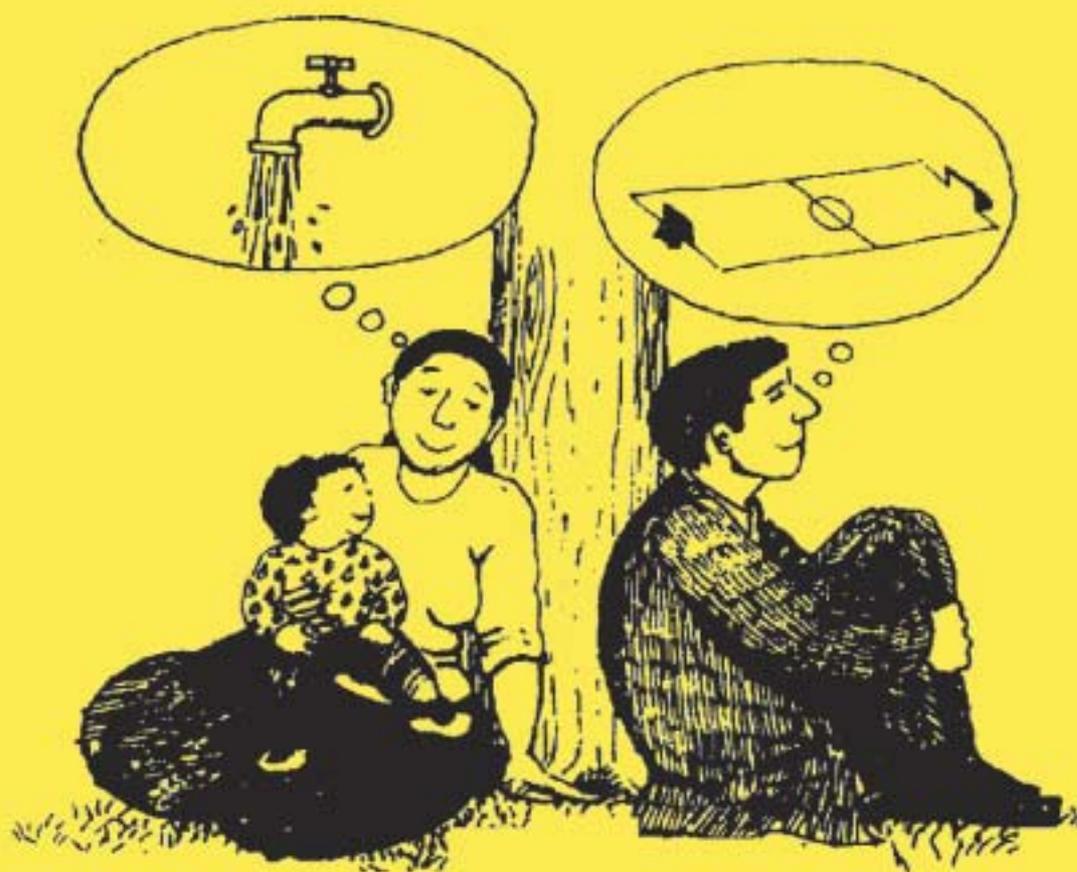


Gender in Community Water Supply, Sanitation and Water Resource Protection

a guide to methods and techniques



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IRC International Water and Sanitation Centre

PO Box 2869

2601 CW Delft

The Netherlands

Tel: +31 15 21 929 39

Fax: +31 15 21 909 55

Website : www.irc.nl

**Gender in Community Water Supply, Sanitation and Water Resource
Protection**

A guide to methods and techniques

By

Christine van Wijk-Sijbesma

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Preface

This monograph covers the main activities and decisions in rural water supply, sanitation and water resource protection projects which, according to the experiences collected in the IRC International Water and Sanitation Centre, require a gender-specific approach in the planning, implementation and documentation of the projects. The insights summarized in this document were inputs to three Regional Expert Consultations on Methods to Involve Women in Rural Water Supply, Sanitation and Water Resource Protection Projects. Another input was the knowledge and experiences of the participants, who deal with community participation and involvement of women in this kind of project.

The consultations were held in Nairobi, Kenya (February 1993), Cali, Colombia (August 1993) and Mount Lavinia, Sri Lanka (September 1993). Each consultation brought together between ten and 20 mainly female staff from externally-supported, rural water supply, sanitation and environmental protection projects in the continent concerned. Moderators were a female staff member from IRC and a resource person from the local organization hosting the consultation. These host organizations were NETWAS (Water and Sanitation Network) in Nairobi, Kenya, CINARA (Centro Inter-Regional de Abastecimiento y Remoción de Agua) in Cali, Colombia and the Non-Governmental Organizations' Water Supply and Sanitation Decade Service in Colombo, Sri Lanka.

The purpose of the consultations was to exchange experiences on gender-specific approaches in the participants' projects and to document these experiences in a set of three guides each focusing on the situation in the region concerned, on how to apply a gender approach in rural water supply, sanitation and water resource protection projects.

The reason for the production of the guides was the absence of practical documents on women's involvement which deal with the whole project cycle and which are based on the growing store of field experience in each region. Existing documents are either general literature studies and reference documents, or training guides which are meant for high-level officials and project managers, not for field use (Elmendorf and Isely, 1988; Elmendorf and Buckles, 1980; INSTRAW, 1992abc; Wijk, 1985). Other documents focus on participatory methods and techniques for project implementation, where gender is one topic in a much wider range (Srinivasan, 1990). Target groups for the guides are the participants' own implementation projects as well as other water supply and sanitation projects in the continents concerned, and educational institutes where sector staff get their training.

Further information on the three field guides is given in Appendix A.

1. *A Gender Angle in Identification and Preparation of Projects*

In the identification and preparation of rural water supply and sanitation projects, a gender angle has been found necessary in at least the following aspects:

- the identification of the felt needs and priorities of men and women for the project;
- the gender-specific assessment of health, socio-economic and environmental aspects;
- a baseline on women's living conditions and possible impact of the project on women;
- the formulation of gender-specific project objectives and strategies.

1.1 **Felt needs, priorities and economic demands of men and women**

A prime condition for a successful village water supply or sanitation project is that the people feel a need for the project and give it a high priority on the list of activities and services they will support in their village. Needs and priorities of men and women are often not the same. Male and female motivation and resources to sustain improved water supply and sanitation facilities may also differ. In addition, such needs and priorities may vary with the economic status of the families concerned, family composition (e.g. number of females, female heads of household), and with religious and socio-ethnic affiliation of the family (Chachage et al., 1990; Wegelin, 1991; Wijk, 1985).

As a result, economic demand for the proposed facilities and willingness to contribute to them, can vary considerably. The demand for an improved drinking water supply and better environmental sanitation is usually higher among women than among men, as shown by women's higher willingness to contribute when this aspect is investigated separately for both groups (Dian Desa, 1990; Laubjerg, 1994; McGarry and Elmendorf, 1979; Mukherjee, 1990; Singh et al., 1991; Sundararaman, 1986). Whether they are also able to meet these demands depends very much on the resources and decision making patterns within the households and the kind of options offered. Where couples make a joint decision, the chances of adoption are generally greater when the improvement has merits (though not necessarily the same ones) for both, e.g. for the women more privacy and convenience, for the men status and safety for wife and daughters.

Where male heads of households make the decisions, special information is often needed to convince them that a nearer water supply or better sanitation is not a luxury, which 'makes women and children idle', but an improvement which benefits the whole household in various ways. Moreover, a special strategy is needed in those situations to inform the women as well, since otherwise they tend not to be aware of the project and thus cannot informally approach their husbands about participating in it (Wijk, 1985).

Moreover, there are always villagers and groups, e.g. female heads of households, which are less able to contribute, and therefore often have less access to improved facilities for water supply, sanitation or hygiene, especially when the project does not include a range of choices, such as shared facilities or cheap, yet attractive and functional models. In some areas, women have their own sources of income, but when men and women have to contribute an equal share, the contribution of the women usually represents a higher percentage of their income or time than that of the men. A full picture of village conditions and views thus requires an assessment with men and women from all the main socio-economic categories.

Means of assessment

Projects have different ways to ensure that their activities are carried out with sufficient support and demand from the communities concerned. Many projects use data on existing conditions, such as a shortage of water or a high incidence of water and sanitation-related diseases to select priority project areas or villages. Research has shown that such general indicators, while useful as a first step, do not necessarily tally with how the users themselves see the situation (Agarwal and Asmand, 1982; Laubjerg, 1984; Sundararaman, 1986).

In some project identifications, socio-economic studies are used to compare the project's views with the perceptions of men and women of different cultural and socio-economic backgrounds in the project villages. The studies assess whether the various types of users see water, environmental sanitation and water resource protection as an urgent problem and what views they have on the types of facilities and their maintenance, management and financing. This type of study may be a large, formal and relatively costly socio-economic survey, but more informal and participatory types of appraisals are increasingly used (Anonymous, 1992a; Grady et al., 1991; Lingen, 1994; Mukherjee, 1990; URT, 1982; Whitaker, 1993).

When carried out well, preparatory studies will make separate reviews of the experiences and views of men and women and give a gender-specific report of the results. On the basis of these studies, revised village selection criteria or lists of priority villages may be drawn up and inputs given into selecting a first range of technically and socio-economically suitable technologies.

Other programmes rely on a request from village authorities, or make a preliminary allocation themselves and then check whether a genuine demand for the project exists in the village or villages concerned.

