations. Although more information is required about all subjects covered by the recommendations, specific gaps in present knowledge have been identified with regard to:

- impact on hygiene practices of different hygiene education approaches;
- cost of hygiene education, and proportion of total project programme budget set aside for hygiene education in integrated or co-ordinated project and programmes, including both 'hardware' (taps, pumps, latrines etc.) and 'software' (education and training);
- alternative financing mechanisms for projects and programmes and community-based financial management.

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Other IRC publications

This publication, by its very nature, touches lightly on a large number of subjects, linked by the two major topics of the symposium: balance between community and agency, and women.

More information may be obtained from the following IRC publications:

- Participation and Education in Community Water Supply and Sanitation Programmes; a literature review
IRC Technical Paper Series, nr. 12, March 1979, second, revised edition, December 1981.
- Participation and Education in Community Water Supply and Sanitation Programmes;
A Selected and Annotated Bibliography,
IRC Bulletin Series, nr. 13, July 1979
- Rural Water Supply Development; the Buba-Tombali Water Project, República da Guinea-Bissau;
IRC/DGIS publication, 1981
- Community Participation in Water Supply and Sanitation; Concepts, Strategies and Methods;
IRC, Technical Paper Series, nr. 17, June 1981
- Participation of Women in Water Supply and Sanitation; Roles and Realities;
IRC, Technical Paper Series, nr. 22, September 1985