

R822 INKE91

Library
IRC International Water
and Sanitation Centre
Tel.: +31 70 30 689 80
Fax: +31 70 35 899 64

COMMUNITY PARTICIPATION IN
11 DUTCH-DANISH SUPPORTED WATER AND SANITATION
PROJECTS IN KERALA

DRAFT REPORT

November 1991

(VMS)
Dr. A Sandhya Chatterji
Consultant

R822-14069

These personnel are responsible for operation and maintenance of water supply systems at village level. This 2-day course covers technical aspects; importance of water and wastage prevention; water quality and health; Pani Panchayat and public awareness. A batch is usually comprised of about 50 trainees. (Also see discussion in Chapter 8 on orientation activity by CHETNA for linemen.)

Training for engineers

A 13 day introductory training course is conducted for newly recruited engineers including Assistant Engineers, Additional Assistant Engineers and Oversees. The course, which covers technical and administrative matters also includes the subject "Community Participation and Mass Awareness."

Moreover, in the teaching of purely technical courses such as water demand projections, water quality & standards, etc, an attempt is made to highlight the importance of involving the community in relevant aspects.

End of Gujarat case study.

SECTION A

1. CONTEXT OF STUDY
2. TERMS OF REFERENCE
3. NATURE OF COMMUNITY PARTICIPATION
4. OVERVIEW OF THE 11 PROJECTS IN KERALA
5. POLICY GUIDELINES FROM PROJECT EXPERIENCES
6. IMPLICATIONS FOR REPLICATION

SECTION B

7. BACKGROUND TO PROJECTS
Project objectives
8. WATER AND SANITATION SECTOR IN KERALA
Local factors conducive to project success
Local factors which have hindered project
9. IMPLEMENTING ORGANISATION - KWA/SEU
10. TECHNOLOGY CHOICE AND DESIGN CRITERIA
11. GENDER CONSIDERATIONS

SECTION C

12. STAGES IN COMMUNITY PARTICIPATION
13. MOTIVATING COMMUNITY PARTICIPATION IN PROJECTS
Understanding community perceptions
Awareness and health education
14. MOBILISATION - EMPOWERING THE COMMUNITY TO PARTICIPATE
Link mechanisms & local committees
Mapping of wards for standpost site selection
Training and empowerment
Participation in the sanitation programme
15. ACTIVE COMMUNITY CONTRIBUTION
Decision making
Water supply and laterine construction
16. COMMUNITY MANAGEMENT
Local committees
Monitoring use
Sharing costs - water tariffs
Maintenance and control
Technical support and spare parts
17. PROJECT IMPACT
18. SOME ISSUES FOR CONSIDERATION

APPENDIX:

1. Background information on the 11 projects
2. Estimates of unit costs (capital investment) in Projects
3. Linkage of Ward Water Committees with other agencies
4. Composition, responsibilities of local water committees
5. Water related health education
6. Health education under the sapitation programme
7. Steps and time for implementing sanitation programme
8. Monitoring laterines - sanitation programme
9. UNDP/PROWESS model for evaluating community participation
10. Stages in community participation

LIBRARY IRC
PO Box 93190, 2509 AD THE HAGUE
Tel.: +31 70 30 689 80
Fax: +31 70 35 899 64
BARCODE: 14069
LO:

R022 INKE91

SECTION - A

1. CONTEXT OF STUDY

Many countries including India adopted the goals of the International Drinking Water Supply and Sanitation Decade (IDWSSD) 1981-1990, with a commitment to provide clean drinking water and sanitation facilities to all by the year 1990. The experiences gained during this Decade have more than amply brought out the difficulties involved in achieving these goals. The Global Consultation on Safe Water (1990) which marked the end of the IDWSSD, highlighted certain principles as the foundation for future efforts in the sector. One of these principles is the promotion of community participation (CP) with proper recognition of the roles of women, utilizing strategies that involve the whole community in decision making and management, within the framework of the existing social and political system.

Various projects undertaken during the IDWSSD have provided rich and varied experiences on community participation in the water and environmental sanitation (WES) sector. These reflect different strategies based on the modalities of government policy options, the perceptions of what CP implies to the personnel of implementing agencies and the context of the communities which live in the project area.

Although community management is widely accepted by governments, international donors and other development agencies as a major institutional option, there is little information which is currently available in succinct and accessible form to guide policy and operational strategies. As various agencies plan for implementing large scale programs to reach the poor, it is critical to have better information to guide investment in the WES sector through strategies that support community self reliance.