Special tools used to gauge the interest of men and women in the project during the identification and preparation phases include:

- Obtaining information on felt needs and priorities from village leaders and organizing separate meetings for men and women to get their views (for organizing village meetings, see section 4.3).
- Home visits in preliminary project villages, whereby project staff or selected villagers (teachers, informal village leaders, earlier women adopters) gauge the interest of the households (for gender-specific interviews, see section 4.5).
- A comparative survey (quantitative or qualitative) in the whole project area, to list villages with priority needs and inventorise male and female views in the different socio-economic strata.
- A general needs assessment, in which improved water supply and sanitation are rated against desired improvements in other sectors (Laubjerg, 1984).
- Presenting the tentative project in a general village meeting attended by men and women from all user categories and getting their feedback. A drawback is that negative views are not easily expressed in such meetings and women often do not attend and/or speak out, although special measures can be taken to improve this. (For organizing village meetings with men and women, see section 4.3).

- Bidding games as part of more general investigations to assess what men and women will contribute financially in terms of water rates and latrine contributions (Evans, 1992; Singh et al., 1991).

Irrespective of the methods used, it is essential that the views of men and women in the different socio-economic and cultural categories of the area are sought when selecting project priority areas and determining the socio-economical and cultural aspects that have to be taken into account in the general preparation of the project.

1.2 Gender-specific assessment of health, social-economic and environmental benefits

Most rural water supply or sanitation projects have as their aim the improvement of the health and well-being of the rural population. In this context, the special position of women as water collectors and managers, and providers of health is usually mentioned. Carrying out gender-specific assessments of health, socio-economic and environmental aspects can be a useful tool to prevent any negative ecological impacts on water resources and the environment and maximize the long-term benefits of the projects.

With regard to these benefits, considerable differences may exist between what the projects themselves aim at and what local men and women would like to get from them.

Health benefits

For many projects, improving people's health is the main aim, through a better local water supply and better hygiene conditions and practices. Planning the required technical interventions and hygiene education activities for such changes is easier when local water use and hygiene conditions and practices are identified and the people can explain the reasons for particular situations and habits. Often, such reasons are sensible from the perspective of the local users.

Because of their different tasks and responsibilities, men and women tend to have different knowledge and expertise in this subject area. On preferences for water sources, management of water and waste and channels of health information, for example, women are the more obvious partners, while the men may have to be approached when discussing the financing or labour implications of a new well or a family latrine.

Socio-economic benefits

For many users, social or economic benefits are often a more important reason to support a project than health (Kamminga, 1991; Wijk, 1992). A better water supply and better sanitation has provided greater convenience and more privacy and safety for women and children. It has also given them time savings or easier time management from a closer and more reliable water supply, nearer latrines or giving them access to more water and sometimes they have found economic uses for time gains, water or waste and opportunities for income-earning as local producers and latrine builders, e.g. in Mozambique, Kerala, Polynesia, and Zimbabwe, and as well chlorinators in Kerala.

Projects may also have undesirable social or economic consequences, such as a reduction of meeting possibilities for women in areas where their mobility is already restricted, or loss of work for poor women or men, e.g. when jobs in water collection or waste disposal become redundant with the introduction of a new technology. Knowing what local men and women expect or fear from a project will be of value not only in promoting the project, but also in planning the expected benefits.

Environmental impacts

A third factor to take into account when planning water and sanitation projects is the impact on the environment. These impacts can be two-fold: water and sanitation projects can have negative and often not previously realized impacts on the environment, and ecological degradation can reduce the quantity and quality of drinking water resources and make traditional ways of dealing with various types of waste no longer adequate.

Examples of water and sanitation projects which have caused new environmental problems are: private connections or public standpipes with insufficient drainage, causing stagnant pools and wet conditions favourable to hookworm and insect breeding; new settlement and land use when catchment areas are opened up and human practices pollute the source; and erosion from overgrazing at waterpoints in cattle areas.

The opposite situation occurs when environmental degradation reduces the availability and quality of drinking water resources. Indiscriminate exploitation of forest and mining industries has caused natural water sources, such as mountain rivers, to go dry or become heavily loaded with silt or chemicals. In other cases, agricultural irrigation has lowered the groundwater table, causing wells for domestic use to fall dry, or become silted in coastal areas. Increasing demands for land and raw materials, bringing people to settle in or use catchment areas and causing bacteriological contamination of streams used for drinking water by lower-lying villages is another frequent problem (Macharia, 1993; Shiva and Bandyopadhyay, 1990; Rao, 1991; Rocheleau, 1992; Sontheimer, 1991).

Deforestation, and its negative effect on water sources, can be aggravated by the need of women to collect wood as household fuel, but the impact of this activity is very limited when compared with commercial activities. More typically, women are the greatest victims of environmental degradation, because of the effect on the availability and quality of drinking water sources and the increase in their work of collecting water and fuel (Nyoni, 1991; Rodda, 1991; Shiva, 1985).

To counteract the negative impacts of macro-economic activities on their lives, women in some countries have started to organize themselves in protest or action movements, such as Chipko in India and the Green Belt Movement in Kenya. In other areas, projects strive to limit negative impacts for women by combining or linking the improvement of water supplies with efforts to reduce ecological degradation and enhance the economic base of poor women. Stove projects in Kenya and Burkina Faso, for example, have reduced wood consumption and collection time by 33 percent and 2.5 to 5 hours per week respectively, and have also provided female stove builders with an income. Tree nurseries, often located near the improved water source, and afforestation projects are sometimes also a source of income for poor villagers, especially women (Jiggins, 1988; SEWA, 1989).

Means of assessment

To assess local hygiene conditions and practices as well as economic uses of water, various methods can be used. Women and men can, for example, be asked in separate meetings or through surveys about their patterns of water use and sanitation in the wet and dry season and the reasons underlying these patterns. Specific tools exist to make these discussions more participatory and bring in an element of problem-solving (see section 4.8). Another form of participatory assessment is to make an environmental walk or do a simple village survey with a group of male and female representatives.

It is also useful to find out what hygiene education already exists, including informal learning systems among women, and what are the constraints affecting any existing programmes, e.g.

frequency, access, target groups, methods, applicability, participation and influence of villagers on the programme. It is also important to check traditional systems of maintaining water sources or waste collection, and to find out how they are organized between men and women.

The results of local fact findings can be presented in a village meeting and the reactions of the villagers sought regarding correctness, completeness and possible community actions. Section 4.3 gives details on organizing a meeting in which both men and women take part.

The economic use of water or waste requires a specialist assessment. Apart from a felt need or interest, there must be enough and sufficiently reliable extra water and time to allow economic use and producers must have access to other resources and inputs (land, capital or credit, materials and equipment, training, marketing). There must also be a good market and price for the produce and the producers must have control over the resulting income (Kamminga, 1991).

Where conditions are favourable and good inputs are given, it is beneficial for the women, their families and the project to link water or sanitation projects to an income generation project. The reasons are that the latter improves the socio-economic status and self-respect of the women and they use the income for better hygiene and living conditions for their families, water storage, soap, utensils, paying for housing improvements and water connections (Wijk, 1985).

For the assessment of environmental impacts, it will be important to look at what factors can affect the reliability and quality of the water resources, such as land and water use, soil conditions, drainage and deforestation, and what can be done to prevent or reduce these problems. Purposive sampling techniques can help to ensure a gender perspective, e.g. identifying both male and female farmers with different socio-economic backgrounds and having separate interviews with each group (Boesveld and Postel, 1991; Bruce and Fortman, 1992).

A second area for attention is avoiding of the creation of new environmental hazards: stagnant water at taps, soiled latrines, especially in schools and other places where many are gathered, drains blocked from lack of maintenance, uncollected solid waste, etc.. This usually requires a combination of good design, early consultation of women (who are the main users and managers) on the appropriateness of the intended systems, and planning with the villagers of gender-appropriate upkeep so that the physical work of cleaning is not made a voluntary job for only women, while paid position and managerial functions go to men. More on appropriate design and maintenance can be found in sections 2.1 and 2.2.

1.3 Baseline on gender conditions

The improvement of rural living conditions is a major aim of rural water supply, sanitation and ecological projects. Women are always a major beneficiary group and sometimes, e.g. in social forestry, latrine and stove projects, they can also be the main producers. It has been proved that involvement of women in local planning decisions and in management are among the conditions for successful projects, because women know local conditions well and have a large personal interest in good management of water and sanitation (Evans, 1992; Stamp, 1989; Wijk, 1985).

When reviewing the living conditions in the project area during the preparation phase, it is thus important to include a qualitative and, where data are already available or easy to obtain,

a quantitative profile of women's work, position and influence, particularly in water supply and hygiene, and their possibilities to participate in the project (Lingen, 1994; Overholt, 1985).

A baseline establishes a database which helps planning for women's involvement and, when so designed, can allow later measurement of positive and negative impacts of the project on women's conditions, such as work, knowledge, skills, organization, self-respect, income and control over living conditions and earnings.

Projects which later want to evaluate the impact of the facilities on women's workload, or on hygiene conditions and practices of men, women and children, should do a time budget study or a baseline study on local water use and hygiene patterns (Boot and Cairncross, 1993; Kamminga, 1991).

Means of assessment

With regard to general conditions, such as income, literacy, health, water supply and sanitation conditions, qualitative and quantitative data will often already exist (other studies, area statistics, reports on women and development, etc.). These are likely to be of a general nature and may need to be supplemented by more specific data with a gender focus (Morogoro/Shinyanga RWS, 1991; Overholt, 1985).

The collection of these data does not necessarily require a quantitative study: information from key informants or group interviews with a cross-section of the target population can often provide a good picture of women's work and positions and the constraints to be overcome in involving women in project decision-making. There is also a growing range of participatory techniques for helping men and women to establish their own baseline and through this process to become more aware of local problems and begin a dialogue on how they could be solved (Wakeman, 1995). The collection of large amounts of statistics, which are subsequently not used, is better avoided.

