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Low-cost water and sanitation: tasks for all the people

Schemes for the provision of water and sanitation in urban fringe or rural communities of the Third World are unlikely to realize their full potential if they are put into effect by centrally directed engineers with little or no reference to local aspirations and preferences. Extensive consultation with the people who are going to use the services should take place from the outset, and women should figure prominently in the process. The practicalities of achieving this are considered below in relation to a field study conducted in Indonesia.

Most governments cannot assume complete financial responsibility for the provision of satisfactory water and sanitation systems. This has led to a search for low-cost technologies and alternative strategies of implementation, primarily for rural areas and urban fringes.

User involvement

Community participation in decision-making about low-cost systems leads to solutions that are socially relevant, as local knowledge and preferences interact with technical expertise from the outside. When communities have helped to make decisions they are more likely to pay for, use, maintain and repair a system than would otherwise be the case. Although community participation is viewed by many as a means of cost reduction, eliciting it is costly and

time-consuming, a factor usually overlooked when budgets are being prepared.

The use of the term "community participation" has created some problems, because a community is an abstraction and therefore cannot be mobilized. It is the units making up communities that have to be relied on. Communities are rarely smoothly functioning, homogeneous entities in which everybody is equally interested in water supply and sanitation. They are made up of people, some richer and more influential than others. Ethnic divisions may be present. Important as it is to work with community officials and leaders when devising low-cost programmes for water supply and sanitation, it is equally necessary to mobilize the energies of ordinary people, including women.

In most cultures, women's needs, interests, friendships and ways of networking tend to differ from those of men. Unless special attempts are made to understand the environment of women, they will continue to be bypassed. Women's involvement

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should not be limited to women's projects or components of projects. The important thing is for women to take part in decision-making.

Most water utilities were developed at a time when engineers worked in accordance with blueprints produced in centralized, vertical, hierarchical structures. Later, a new approach was introduced: engineers were asked to establish a dialogue with communities and to respond to their traditions, aspirations and preferences. It is now clear that engineers and planners should use social data to develop feasible schemes.

A baseline study in Indonesia

Baseline studies can be invaluable in discovering cultural, social, psychological, physical and organizational factors of relevance to water supply and sanitation. Unfortunately, academic baseline studies have often been of limited value to planners. Additionally, the time-lag between the start of a study and the presentation of results is often too long.

A baseline study is a learning process and, ideally, in a participatory water supply and sanitation programme, the first step in user involvement. Regrettably, baseline studies in this field have become surveys with structured questionnaires, the main problem with which is the assumption that the investigator knows what questions and answers are meaningful for a particular group of people. Consequently, unless much previous work has been done to understand the psychology of a group, the data collected can be meaningless. Data gathered from questionnaires describe situations but do not explain them and if used in isolation are of limited value to planners. Furthermore, direct questioning is not the best way to

obtain information on socially sensitive issues and to untangle underlying processes. Baseline studies tend to amass huge amounts of data, only some of which have a bearing on water supply and sanitation.

Sampling procedures are faulty in many studies. For example, no study that considers men only can claim to have taken a representative sample. It should also be noted that, in most cultural contexts, it is extremely unlikely that women will add to, correct or contradict what their husbands tell an outsider in joint interviews. Male interviewers, especially those from outside, are not given the kind of information by women which a female interviewer might elicit. Where reliance is placed on key informants, who are usually men and include village officials and other leaders, the data assembled are likely to be biased and incomplete. Any attempt to form judgements about women's knowledge and interest in water and sanitation which involves talking to village officials will probably be even less satisfactory than interviewing women's husbands.

A baseline study undertaken in Nusa Tenggara Timor, Indonesia, by the women's

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organization *Pembinaan Kesejahteraan Keluarga*, under the direction of Dr Nafsiah Mboi, involved a mix of 13 techniques, including ones that were observational, qualitative, participatory and quantitative in nature (1).

All the methodologies were viewed as tentative and were modified in the field. The techniques included 252 open-ended household interviews, half of them with women, conducted in privacy by

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interviewers of the same sex as the interviewees; also used were key informant interviews, structured and participant observation, interviews with groups, and participatory mapping.

Women's and men's concepts of good health and illness were investigated by organizing a simple health game. Additionally, schoolchildren aged 10–15 years completed a brief questionnaire related to water, sanitation, and the management of diarrhoea. It should be stressed that not all of the techniques mentioned are necessary in narrowly defined baseline studies.

The same issues were often explored by different investigators using different techniques and talking to different people. This allowed the cross-checking of information and made it possible to avoid misinterpretation.

Perceived problems

If a community has been selected for water supply improvements it is important to know whether its members consider that problems exist in this sphere. When there are multiple water sources of different types and the population is very scattered,

households are not equally affected by water problems.