The World Bank in common with other donor agencies such as DANIDA, finds that field experiences gained in the WES sector are not regularly fed back into the program in a meaningful way. Consequently, innovations of approach and the limitations encountered in projects are not effectively stored in a 'memory' that can be tapped for the benefit of future projects.

Eight case studies were commissioned by the Global Analysis Group in the World Bank (RWSG-GA), the first four supported by DANIDA, as part of an international effort to develop a database of experiences that can be easily accessed to help in future planning and implementation procedures for large Donor financed projects. Within India, the analyses could help in moving GCI thinking more purposefully towards supporting the element of people's participation in the WES sector both at the policy level and in project finance terms.

This report deals with the operational strategy of involving community participation in 11 water supply and sanitation projects in Kerala. The projects which began in 1986 are to be

Constructed over a 6 year period at a cost of over Rs.80 crores. They are funded through bilateral aid from the Dutch and Danish Governments. The water supply schemes are designed and constructed by the Kerala Water Authority (KWA). They are aided by specially constituted Socio-Economic Units (SEUs), whose mandate is to motivate and enable the community to participate in the project.

Information on these projects is based on a two week field visit, available documentation, discussions with donor agencies and project staff, and meetings with local panchayat and water committees and beneficiaries. The information presented below is thus indicative of the nature of documentation available and the perceptions of project staff.

2. TERMS OF REFERENCE

As per the contract between the consultant and the Royal Danish Embassy, the terms of reference are the following:

Objective 1

Identify 8 water and sanitation projects across India that are well established and known for successful inclusion of peoples participation in some form. The experience of these will be examined to understand what factors promoted or limited participation, what are the implications for replication, what are the range of options, what are the cost implications and how the achievement of these programmes compare to similar programmes without peoples participation. Four of these projects will be analysed initially and a review of this exercise will precede analysis of the second batch of projects.

Output 1

Four detailed accounts of experiences of the nature and role of community participation in India's rural water and sanitation sector, with due emphasis on the role of women in such participation.

Objective 2

Dissemination of this information at various levels.

Output 2/1

Simple and brief versions of these experiences will be disseminated in story form and or through articles in existing newsletters/newspapers and development publications.

Output 2/2

Photographs/Slides where relevant to add a pictorial dimension to the written word.

3. NATURE OF COMMUNITY PARTICIPATION

A review of the existing literature on involving communities in planned water supply and sanitation projects brings out the great diversity in policy options and operational strategies. A participatory approach has meant different things to different people - donors, implementing agencies, extension workers and community local leaders. Under different operational strategies and location specific conditions, communities have participated in and responded differently to a wide range of project activities; in some they have been passive recipients of technologies and information, in others they have been active project partners. The nature of community participation in projects reflect variations in the:

- policy options which mark sector boundaries, guide decision making strategies, technology choice, gender considerations, and innovations in approach,
- enabling environment within the government regulatory framework and administrative system, allocation and control of fund flows, available infrastructure, local institutions and link mechanisms, the capability of the implementing agency and extension services,
- perceptions of what community participation implies to project staff and local leaders who decide the nature and focus of information campaigns, training, intersectoral links, and perceptions of what local self reliance and empowerment mean, especially for women,
- location specific conditions which influence community priorities involvement and responsiveness, information flows, the level of coordination between hardware and software activities and the success of interventions.

Most project planning and operational strategies tend to focus on a combination of activities. Communities are given information on health and hygiene issues, sometimes involved in planning / constructing facilities, and sometimes trained for maintenance. Very rarely do projects focus on the institutional factors that engender community management by tackling the legalities of ownership, responsibilities for monitoring / maintaining, norms of use and cost sharing, technological back up systems and managerial capability.

From the point of distilling information from projects for use in future planning, it would be useful to look at community participation as a process rather than as a result of certain activities undertaken by the implementing agency. This approach allows planning and operational strategies to proceed gradually from motivating people to passing on management responsibilities to them.

4. OVERVIEW OF THE 11 PROJECTS IN KERALA

One of the most promising operational strategies adopted in rural water supply and sanitation, (in terms of replicability) are the 11 projects in Kerala. The projects are large. They envisage providing piped water with community standposts in 73 panchayats covering an area of ... sq. km. and a population of 1.75 million. These 11 projects are amongst the largest rural schemes implemented by the KWA, and the first time that communities have participated in the provision of water and sanitation facilities. Planning for the project is done at the panchayat level with local representation at the level of the wards or small administrative unit with a population of about 2000 people.