In cases, where previous water collection was time consuming, new systems are nearby and function well and also other requirements are met, improved water supply or waste disposal can have substantial impacts on women's work and on household production. A more detailed study of work and time use patterns by women and men can lay the basis for future impact assessment in such cases, especially when a similar study is also done in one or two similar villages without project intervention as control villages. The control villages are needed to make sure that later impacts found in the project villages are due to the particular project interventions and not to any changes in local circumstances from other factors.

1.4 Formulation of gender-specific project objectives and strategies

In many rural water supply and sanitation projects, the main objective is the construction of facilities. Most projects either specify the number of facilities ('install 400 handpumps, or construct 1,000 latrines, in district X in 4 years') or the number of villages or households ('serve 150 villages with improved water supply in the next four years; install improved latrines in 50 percent of the households in area X between 1995 and 1997').

Although such objectives may reflect a concern for women's interests, especially when men's and women's need for improvements have been assessed (see 1.1), the strong focus on numbers bypasses the necessity that these facilities are not just to be installed, but that they can only serve a purpose when they are used and maintained. It is therefore valuable to add to any objective of construction in such a manner, that the facilities are used by, e.g. 80 percent

of the men, women and children, and that they are designed, maintained and managed in such a manner that no unhygienic conditions develop and/or users are not forced to return to unsafe provisions’.

The prerequisite that facilities are used and maintained makes the involvement of women essential, because within the household they determine what water sources are used, they guide the children on water collection, waste disposal and hygiene and they look after the day-to-day maintenance of traditional water sources, kitchens and latrines (WHO, 1985).

Besides physical construction, maintenance and use of facilities, the way in which the projects are carried out is also important and deserves separate objectives. Ideally, projects will have to be carried out in such a way that they do not make communities totally dependent on external inputs but give them the maximum level of self reliance. Objectives will therefore include the ability and capacity of local men and women to choose those changes they can manage and control, and for the agencies, the capacities and skills to deal with these processes professionally and build up effective village institutions.

Formulation of general participation strategies

Use of improved water and sanitation systems and management of water sources are not possible without active involvement of the users, since solutions that were planned *for* and not *with* the users have often not worked. In addition, governments and communities increasingly need local maintenance and management systems for water resources, water supply and sanitation. Without community participation in local maintenance and management, 30-40 percent of rural water supplies are non-operational at any one time. In urban areas 50 percent or more of the water produced does not reach the users (Hueb, 1993). A strategy for user involvement is therefore always required.

This strategy usually defines the activities and decisions in which the users will be involved. It describes what local organization(s) will represent the villagers in the project and be in charge of local activities during project preparation, implementation and maintenance. The strategy also indicates how the villagers will take part in the formation of these organizations and what the composition, status and authority of the organizations will be; what training will be given to the various village functionaries; and what support they can get from government agencies and non-governmental organizations (NGOs). Also defined is what project institutions will carry out these activities in each project community and what their staffing, training and material requirements are.

The task of development and implementation of the community participation strategy is generally given to an organization or department with experience in community involvement: the Department of Social Services, Community Development Department or an NGO. Less commonly, a special social wing is created in the technical project agency (often financed temporarily by a donor), or a core team of social specialists is engaged to develop a strategy and train technical field staff in community involvement skills (IRC, 1988).

Making participation strategies gender specific

Within this more general strategy, special attention to, or a special strategy for, women's involvement is required to take into account that men and women have different areas of responsibility and control and that, when left to chance, women will often not take part in the various project activities and decisions.

Basically, this strategy will define in what functions and organizations women will be represented, how they will be involved in decisions, and what special staff and training provisions will be made to secure their involvement, both during the project's implementation and afterwards (operation, maintenance, management). Provisions for training will include training for women, either exclusively or alongside men, to enhance women's capacities. A second type of training concerns women's involvement as an issue, to create more understanding and expertise on this subject among male and female project staff and among village leaders and to prevent feelings of exclusion or antagonism from male villagers when separate activities are organized with women.

2. *Gender Issues in Local Planning and Implementation*

When it has been decided that a particular water or sanitation project will be implemented in a certain area or villages, more detailed planning for implementation will take place in and with the communities concerned. Experience has taught that distinct attention to men's and women's roles is required in the following areas (INSTRAW, 1992abc):

- choice of technology, service levels and design;
- arrangements for local maintenance and construction;
- formation of local management bodies and the roles of men and women in local management and financing;
- planning and implementation of village hygiene education programme and;
- improvement of local hygiene conditions;
- protection of water resources and ecological conditions;
- optimization of project benefits for women;
- establishment of community-managed monitoring systems.

2.1 **Choice of technology, service levels and designs**

Basically, two types of projects for water supply and sanitation can be distinguished: pre-determined projects, in which the project makes the choices on technology and service level that a community or area will get, and projects whereby the community manages the local water supply, environmental sanitation programme or resource protection programme. In the latter, the user community usually has a greater choice and authority than in the former.

Participation in pre-determined projects

In pre-determined projects, the choice of technologies and service levels has already been made during the preparation stage. In the past, this choice was often based on technical and economic (cost) criteria only. Now, socio-economic and cultural criteria are also generally taken into account, and the views of the future users are investigated as part of the decision-making process. In Chapter 1 it was already discussed how important it is that, during these preparations, a cross-section of men and women is consulted when surveys and meetings are held and that male and female views are recorded and analysed separately and are reflected in subsequent plans. Where a general technology choice has already been made, e.g. a piped gravity supply or hand pumps for water, or a particular type of latrine, the community will usually be involved in the more detailed and local planning decisions. Typically, such decisions include:

For water projects:

- whether men and women of the different strata in the particular village both want to participate in the project;
- whether the proposed technology (e.g. handpumps) and service level (e.g. one pump per 250 people) is acceptable to the men and women in the different strata and groups;

- whether the users agree to the required community contributions in cash and kind, including the division of work and money within households;
- whether the general design (e.g. type of wells and pumps in a handpump project of water source, intake, transmission line, storage tank, distribution net in case of a piped system) is acceptable and optimal from a socio-cultural and economic point of view (cultural acceptance of sites and tracks, rights of access, most economic route, maximum number of households covered, etc.);
- what actions men and women in the village undertake to protect the source and its catchment area;
- where public tanks, taps, pumps, etc. will be located;
- whether the type and design of the water collection points is appropriate for all groups (layout, ease of operation and cleaning, privacy, safety, etc.);
- whether additional provisions (e.g. for clothes washing, bathing, cattle watering, vegetable gardens) are required, and if so, what will be their details on design, location, costs and cost financing, maintenance, management, use;
- the technical advice and training villagers can get after the facilities have been installed, and who these will go to;
- whether the maintenance and financing implications are understood and acceptable for men and women;
- whether the health and hygiene implications are understood;
- the time schedule for implementation, including for the community contributions.

For sanitation projects:

- whether men and women of the different strata in the particular village want to participate in the project;
- what sanitary improvements are wanted most by women and men (waste water disposal and hygiene at public taps, school or household latrines, solid waste disposal, smokeless stoves, etc.);
- what the village and beneficiaries will contribute, and how the contributions will be divided between and within households;
- whether the designs of the facilities are socio-economically and culturally acceptable;
- the involvement of the users (both men and women) in adapting the design of the facilities and who will pay the extra costs of an above-standard design;
- the involvement of the users and managers (including women) in selecting the location of the user facilities;

- the technical advice and training the villagers can get and to whom these services will go;
- the operation and maintenance, and the division of work between men and women, boys and girls;
- the implications for hygiene and health;
- the monitoring of ongoing installation and hygienic use.

Information for users' decisions

Information on the project and for local decisions is usually given by means of meetings. It is very important that these meetings have an open character and also that women participate in them, either together with men or in separate women's meetings. How to reach women with information about these meetings and how to help them attend and speak out is discussed in detail in section 4.2 and 4.3.

When other means of communication (booklets, posters, broadcasts, festivals) are used, it should be made sure that these media are accessible and their messages relevant and understandable for both women and men. Illustrations in printed materials should be pre-tested and should depict both men and women. They may include women in new roles, e.g. repairing a pump, in bookkeeping or as latrine masons, as these are some of the ways in which women's involvement has made projects more successful.

Care should be taken, however, to link such illustrations up with the required inputs, such as information to male leaders and husbands, and to the women themselves (why women mechanics) and that the materials are only used when provisions to implement the illustrations, such as training (see section 4.7), are available.

Choosing locations for facilities

Location of public or shared facilities is often done by a representative group of male and female villagers, e.g. a group of respected formal and informal leaders, an existing and representative village body or a specially elected water or sanitation committee. In siting facilities both social and technical criteria need to be used. Social criteria can, for example, be general and easy access, a central location, a fair distribution of facilities over the settlement, good safety to women and children, sufficient privacy. Technical criteria may include good drainage opportunities, elevation and availability and quality of groundwater.

Inserting a peg in preliminary selected sites, making a preliminary map, or otherwise announcing selections and asking feedback in a meeting or otherwise is used to cross-check acceptability of selected locations to male and female users (Buckles, 1980; Kwaule, 1993).

Design features

For designs of latrines, standposts, cattle troughs and bathing and laundry facilities, small-scale models, e.g. from papier mache, clay or cardboard have been used to get users' views on appropriateness of design and to invite suggestions for improvements (McGany and Elmendorf, 1980).

Evaluation of prototypes or of initial designs in the first project villages and visits to neighbouring projects have also been used to get valid user feedback. Experience has shown that it is essential that not only male leaders participate in such evaluations, but also women users (Wijk, 1985).

Extra provisions

In planning negotiations, villagers usually want extra facilities or adaptations free of charge. These may raise the costs and leave less funds to serve others who have no facilities at all. Negotiations about partial or full user payment of any above-standard costs are therefore advisable and are generally well-accepted.

Community contributions

In planning user contributions to construction, the division of labour and the time calendar for men and women will be of relevance. In some cultures, certain types of work are done by men and others by women. Women and men may also have different duties and crops with different times and amounts of labour requirements. This can affect the availability of labour (Wijk, 1985).