Both men and women were asked to recount their activities from morning to night for the previous day. They were then asked to indicate the easiest, most difficult, most liked and most disliked daily activities. The questions were open-ended and asked prior to any reference to water or sanitation issues. No men and only two women indicated that water collection was the activity they liked best. After weaving, the carrying of water was the activity considered most difficult by women. The three activities considered more difficult than water collection by men were land preparation, carpentry and weeding. Overall, 71% of interviewees said they experienced family problems; for men and women respectively the values were 80% and 63%. The single most important problem mentioned by women was that of water collection. For men the most important problem was lack of money, although water was mentioned by 13% of them. More women than men expressed concern over the quality of water. The main complaint of men in respect of water related to the distances to sources and the time and labour involved in water collection. This is particularly interesting in the light of the fact that 87% of the water journeys observed were made by women or by children below 17 years of age. Men were more likely to be involved in water collection if the distances were long and the terrain steep.

Bringing women into the picture

Certain difficulties will have to be overcome if women are to be mobilized to solve water problems. Not surprisingly, it was found that women had less formal education than men. Fewer women than men could read well. It is also important to note that gatherings of

women, unless clearly associated with the performance of some task, were seen by both men and women as leading to gossip, an activity strongly disapproved of.

Both men and women usually rated women significantly lower than men in all abilities. However, men sometimes rated themselves lower than women rated them. A few women considered themselves equal to or better than men. Both men and women pointed out that men usually participated in village administration, spoke Bahasa Indonesia, and went out more often than women. Thus men were exposed to a richer variety of experiences than women. Members of both sexes pointed out that women led relatively isolated and monotonous lives, being involved in the same type of activity day after day.

In informal conversations, village leaders laughed when asked if they thought that women could be mobilized to help solve water problems.

Local institutions

In a society where women lead relatively isolated lives, where their friendships are limited to their immediate families and neighbours, and where both men and women consider women's potential to be low, it is a formidable task to elicit their participation in a development project. One solution is to work through women's organizations and village-level institutions. However, without an understanding of how decisions are made within local institutions it may be difficult to achieve broad-based participation in programmes.

Each village in Indonesia is headed by an elected village chief and his assistants. Decisions are made in the village development council and considered in a

musyawarah or community discussion meeting. In effect, however, decisions are usually made by the chief. Women are rarely present at council meetings. If they do attend, they almost never participate in decision-making. The study revealed stresses between the wards of a village and in many cases people lacked trust in their leaders, especially in connection with financial management.

Pembinaan Kesejahteraan Keluarga is the main vehicle for stimulation, support, organization and management of development efforts by Indonesian women. In the area of the study it is a relatively young body, intensive organizational efforts having started in 1979.

At village level it is headed by the wife of the chief; she is assisted by trained volunteers. In the four villages studied, *Pembinaan Kesejahteraan Keluarga* was functioning poorly: there were major leadership problems and no clear plans. Decisions were made by the chiefs. Despite this, it is important to note that ordinary village women expressed strong interest in learning through the organization and in making it into a force for self-help. Despite the relative youth of the organization, the women it trained were emerging as leaders in the villages. This is extremely important

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in a cultural context where, traditionally, the wife of the village chief has assumed the leadership of women's activities.

Clearly, where both the formal village council and the women's organization are not dynamic or representative of the

population at large, a satisfactory outcome cannot be expected if they are asked to be responsible for a water project without substantial support in the form of training and management. In such instances, it is important not only to build the capacity of local institutions but also to organize lower-level decision-making groups of users which can function under the umbrella of the larger bodies.

Quality tests

As well as providing safe sources that are likely to be used, it is important to protect the quality of water on its way to the user.

Tests for faecal coliforms were conducted on water samples from sources and from drinking vessels and containers for carrying and storage. The findings indicated the importance of involving women and children in water projects. Faecal coliform counts in springs, wells, rivers, pipe systems, and holes near rivers ranged from 0 to 5344/100 ml; the geometric mean for all sources was 17.7. For water in carrying containers the corresponding values were 0–12 008 and 140.6, while for that in storage containers they were 0–12 008 and 128.1. The geometric mean for boiled drinking-water was 24 while that for unboiled drinking-water was 85.

These findings clearly indicated that the way women and children were handling water contaminated it. Information on water-handling was also obtained through observation and during household interviews. There was a strong negative correlation between the presence of children aged 0–4 years in households and the quality of water. It was also observed that 78% of drinking-water containers were kept within reach of young children. Unless women and children become convinced of the need to

change the way they handle drinking-water in the home it will continue to be polluted, despite improvements at source.

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The baseline study was a starting point for drawing up plans, training staff, and winning cooperation from technical departments.

Moving from research to implementation has meant changes for all involved. Technical departments eager to support the programme had to be convinced that the solution did not consist of immediate intensive drilling operations in all four study villages. Male community organizers had to overcome their embarrassment in dealing with women and had to learn to be facilitators rather than leaders.

Scepticism about women's abilities has begun to diminish. A small, home-made wooden model is being used to get women involved in the design of spring captures. The temptation to bypass nonfunctioning village organizations for the sake of quick results has been resisted. Twenty-four user groups have evolved under the umbrella of *Pembinaan Kesejahteraan Keluarga*, while women have taken the lead in improving 33 water sources. Women are now playing their part alongside men, and technical staff no longer work in isolation. □

Acknowledgement

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Reference

1. **Narayan-Parker, D.** *Women, water and sanitation*. Kupang, Indonesia, Pembinaan Kesejahteraan Keluarga, 1986 (unpublished document).