Where a cash contribution per adult is required, it will be important to check how this is financed: from the general income, or from the separate (and usually different) incomes of women and men. Care will be needed to avoid a situation where women take part in or do the majority of the physical labour, but have no part and leadership roles in the planning and management decisions and in quality control (IRC, 1992).

Longer-term implications

It is also very important in the planning stage that both men and women have a clear idea of the longer-term implications of a particular technology. This may include a range of benefits (more time and energy for other family activities, social and economic community development work, school or adult education; increased safety, increased family and community status, more and safer water, better family hygiene and health). There may also be certain behavioural consequences for the villages and the users, such as regular preventive maintenance and timely repair, no use of and return to unsafe sources, preservation of hygiene, regular contributions to finance operation and management, and good management of facilities and the water sources needed for their operation. Usually, the behavioural consequences imply that both men and women have to contribute and that fair divisions of work and benefits needs to be discussed (Wijk, 1993).

Planning decisions for community-managed services

Villagers are increasingly being asked to take on the day-to-day maintenance, management and financing tasks of improved village water supplies and/or to manage local activities for environmental sanitation and hygiene education. This implies that the villagers should then also have a greater and more informed say in what they will manage and how they will do so. In other words, no more pre-determined technologies, but giving communities a range of options and explaining for each option its implications and benefits, such as convenience, health, ease of maintenance, costs and reliability. The communities can then choose on a more substantial basis what technology and service level they want and are able to sustain (INSTRAW, 1992 a; Wacker, 1990).

As both men and women play a role in the use, maintenance and financing of these systems, information on these aspects must reach both men and women and both must have a say in the community's decision (Tomoda et al., 1987).

2.2 Arrangements for local maintenance and construction

A growing number of village water systems is maintained by the villages themselves. Construction and maintenance of sanitation facilities is also increasingly done by trained villagers and householders. The planning of who should be recruited and trained for these

tasks thus becomes more important. Decisions to be taken as part of the planning process include provision for:

- maintaining hygiene at public waterpoints;
- preventive maintenance of equipment;
- repair of equipment;
- construction of new facilities, such as additional waterpoints and latrines.

Field experiences show that in these decisions a gender approach is required. Without conscious consideration of how to divide tasks and authority, it often occurs that functions and training for maintenance of water systems or construction of latrines go automatically to men, while women are not considered, or do the day-to-day work in practice, but without training, recognition or compensation (Devi, 1988; Hannan-Andersson, 1990; McGowan et al., 1991; Versteijlen-Leyzer, 1991).

Issues for consideration are:

- Who are best suited to manage water collection sites and prevent misuse, e.g. by children, animals? Can women be given sufficient authority and support from others to effectively manage a water site? How to choose the right women with enough influence, time, interest? What are their training needs?
- What is the role of women, who daily visit waterpoints or guide children's visits, in (a) preventing and (b) recognizing, diagnosing and reporting technical problems? Do women need training for their roles?
- Are women traditionally involved in plastering, roofing, construction? Would they be interested to upgrade these skills? Is construction of some type of sanitation facilities a culturally more appropriate job for women, e.g. household latrines, smokeless stoves and other sanitation facilities which require entering the privacy of the home and communicating especially with women?
- Is it advisable to train women for maintenance and repairs of water systems and construction of domestic sanitation facilities? Or does it not matter much, as long as women take part in the supervision and have means to influence the quality of construction and maintenance?
- If women are to be trained, what are the implications for the project and for the women? Could it make maintenance more expensive, e.g. because women are restricted in the distances they can travel? Could it bring women mechanics a double burden (work and family) against unrealistically low payment? Or will it give them a valued source of income and skills?

In general, experience is that women make excellent site managers and are also very good and conscientious in technical maintenance, especially in handpump projects, where the longest and greatest experience with female mechanics exists (Jonsson and Rudengren, 1991; Mauluka, 1983; Paqui, 1989; Poluha, 1990; Sharma, 1989; Sudjarwo, 1988; Valera, 1987) but

the opportunity costs for the women themselves are substantial. Projects also exist which have effectively trained and employed or set up female latrine masons, e.g. in Lesotho, Mozambique and India.

It is however important to choose the right candidates and to adapt training and working conditions. Doing this in a joint decision-making process with a group of women is often helpful, resulting in suggestions on good candidates, peer support in taking up the job, offers for help at home when the candidate goes for training, etc.

2.3 Roles of men and women in community management and financing systems

When communities take part in a water or sanitation project and subsequently manage the resulting service or go on installing household latrines, they usually require an organization which organizes the community contributions, supervises and controls the work and manages and administers the resulting community service.

This organization can either be an existing village institution which is in charge of all local services, such as a village council or a village development committee (e.g. the juntas de acción comunal in Colombia), or it can be a more specialized organization, such as the committee for health or social welfare or the mothers' club, or a specially created organization, such as a water committee or water board (Espejo, 1989; Evans, 1992; Janssen, 1988).

Disadvantages of existing general organizations such as councils may be a lack of female members and their wide area of interest. It is therefore sometimes better to use an existing organization with a health related mandate, when this organization functions well or can be strengthened, or alternatively, to organize a new one. In both cases, it is usually necessary to undertake some special steps to include female members and to ensure that they are actively involved, and not just members on paper. In some cultures, women prefer to form separate committees and act as a kind of control and pressure group. Methods of involving women in management organizations or committees are listed in section 4.5.

Financing systems

Increasingly, villagers are asked to contribute to the operation and maintenance costs, and sometimes also capital costs, of improved water systems and to the installation costs of latrines and other sanitary provisions.

As noted above, when equal amounts are asked from men and women (e.g. 20 shillings for every 'adult' or 'able-bodied person'), this equality can be spurious, if men and women each pay this amount from their own incomes and women have lower incomes than men.

Time, place, nature (cash or kind) and frequency of payment can also be inconvenient for women. Monthly tariff payments, for example, can be a problem in areas where cash is available per day or only after the selling of the harvest. A checklist of the different payment options can help in choosing, together with the various village groupings, the locally most appropriate financing system for women and men (IRC, 1988).

In collecting and managing the funds, women play a very prominent role (Wijk, 1985; 1992). Possible reasons are that women treasurers are most trustworthy and very motivated to keep a good domestic water supply or sanitation project operative, and that home visits from or to

male rate collectors are less acceptable. However, most women treasurers want more and more realistic training on financing and financial management.

When women are involved as rate collectors, their workload should not increase without noticeable benefits. These benefits can include that the female collectors get status and/or some compensation in case of much work; that women as a whole get a better water service or sanitation; and that the women collectors and treasurers have insight in and control over the proper use of the collected funds through a good accountability system. Details of tools for fund raising, rate collection, financial administration and accountability and its gender aspects are given in section 4.6, Setting up local financing systems.

2.4 Hygiene education and hygiene improvements

The content of a hygiene education programme is often determined by project staff, who notice all kinds of hygiene problems which need to be changed. However, local men and women often differ in their hygiene priorities and thus in their willingness to use resources to remove these problems. Project staff may also overlook certain problems or see problems which the community does not see.

A first step for a more gender-specific hygiene education and hygiene improvement programme is thus to determine what local men and women see as health or hygiene problems in their households and village and would like to change. This can be done using various participatory methods and tools. Examples are:

- A discussion with men and women about environmental or hygiene risks in their village using ready-made pictures of risky practices and conditions that are typical for the village or area, or stimulating villagers to make up their own pictures, using sets of cut out shapes and figures (an unprotected water source, a broken tap or handpump, a drinking water storage vessel with communal cup, an unused latrine, a child defecating near a stream or school, men and women with varying hygiene implements).
- An environmental walk with male and female village leaders to observe conditions and practices and inventorise the various health risks.
- A participatory village survey (e.g. participatory rapid rural appraisal).
- A game (in several countries, games have been developed through which the players can identify village and household problems in environmental health).

Section 4.8 gives further reference on the development and use of participatory methods and tools by project staff.

2.5 Protection of water resources and improvement of ecological conditions

Low-cost village water supply projects generally use two types of water sources: surface water, often a clear mountain stream, for gravity schemes; and groundwater for handpumps. Lack of water resource protection and environmental degradation have a negative impact on water quality and quantity in both types of projects.

In gravity projects, the foremost problem is the deterioration of the quality of the water: muddiness (high silt load or turbidity) and bacteriological contamination. Deforestation and land use in the catchment areas cause high soil erosion. Part of this soil is washed into the streams and makes them turbid, especially in the rainy season. Other common problems are a diminishing amount of water in the streams, when less rainwater is caught and retained in the soil and the area gradually dries up, and chemical contamination when a surplus of pesticides and fertilizers is washed into the source. Bacteriological contamination is caused mainly by increased human settlement in the catchment area by people without proper environmental sanitation and hygiene habits.

Problems with the quantity and reliability of handpump water occur when the water table goes down, because of overuse (e.g. for irrigation) or desertification. Water quality can be affected negatively when pit latrines are built too close to shallow wells or chemicals are used for agriculture or horticulture around a shallow well.

Problems of insufficient or turbid water especially affect women and may force them to walk to more distant water sources or temporarily use other, less silted water which may, however, be bacteriological less safe.

Catchment areas for gravity schemes can be protected by avoiding erosion and settlement around water sources, planting of grass and trees, avoiding overgrazing and improving fanning habits, such as terracing and contour ploughing. Groundwater will have to be protected by regulating water extraction and preventing pollution of the groundwater table.

Most of these measures require or can benefit from close cooperation with the people living in the area. Gravity supply projects in Guatemala and Tanzania, for example, have as a condition that villages have to plant trees in the catchment area before construction of the water supply will start. Terracing becomes more attractive to male and female farmers when contour lines and bunds are planted with highly nutritive grasses (fodder bunds). The grasses/roots retain the soil and cut back erosion, and the women cut the leaves and feed them as fodder to the animals they care for. Other water projects include village tree nurseries and transplanting the seedlings to the catchment area and on the farms, or tree nurseries and afforestation as income-generating projects for women, e.g. of the Self Employed Women's Association (SEWA) in Gujarat, India.

Participation of the villagers involves the identification of local problems, the finding of solutions and their subsequent implementation and management. Two cases, one from Latin America and one from Asia, can illustrate this. A water treatment plant in a Latin American village failed to work properly when the load of cattle faeces in the source, a small mountain stream, became more than the plant could manage. The engineer wanted the villagers to fence the source, but the villagers said barbed wire would get stolen. Neither did they have grazing lands which they could fence or children who could herd the cattle, because they now went to school. However, because they realized the problem and its effect on the village water system, they came up with an alternative. One Sunday all village men volunteered to plant prickly

bushes around the water source. This forced the cattle to graze and drink downstream from the intake and solved the problem to everyone's satisfaction. A similar problem, the silting up of Lake Sukhna near Chandigarh, India, was contained when the people of the village at the head of the watershed took on the management of a checkdam, from which they could use the water for local irrigation. Part of the management was that the villagers controlled the overgrazing and erosion in the area, so as not to fill up their dam.

Experience in water and soil management shows that in this participation and management it is necessary to make a distinction between the roles of, and benefits to, men and women (DGIS, 1990). Different views on, and resources for, water resource protection may only become clear when the two groups are consulted separately. Land use patterns also often vary with gender. A woman may, for example, be more dedicated in raising trees, yet not be able to plant the trees she has raised, because she has no say over the use of the family's land or the right to own the trees she has planted and cared for.

In afforestation projects in water catchment areas, gender differences also exist with regard to knowledge and expertise on what species are most required to meet local needs (e.g. one species of trees for firewood, another for construction or fruit production) and which species are most suitable for local conditions. Eucalyptus trees for example, are often planted because of their fast growth, but women often dislike them as firewood, because the wood bums so quickly, or because they lower the water table, so that wells have gone dry (Shiva, 1988).

Attention will also have to be paid to the division of the workload for catchment protection and ecological rehabilitation, to avoid that the greater part of it falls on the women, while benefits of their work go to others, perhaps even only to a small elite (Leach, 1992; Bruce and Fortman, 1992).

Last, but not least, women should share in the management of all village water resources, to ensure that both men's and women's interests in the use of these resources are met and compromises are found in cases of conflicting interests (Murre, 1989). In many areas where the same water has to be used for cattle or irrigation and for domestic use, special water management arrangements are required to protect the interests of each user group. The same applies to villages where new drinking water sources (taps, boreholes) are introduced next to already existing ones (wells, ponds). Where women, who are responsible for the domestic water, do not share in the control over all these sources, they usually lose out, finding no more or polluted water, soiled and inaccessible surroundings, and/or neglected and dried up traditional systems (Rao, 1991; Loenen, 1983).

2.6 Optimising project benefits for women

Workload and convenience

One of the greatest benefits of domestic water supply and sanitation projects is that they can lighten the burden of the many women who struggle with getting enough water for their family needs, keeping the house and the family's clothes clean and hygienic and preserving privacy and safety during acts of hygiene and sanitation. Easy access and operation of water supply services; easier time management and more safety because water can be collected and latrines used as and when needed, even at night; ease of operation and cleaning of the facilities; use of more water; and the productive use of time gains are some of the benefits that profit not only the women themselves, but also their families. These benefits all are determined by the degree to which women are consulted on and can influence the design, location and use of water supply and waste disposal facilities, as discussed in section 2.1.

Reliability

The reliability of a domestic water supply or sanitation service depends, apart from its technical appropriateness in design and its affordability for users, on the degree to which those users, men *and* women, have control over the system's functioning. This implies that, when a local organization runs the service, women will have to be represented in this organization and that these representatives are not just any females, but women who can stand up for the common interests of women in their community and are able to muster authority and respect.

Moreover, no matter whether services are run by the community or by a water department, women should have an opportunity to influence operating hours and user regulations when restrictions on water use are required for technical, health or economic reasons.

Influence of women on water distribution is needed in cases where the water agency or local management committee rations the water by giving only a few hours' of supply per day (India, Egypt) or by locking up standposts outside peak hours (Malawi). When women are not informed and cannot participate in decisions on the water allocation system, domestic management becomes very difficult and they have to send young children to wait until water comes.

What happens when women have no say on regulations on water use is shown when the authorities place a ban on washing near wells and taps, for fear of water contamination and unhygienic conditions. Such a ban has forced women and children to continue to use bilharzia-infested water sources for clothes washing and bathing, because the alternative - collecting all water from the pump or tap and carrying it home - is much more time consuming and labour intensive than bringing one's washing and children down to the source, especially when distances are long or a steep slope has to be negotiated.

Finally, reliability of the service is affected by the quality of operation and maintenance arrangements and their supervision (on which women should have an influence, as discussed in section 2.2) and by the degree to which the management organization is accountable for its service to the rate payers. Especially when other means of influencing the quality of a service are absent, non-payment is often the only way users have for expressing dissatisfaction. Giving users a say, e.g. when the system's operator is also made accountable to a village organization or through annual user assemblies, is one way to improve the service and thereby willingness to pay.

Social benefits

Social benefits are enhanced when women are recognized as managers of water and waste and get support, functions and training. Giving these inputs often requires obtaining support of the men first, to prevent obstruction or jealousy (El Katsha and Watts, 1993; Elmendorf, 1990; Gurung et al., 1989; Kwaule, 1993; Kumar, 1992 (see also, section 4.1 getting support for women's involvement). Enhancement of status also occurs from being better able to preserve personal hygiene, as little is more discouraging than to see endless efforts to maintain cleanliness thwarted by the insanitary and contaminating conditions of one's environment (Chant, 1984). Some social benefits will require special attention, e.g. meeting opportunities at waterpoints for women in segregated and secluded cultures or alternative meeting opportunities when household taps or latrines are installed and schools when children (girls) are freed from water collection and having to help at home.

Economic benefits

In some cases, substantial reductions in time used for water collection, waste disposal and domestic hygiene are possible, or water is needed and becomes available for small-scale production (animal husbandry, horticulture, brewing etc. (Wijk, 1992)). Economic use of time and water gains can be enhanced when the technical design and other components of the project are planned accordingly (e.g. marketing investigations, skills training, access to credit, see section 1.2).

Health benefits

Health benefits of water and sanitation projects can be optimized when women can collect and use more water because of lower distance and better reliability and can store and draw this water in a safe way; and when they can also improve other conditions and practices which form a disease transmission risk in their daily environment. As these conditions and practices are highly local and culture-specific, optimizing health benefits is only possible when local men and women are actively involved in risk identification and problem solving activities (Wijk and Murre, 1994).

Objective measurement of health benefits, for women as well as their families, is often difficult. Most countries do not have very accurate health statistics and when analysing these statistics it is often not possible to distinguish between villages with and without an improved and functioning water system and sanitation. It is, however, possible to measure behavioural change and thus get a good indication of the possible benefits (Boot and Cairncross, 1993). Community-based monitoring systems can be used as part of this process and are also an educational tool for the villagers and local management bodies themselves (Narayan-Parker, 1993). These systems and the roles of women in them are discussed in the next section.

2.7 Community-based monitoring systems

When communities manage their own water resources, water supply and sanitation programme, both they and the regional or national agencies responsible for overall conditions will need to keep track of performance. This applies to technical performance (operation and maintenance of the systems, quality and quantity preservation, availability of spares), administration (e.g. percentage of user households financial performance) and health and hygiene (e.g. environmental upkeep and hygienic use).

Increasingly, villagers are trained to pay monitoring visits to the facilities and keep up a simple registration system. An example is the records on frequency, duration and nature of breakdowns of the water supply, kept by the mechanic or scheme attendant and the village water committee (e.g. in some projects in Tanzania and by women tap attendants in Kerala). Upkeep and use of institutional latrines and number, hygiene and use of domestic latrines are monitored by the school, the village health worker, a voluntary association or the village water or health committee, e.g. in Gujarat and Kerala in India. Simple bookkeeping training is very crucial for financial monitoring and control and is now given in more projects (Wijk, 1992).

Monitoring has a gender aspect when dealing with the questions of who are best placed to collect the data and use it as a tool for management and control. Record keeping and reporting on waterpoints is often best done by women, as they visit waterpoints daily, are the first to note problems and have a personal interest in speedy repair. Moreover, keeping a record book increases the status of a job as tap attendant or pump mechanic. Women who are not literate have been able to keep records with the help of their children, or the project has developed a pictorial record system (sanitation project in Uttar Pradesh).

Monitoring which requires home visits (e.g. in latrine projects) is often more acceptable culturally when done by women. To avoid overburdening of women, special measures are required, such as, helping the women to select those who have time and are accepted and respected by other women; helping to organize the work and getting support from others (neighbours, relatives) who help with child care or domestic work. The situation should be avoided that women and men do all physical work of monitoring and reporting without knowing what is done with these data, without seeing the effect of monitoring and without having a possibility to relate the findings to the subsequent management of the water system or sanitation project.

3. *Gender in Project Monitoring, Reporting and Evaluation*

3.1 **Monitoring and reporting of project progress**

Many water and sanitation projects still report only on physical and financial progress: number of pumps, latrines installed, number and type of major works completed (such as intake, transmission line, storage tank, treatment plant), kilometres of pipeline laid, and amount of funds spent versus amount budgeted.

Less common is that a project also monitors and reports on the community participation and health education activities implemented, e.g. number and type of meetings held, community organizations established or revived, trainings given. It is also uncommon that this reporting is village- and gender-specific, e.g. what proportion of the village population has participated in a project meeting or hygiene education activity and what were the proportions of males and females.

Although some key statistics on male and female participation can be very revealing, they say little about the qualitative aspects of the programme. The mere fact that women are present in a meeting, attend a health education session or are formally members of a local management committee does not reveal whether their opinion is asked and taken seriously. More revealing are data on the type of planning and education methods used (women as passive audience or as active planners?); on whether female committee members also attend committee meetings; whether decisions are taken in these meetings which reflect the women's view; and whether female functionaries are known to and in contact with the other women (GTZ, 1 989b). It is thus very important to establish a number of valid and gender-specific indicators to monitor both quantity and quality of community participation and health education activities.

3.2 **Gender-specific assessment of sustained functioning, use and hygiene**

With the poor continuity of many completed projects in mind, donors and national governments now pay much more attention to sustainability and replicability of the projects also at the village level. Typical questions are:

- Does the water supply still function and what is its performance in terms of quantity, quality, reliability and drainage?
- Are safe water supply and waste disposal facilities used by all or the majority of the population, in all seasons, and in a hygienic manner? What are the facilities like at public institutions (schools, health centres)?
- Has the service been expanded to new settlement areas in the village, or have new people taken a connection or built a latrine or waste pit or smokeless stove?
- Are local hygiene education activities continued? Are promoted hygiene practices practiced, or can they be?

A gender focus to such assessments is urgently needed (Hannan-Andersson, 1990; UNDP, 1987). For example, on functioning of services: what are the respective roles of local men and women in operation and maintenance, management, cost financing? Who does the work and who gets the training, function, payment? Are men and women prepared for the technical and administrative tasks involved? Do they have access to external support when required?

Other questions deal with the difference made by men's or women's involvement. Do technically sound systems with a high involvement of women perform better than systems where women's involvement is low or absent? Does the fact that women are specifically selected for such functions as treasurer make a difference to training and to the financial management of the system? (IN STRAW, I 992c).

Yet other questions deal with gender-specific use. Who uses the water supply and waste disposal facilities and for what purposes? Do men and women benefit differently, e.g. with regard to economic use of water and waste?

Nor can the services be static: in order to sustain the local service level, water supplies need to be extended and construction of sanitation facilities continued. It will be important to find out who have been able to build such new facilities: is it only the wealthier men and women in the better-off villages, or have new households in poor villages and households also been able to obtain access?

When male and female leaders and representatives take part in such an assessment, the activity can be a learning event for the agency and donor as well as for the village itself.

3.3 Measuring the impact of the project on men and women

Impact on women

Since water supply and sanitation projects benefit women in particular, it is not surprising that projects have looked especially at the impacts on this group. Usually, this is done in a qualitative and indirect manner, by describing water supply and waste disposal conditions and the work and influence of women before the project as well as afterwards.

It is also done more directly, by asking the women for their views (Bosch, 1989; Narayan-Parker, 1990; Perrett, 1985; Wakeman, 1995). This so-called change analysis is useful, because it documents the felt impacts of the project, e.g. on ease of management, time, production, leadership, organization, self-confidence, technical and administrative know-how, cleanliness, privacy and safety.

Impact on men and cooperation between men and women

It is less common that projects also look at the changes for the men and in the cooperation between men and women. Yet these aspects are also important, as water supply and sanitation projects are projects for the whole village and require support from men as well as women. Continued support from either category will depend on the degree to which each group feels it can benefit from the project (Wakeman, 1995).

In this respect, giving attention to men's felt benefits can help to prevent them from seeing a domestic water supply or improved sanitation as mainly convenient for the women and as not very relevant for themselves, since without a working modern water supply there will still be water brought to the house and problems with waste are also more a woman's problem. Any change analysis, including the assessment of unwanted side effects, should therefore preferably be carried out with men as well as with women, and the men be made aware of the relevance of an improved water supply or sanitation for the whole family.

Impact on health

To indicate the project's impact on health and hygiene, the collection of more quantitative data on health practices is advised. As mentioned before, showing a statistical impact on health is quite difficult, due to the long time span required and the likelihood of intervening

variables in a field condition. If projects want to assess health benefits, it is therefore more useful to evaluate water use and hygiene practices:

- Is more water collected and used than before?
- Is water quality improved, in the system or in the homes?
- Do all families use only a protected water supply, at least for drinking?
- Have waste disposal conditions improved?
- Have risky hygiene conditions and practices in the village been reduced?

As hygiene tasks and practices differ for men, women and children, it will be necessary to collect separate and usually somewhat different data from each category and to do the data analysis in a gender and age-specific manner. Guidelines on how to do this kind of study have become available as a follow-up to an international exchange of experiences on water use and hygiene studies (Boot and Cairncross, 1993; Bentley et al., 1994).

Impact on economic conditions

Measuring the economic impact of the improved water supply or waste disposal is useful in those cases where the difference with the original situation is large and where other economic requirements, such as land, credit, training, transport and jobs were either already available or have been included in the project (Wijk, 1992; Bah, 1988; Carr and Sandhu, 1988). The measurements should include time and water use by women and preferably be done in a village or area with an improved service and a matched control village or area without such a service (comparative study). Alternatively, data can be collected on time and water use both before the project and afterwards (before-after study). The third, and most costly, possibility is to combine the comparative study and the study over time, by using a so-called experimental design (a before-after study in a study and control area). A review of existing studies has shown that a methodologically sound study design is essential (Kamminga, 1991).

4. *Methods and Tools*

4.1 **Getting support for women's involvement**

Reasons for obtaining support

Although women are the most involved in and most knowledgeable on domestic water supply and sanitation, both men and women often assume that projects to improve these conditions are carried out with men. Hence it is necessary to get understanding and support for women's participation from the men as well as the women. Furthermore, it should be understood by both categories that, as women are often in a backward position, special efforts for their involvement are needed.

When this need for catching-up action is not understood and accepted, men have sometimes felt excluded or bypassed by the project. Another effect has been the creation of competition with undesired side effects for both, e.g. a men's group in Kibwezi, Kenya started growing tomatoes for income near a pump when they saw a women's group being successful in this, with the result that the market was flooded by tomatoes and the price collapsed.

Methods for obtaining support

To get support for women's involvement from the men, it is necessary to contact the male village leaders early in the process and to explain why the involvement of the village women in preparation, planning and decision-making of the project is wanted. The leaders can then be asked for advice as to how best to get into contact with the women, and be asked to support the project's initiatives.

Having female project staff to meet with the village women is an advantage, but male staff have also been accepted when they were supportive to women's involvement and the purpose of their efforts was understood and accepted. This has even happened in countries where men from outside the family would normally not be able to meet with women (e.g. in Bangladesh; Abdullah and Boot, 1989). Often there is also a female intermediary who can contact and gather the women and introduce a male project worker. She is a local woman who by virtue of her training and position, e.g. as midwife or schoolteacher, is acceptable as intermediary to both sexes and has got sufficient respect, status, commitment and confidence to take on this role in her village.

A major step towards getting the support of the women for their participation is to give them information about the project and discuss with them the reasons and means for women to take part in local decisions and management. Ways of getting information to women are given in 4.2. A second step is to bring them together and achieve a more united support. This can be done either through separate meetings (see section 4.3) or by working through some existing forms of women's organization or network. However, women's organizations do not necessarily reach all women. Poorer women, in particular, are often not members of formal women's organizations and to reach these women other channels will have to be employed, such as contacts at women's gathering places or evening meetings with them in their own part of the village (Wijk, 1985; Sundararaman, 1986; Karp et al., 1990).

The nature of a first gathering with local women will often be one of joint problem identification and inventorisation: what do women do now with regard to water supply and sanitation; is either a problem and if so, in what respect; how does this problem relate to other issues of concern the women have, and how could they be involved in the project? A further theme is how to get the support of the men, especially of the husbands and fathers, for women's participation. This has often led to valuable suggestions from the participants as to

what the project and the women themselves can do to prevent problems and overcome constraints.

Where women have never met on a communal problem before, such discussions are often an eye-opener and form a first step towards more concerted action.

4.2 making information accessible to women

Gender-appropriate channels of information

Projects often assume that information given to the men will reach the women next. In practice, this is not necessarily the case, as in many cultures men will not mix public with private matters and so will not discuss a water supply or sanitation project at home (Wijk, 1985; Karp et al, 1990; Olsson et al., 1990; Tunyayvanich et al., 1987).

Neither do men and women use the same information channels. For information on a latrine project in Honduras, men visited meetings and demonstrations, while women relied on information from the radio and from other women. In a latrine project in Pakistan, the spread of information and rate of adoption was low, until some women who had installed a latrine and were satisfied with it were engaged as promoters and started to tell other women in their neighbourhood (Spector et al., 1971; IRC, 1988a).

The same principle of gender-specificity applies to the distribution and display of printed information, such as posters, announcements, etc. An example are posters with health messages in a project in Tanzania which were hung in public offices and other places not frequented by women.

It is thus important to identify which channels will mainly reach men and which are more appropriate for women; whether reaching men or women requires special timing (e.g. of radio broadcasts) and places (for distribution, display, etc.), and to take into account the particular cultural setting. Lower literacy levels of women and less experience with pictures (visual literacy) are other matters to take into account.

Pre-testing of information

When information is distributed, it should not only be accessible, but also understandable, acceptable and applicable. Much hygiene education material is too general, academic (germ theory) or unrealistic (boiling drinking water) to be applied (Wijk and Murre, 1994). Pre-testing of materials should take place with each target group and can reveal serious flaws. Several guidelines for simple pre-tests exist which can be used by project staff.

4.3 Organizing community meetings

The purpose of a community meeting is to create a situation in which both community members and project staff feel free to exchange ideas and to learn from each other. It is a useful means of sharing findings or decisions from a smaller group with the village at large and of getting their feedback and validation.

Women generally experience more constraints on attending community meetings and speaking out in them. The following are measures that projects have taken to enhance an active participation of women in general village meetings attended by men and women (IRC and PROWESS, 1991):

- Time and place: Organize the meeting at a time and place which are also suitable for women. Meetings should not be held at times when women have to prepare food or are working in the field and not at places that are too distant or culturally not appropriate for women to be in.
- Size and setting: Smaller, neighbourhood-level meetings are easier for women to attend and speak out in than large mass meetings.
- Announcement and encouragement: Make sure that information about place and purpose of the meeting reaches the women promptly and in good time. If necessary use several information channels that are appropriate for women (see 4.2). Emphasize the importance of the meeting for women and encourage them to attend
- Seating arrangements: Do not leave these to chance, as then the women tend to end up at the back or outside. Rather, arrange the meeting in such a way that men sit on one side, women on the other, or arrange the meeting in a circle or square. In this way, women will be able to hear what is said and sit in a group of women, which makes it somewhat easier to react than when scattered over the audience, or sitting in the back.
- Meeting language: Women do not always speak the official language of the meeting. Conduct the meeting in the local language, or include translation by a person who speaks the local vernacular.
- Leading the meeting: Reactions from the audience are stimulated by the way the meeting is led. A non-authoritarian style and encouragement of opinions and questions from the audience will help. A break to discuss the information in smaller groups and formulate questions, and the choice of a spokeswoman by the women participants, can also help women to speak up.
- Use of participatory techniques: Discussion following a short story or parables (live or on cassette), a local play or puppet show, making a communal painting, a series of drawings showing various options, etc. help start people off and make entering discussions easier for all. (More on use of participatory techniques in 4.7).

The alternative to a general and mixed meeting is to organize separate meetings with men and women, or to organize a follow-up meeting with women only for more detailed discussion and feedback. This second meeting is held after the general assembly, at which they first learn about the project (Sundararaman, 1986; Donelli-Roark, 1984; Karp et al., 1990).

4.4 Collecting gender-specific data

It still occurs that projects collect data about women's issues from men, or in their reporting and analysis do not make a distinction between the sexes and just use 'villagers', 'users' or 'respondents' (Young, 1989). The following are some of the steps for making data-collection and analysis more gender-specific:

- Assess whether different information should be collected from men and women, or whether the same questions can be asked of both. This will depend to a large extent on the division of tasks and authority in the culture concerned. Asking a man on the family's water sources or the occurrence of child diarrhoea in the family, for example, is unlikely to yield a reliable answer. For some data, children will also have to be asked.

- Determine which women should be contacted for which data. In many cultures with extended families, different women in the family have different responsibilities and authority. In some cultures, female heads of families should be contacted first for reasons of respect, where after factual information is obtained from the younger female members in the household.
- Whenever possible, interview men and women separately, even when the same questions are asked of both. The viewpoints of either group may be quite different, but such differences tend to stay hidden in joint interviews, e.g. because the husband will answer all questions or the wife does not like to voice an opinion which her husband may dislike (Simpson-Hébert, 1983).
- Report all human project data in a gender-specific manner and make sure that project information systems (e.g. on participation in village meetings, trainings, committees) make a distinction between male and female participants.
- After collection, process and analyse data separately for men and women, and where necessary, also for the different socio-economic classes and age-groups (Mujtaba, 1988).

An example is a handpump well project in eastern Tanzania. Gender and age-specific analysis of reported data for urinary schistosomiasis in the project area showed that this water-related disease was most common amongst schoolboys and women and girls between 10 and 40 years of age. The incidence among boys was related to the boy's swimming habits, while for women and girls the disease was associated with the local practice of washing clothes while standing in schistosomiasis-infested water. This finding had implications both for the hygiene education programme and for the wells project, which had banned on washing clothes at the handpumps and so forced women to continue their use of open water.

4.5 Strengthening or forming local management structures

A first question to ask when preparing a water or sanitation project is whether there is already an existing community organization which can represent the villagers in detailed planning and take on local management of the water system or sanitation facilities. Issues to be looked at include:

- **Composition:** can the organization represent the interests of the different categories of beneficiaries: men and women, domestic users and economic users, wealthy households and poor families?
- **Status and mandate:** does the organization have the authority or legal status (or in case of a sub-committee: can they derive this status from the higher-level organization) needed to take decisions?
- **Dedication, time and capacity:** do the members of the organization have more tasks and interests which may impede their work on water or sanitation? Does the organization have the capacity to plan, communicate, supervise, administer and monitor a water supply facility or a village sanitation project? What is their earlier experience?

If an existing organization is trusted, well-suited and able to do the job, it is better to avoid forming a new organization. When only the composition is incomplete, e.g. because women are not directly represented, it will first be important to establish the need for having women on the organization.

Reviewing the composition

Reviewing the composition of an existing managing organization can be done in a participatory way, for example, by using cut-out pictures of men and women and items they use for water and sanitation related domestic tasks, such as drinking water collection and storage, cattle watering, vegetable growing, health care, waste disposal. A second series of cut-outs may consist of pictures of men and women as well as the various ‘tools’ used in managing a water or sanitation project, such as a cashbox, receipts book, toolkit, blackboard. The group with whom the activity is done is then asked to form two tableaux of pictures: one with pictures of men and women users with various responsibilities in water and sanitation and one tableau of those who will represent them, and draw connecting lines between each. The outcome of this participatory activity is used to determine in what ways the present organization should be adapted and how this could be done.

Selecting women on a committee

To facilitate the selection of suitable women members for a water or sanitation organization, several measures can be used, both expanding an existing organization and in forming a new one:

- Define the tasks: some responsibilities and tasks may be more appropriately done by a woman than a man. Examples are communication with other women, management of health and hygiene aspects, financial management. Other functions and tasks may be more likely to be held by a man.
- Determine the requirements (time, characteristics) for the job.
- Jointly identify the type of women that have the basic requirements for the job.
- Identify and contact possible candidates and, when they show interest, help them obtain acceptance and support from their environment.
- Select at least two women on the organization for mutual support.
- The above tasks are best carried out together with a group of women from the community, as they know the local situation well and can help identify, contact and support suitable local candidates.

To collect data for projects, the use of large surveys is not always necessary: separate group interviews with men and women, or the use of gender-specific tools for participation are other ways of collecting data in a gender-sensitive way.

4.6 Setting up local financing systems

Women’s roles in financing

If women are active at all in managing water supplies or waste disposal services, it is often in the area of financing (Wijk, 1985; Espejo et al., 1993; Oenga and Ikumi, 1991; Poluha, 1990; Leyen, 1991; CINARA, 1990; Whitaker, 1993). They help raise funds, are tariff collectors and treasurers and within the household are generally more willing to pay for construction or maintenance. The financial management of services is often a matter of concern to them and training in finance is one of the first requests they make when training opportunities are available. Key areas of interest are how to raise the funds, how to administer them, and how to account for their proper use.

Fundraising

Choosing a financing system is like choosing the technology: there is no one system that is appropriate in all cases, and one has to look at what method of financing is the most appropriate under the local circumstances. There are many ways to raise funds, both for construction and for operation and maintenance and the men and women in the community are the ones who can best decide which system is most suitable for them, especially when each option is discussed with them, so that they have sufficient information to make a wise decision.

A first choice to make is the payment system: a collective system, such as public fund raisings through meetings, bazaars, door-to-door collection, a women's group hiring themselves out as agricultural labour, etc., or regular payments by each participating household. General fundraising can be easier and demand less work and administration than scheduled payments, but can also be less equitable, as there is no guarantee that all beneficiaries will contribute and that voluntary payments reflect their capacity, or that all who want to join a group that raises funds for members' facilities. For individual household payments there are several options:

- the payment unit: each household pays as a unit, or each adult member pays separately;
- the size of payment: standard in respect of the actual costs; all local households or household members pay the same, with the amount related to the actual cost or just a standard figure;
- the differentiation: those who use more water (higher incomes, larger housing, economic use), or get a more expensive design, or can afford to contribute more pay more.

Gender aspects to consider are whether poor women, such as single parents, can take part without contributing a disproportional large part of their income, and how payments within households are divided between men and women. It may, for example, turn out, as it did in a project in Western Kenya, that while the whole household benefited, it was the woman who paid, or that where men and women pay equal amounts from their own incomes, the women contribute a relatively much greater share of their resources than the men.

Fund collection

A second choice to make is how the funds will be collected and what implications this has for the men and women involved.

- payments at a central place: may be less feasible for women than for men;
- home collection: during the day may be culturally more appropriately done by women, but may involve considerable amounts of work and pressure;
- payments to one person in the neighbourhood: often easier, but safety and accountability, both of the collector to the committee and the committee to the collector ('how were funds used') have to be assured;
- savings account or fund: enables women to deposit small amounts and enables poor people to join projects which want larger payments as deposit or tariff.

Financial administration

Training those acting as treasurers in simple budgeting and bookkeeping skills is a key condition for better financial management. Existing accounting systems are often too complex, especially where levels of numeracy and experience are low as they often are among women, so that a more simple and especially practical system usually has to be developed with the help of the people concerned. Where the rate of inflation is high, direct conversion of cash into materials, equipment and spares may be preferred, which then has further consequences for village stock keeping and administration. All trainings in financial administration should be organized in such a way that they are also accessible for women (see 4.7).

Accountability

Another training issue for village treasurers, committees and users is how to account for financial and operational performance.

- Treasurers: will have to know how to make simple summaries of costs and expenditures and how to present these to the committee and to general assemblies of the users.
- Committees: will have to know how to account to the users for the administration of water supply system or sanitation programmes.
- Users: should know of their rights and how they can arrange for accountability, e.g. through statutory annual meetings and an independent audit committee for checking the books.

Statutory meetings should preferably be attended by a defined quorum of male and female heads of families. Where water users associations exist, both the male and the female heads of member families should be voting members and be eligible for functions on the board or management committee (Wijk, 1985).

4.7 Training of women functionaries

Special methods are usually needed to make training accessible and applicable for village women (INSTRAW, 1992b).

The venue where the training is held is very important. Usually, the closer the training is to where the women live, the easier it is for them to participate. It is often possible to organize a village-based training and bring the trainer, materials and equipment to the village, or use the village equipment. This can be done either for a single village, or for a group of neighbouring villages.

When the training has to be held outside the area, special arrangements will be needed to make it possible for women to attend, e.g. arrangements for transport and for women to travel and attend as a group in areas where their mobility is restricted, contact of male relatives for permission (e.g. by influential village leader) and arrangements for child care, either at the training venue or with the other women at home.

Duration and timing of the training are other important aspects. Women cannot easily stay away for longer periods, so a short training, allowing women to be home for chores in the early morning and at the end of the day, is often best. In agricultural societies, the off-season will be the best time for training.

The contents and methods of the training should be practical and realistic. Too often, trainings on e.g. health or bookkeeping are still too academic, so that the women cannot apply them in their village and at home. A classroom-type setting and use of lecturing as training method are also not very appropriate for active learning by the participants. Changing the training methodology and techniques is usually not so easy, since both trainers and trainees are used to conventional training techniques and not to modern methods of adult education. Often, a re-training of the trainers is required (see section 4.8). Areas where women have a low level of literacy will require special adaptation of training methods and materials.

Training needs identification for project staff

Although being a woman is an advantage in contact with and training of village women, it does not make female project staff automatically skilled in working with women and being gender-conscious. When identifying or recruiting female staff at the start of a project, or when working with male staff who have to involve women, it will be necessary to review and discuss how the staff work with women and whether they are aware of gender differences and apply these in their work. This will show whether there is a need to update the knowledge and skills of the project staff in these two areas.

4.8 Participatory techniques for project personnel

Although village assemblies, group meetings and discussions and committees play a prominent role in any project for rural water supply, sanitation and water resource protection, they are by no means the only tools for community involvement.

In the disciplines of adult education, community development and women and development research (e.g. in agriculture), various more creative techniques for involving local men and women have been developed. Examples are the work of World Education (Seslar Svendsen and Suhatha, 1983) and UNCHS (UNCHS, 1986) the DELTA technique (Development Education and Leadership Teams in Action) used in Kenya and Zimbabwe and participatory research techniques such as those used for participatory rapid rural appraisal by Samakya in India.

The project of PROWESS (Promotion of the Role of Women in Water and Environmental Sanitation services) has developed such techniques especially for the water sector. Familiarity with these techniques can help project staff to use more creative ways of working with village men and women. The material can also stimulate them to develop their own local materials and techniques. All techniques are suitable to be used with women and men. Some of them are especially designed to make participants more aware of the importance of women's involvement. Tools specially geared towards gender issues can be found in Wakeman (1995).

5. *Water Supply, Environmental Sanitation and Water Resource Protection: Conclusions on Gender Dimensions*

Projects to supply drinking water, improve sanitation and protect drinking water resources have both functional and developmental aims. Functional aims are that the quantity and quality of water resources are maintained, the water supplies and waste disposal systems function well, the environment is protected, and conditions and practices of environmental sanitation and hygiene are improved.

Such projects can also have more fundamental, developmental aims. In that case they not only improve local conditions and practices, but by the way they work with the people they also strengthen the latter's capabilities to bring about and preserve these changes, improve their living conditions and stimulate the undertaking of new development activities in their homes and communities.

Development goals are realized when the projects do not make things for the people, but when improvements are as much as possible made *with* them and *by* them. Projects which treat people as dependents and passive beneficiaries unavoidably create dependency, while projects that recognize people as the local decision makers and managers of their environment enhance their capabilities to make and sustain their own improvements, either independently, or as partners in the more complex projects which combine a number of actors.

In this development process, men and women each have their own distinctive tasks, responsibilities and authority. This is also clear in the water and sanitation sector. Women and men have their own patterns and interests in the selection and use of water sources, in environmental sanitation and in the use of the land surrounding the water sources. In the homes, the expertise, felt needs and dealings with various aspects of water, sanitation and hygiene are gender-specific as well. Socialization, whereby boys and girls each get familiar with the accepted patterns of their own sex, starts at an early age.

Initially, it has been assumed that women and girls are only concerned with water use and hygiene inside the house, so that they have been mainly involved in water and sanitation projects as passive target groups for hygiene education. More research on how tasks and responsibilities are divided amongst the sexes has shown that in reality the situation is much more complex, and that both men, women and children are involved in, and have specific knowledge, tasks and requirements on water resources, water supply and environmental sanitation in the house, the neighbourhood, the village and the surrounding area (Battaglino, 1990; Rocherleau, 1992; Donnelly-Roark, 1989; Wijk, 1985).

It has been found further that focusing on women and children as audiences, rather than planners and actors, and forgetting the specific responsibilities and behavioural needs of men, reduces the effectiveness of technology projects and hygiene education programmes in the sector. The number of projects which apply a more gender-sensitive approach, involving men and boys and women and girls as distinct actors and managers is now gradually increasing (Wakeman, 1995).

There is yet another reason for dealing more carefully with gender issues in the water sector. Since projects in the water sector are typical community projects, which can only have an impact when they have the support and participation of the community at large, the insight is growing that both women and men need to be involved. A large amount of qualitative and

quantitative evidence exists that bringing the women in has benefits for the project service as well as for the women themselves, but also that care has to be executed not to bypass the men and overburden the women (Chachage et al., 1990; Hannan-Andersson, 1990; IRC, 1991; IRC and PROWESS, 1992; NAC, 1991; Wijk, 1985; Yacoob and Walker, 1991).

Moreover, gender-based roles and relationships are not static. Project accounts show ample opportunities for men and women to fill new positions and effectively clothe them with new, yet not completely alien, responsibilities and power. For example, cases are numerous where the chairmanship in a water committee, as a position of authority, has gone to a man, but the position of treasurer, requiring trust, to a woman.

The drawbacks which women face when it comes to taking part in village activities and taking up local functions do, however, require that within this gender-specific approach, specific efforts are made to overcome the constraints, whereby the women themselves can often give useful suggestions on how this can be done.

A gender-sensitive approach thus takes into account the existing roles and relationships between the sexes, but also builds up *new* capacities in both men *and* women, which contribute to more effective projects as well as a more equitable distribution of work, power and benefits.

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Annex A: Field guide on gender issues

In 1993, three groups of experts, from Africa, Asia and Latin America, participated in regional workshops designed to prepare regional field guides on how to promote awareness of the need for a gender approach to water and sanitation projects. The workshops were organized by IRC, in collaboration with local organizations, in Kenya, Sri Lanka and Colombia. A background document on gender issues in water and sanitation, on which the present document is based, was also prepared.

These four documents are now available in IRC's Occasional Paper Series. Three of them are available in English. The fourth is available only in Spanish. A Spanish version of the original background document, on which the present document was based, is also available.

All these publications, and the regional workshops, were made possible with financial support from the Special Programme on Women and Development of the Directorate General for Development Cooperation of the Netherlands Government.

Gender in Community Water Supply, Sanitation and Water Resource Protection: a guide to methods and techniques

Christine van Wijk-Sijbesma. 1995.

Originally prepared as the background document for the three regional workshops and now updated and revised to provide a basic guide to methods and techniques for planning and implementing a gender approach in water and sanitation projects.

Occasional Paper 23. iii, 52 pages. Paperback

Together for Water and Sanitation: Tools to apply a gender approach. The Asian experience

Edited by Eveline Bolt. 1994.

Part I of this manual, which results from the gender workshop in Sri Lanka, provides a theoretical framework for women's involvement and applying a gender approach. Part II provides tools to apply a gender approach based on consolidated field experience for the various phases of a project. Although most tools are for use in the field, some are meant for gender sensitization of project staff.

Published in association with the Non-Governmental Organizations' Water Supply and Sanitation Decade Service, Colombo, Sri Lanka.

Occasional Paper 24. xiii, 107 pages. Illustrated. Paperback.

Working with Women and Men on Water and Sanitation: an African field guide.

1994.

Developed by African women experts participating in the Kenya workshop. Aims to provide guidance on planning and implementing water and sanitation projects and programmes with a gender-aware approach. Contains guidelines on involving women, alongside men, in all stages of a project.

Published in association with the Network for Water and Sanitation (NET WAS), Nairobi, Kenya.

Occasional Paper 25. vi, 98 pages. Illustrated. Paperback.

Also available from: AMREF, P0 Box 30125, Wilson Airport, Nairobi, Kenya.

“Mejor, Cuando es de a Dos”: el genero en los proyectos de agua y saneamiento

Edited by Norah Espejo and Ineke van der Pol, 1994

This document is designed to promote and develop a gender perspective in each phase of the project cycle. It presents ideas, concepts, checklists, group techniques, case studies, tables etc., produced in the Cali workshop. These tools can be used by professionals working in water and sanitation projects.

Published in collaboration with the Centro Inter-Regional de Abastecimiento y Remoción de Agua (CINARA), Cali, Colombia.

Occasional Paper 26. xi. 73 pages. Illustrated. Paperback.

Also available from CINARA, Universidad del Valle, Apartado Aereo 25157, Cali, Colombia.

Metodología Aplicada para Involucrar a La Mujer en Proyectos Rurales de Agua y Saneamiento y protección de Fuentes: documento de antecedentes

This is the Spanish version of the original background document for the regional workshops on gender issues, on which the present document was based.

1992. (i), 44 pages. Paperback.