To facilitate the process of community participation, the Donor agencies directly support 3 Socio-Economic Units (SEUs) as the key coordinating link mechanism in the project. To achieve the long term project objective: "to improve the quality of life and health of rural population by providing safe drinking water and sanitation facilities to the people in the selected rural panchayats", the SEUs have identified five major areas of work in their operational strategy. They are :

- formation of local committees
- training extension workers and local representatives
- health education and information campaigns
- mapping wards for selecting stand post sites
- mobilising community inputs for latrine construction

The project has a clearly identified institutional hierarchy that works in parallel to the panchayat administration network. Local decision making bodies have been formed at various levels of the hierarchy. The apex body is the District Co-ordinating Committee who facilitate inter sectoral links, and networking with government extension services. Next come the Panchayat Water Committee who make operational decisions at the Panchayat level. The most important are the Ward Water Committee (WWC) - decision makers at the ward level who help in generating and disseminating information for sanitation and health, and in mobilising people for selecting stand post sites. Below them come the Standpost Committee around each stand post for monitoring use and reporting faults. The KWA is the final authority for water supply and the SEU for the sanitation aspect.

The 11 schemes are in different stages of completion. In some Panchayats under the South and Central SEU, water had already been commissioned and SEU/WWC inputs were focused on ensuring that 90% of the population (the poor) are covered by the project. This was done by mapping each ward and identifying areas where needy people lived. Extension lines to the existing distribution system were proposed and additional standpost locations were recommended. The WWC and SEU field officers were the key people involved in interacting with people and

incorporating their preferences. In other panchayats the SEUs are in the process of mapping wards and working out the water supply distribution network with KWA engineers. As per policy guidelines 1 standpost is to serve 200-250 people or 15 to 40 families. In addition the standpost should be not more than 50 m from the next and to improve access, within 200 m of houses

The community has participated in more obvious ways in the sanitation programme. In the sanitation strategy, the panchayats are encouraged to contribute 10% of their funds to the programme. With active inputs from the WWCs they decide which beneficiaries will be included and coordinate and centralise purchase of raw materials for laterine construction. The beneficiary has to pay about Rs. 500 or 25% of the cost of construction and provide labour for digging the pits. The SEUs and Panchayat contribute the remain 75% The SEUs have experimented with different low cost building materials to reduce the cost to the minimum.

In parallel to these activities is a highly vigorous health education and information campaign. School health clubs, exhibitions, theatre, pamphlets and posters and a 32 part serial "Jeevadhara" on All India Radio, form part of this campaign.

At a more direct level, the WWCs with SEU staff organise chlorination campaigns in selected pilot Wards, where school children, panchayat and Mahilasamajam members, health extension workers and residents participate. All the community (panchayat) wells and private wells are chlorinated on that day. This is accompanied by talks on health education and distribution of pamphlets.

The project plan goes beyond the stage of providing communities with a physical asset and has established systems for monitoring use and reiterating health messages. The local maintenance of standposts is still in the experimental stage but preliminary results are very encouraging. Some SPAs were trained to repair minor faults in the standposts above ground level and were given a tool kit in September 1991.

POLICY GUIDELINES FROM PROJECT EXPERIENCES

Clear Policy Planning help to identify areas of work and inter sectoral links.

In the plan of operations the Kerala projects have clearly identified their field of work to be water supply, sanitation and health education. They do not for example have the option of including immunization or income generation in their work. Within the field of water supply, sanitation and health education, they work through existing networks and institutional structures such as the ICDS, panchayats, schools and government extension health workers.

Project guidelines and community priorities should overlap to as great an extent as possible.

Community priorities are closely linked to the functioning of and access to the assets created and the perceived benefits of use. Project qualitative guidelines are often translated into physical targets. The choice of technology also plays a key role in determining the number of installations and maintenance strategies. In the projects, the guideline has been for 1 standpost for about 25 families. Surveys (SEU N) have shown that in some wards many people were willing to pay for a private connection. In the sanitation programme, household laterines are wanted and communities and panchayats have contributed financially. Here community priorities and project goals overlap to a very great extent.

The enabling environment is conducive, and adequate institutional support is given to the project.

Establishing the SEUs for coordinating community participation activities, has been responsible for obtaining institutional support and creating a NET positive enabling environment for the project. The Kerala Government encourages grass root action and the SEU staff work closely with various government departments and NGO extension services for health education and environmental sanitation. The KWA professionals provide technical support during training and collaborate with SEUs in mapping wards and designing distribution lines. They also give formal recognition to the WWCs. The Panchayat has provided the most active support to the projects through the PWC.

Smooth funds flows and comprehensive budget estimates help to avoid delays in the project.

Many WES projects have been considerably constrained due to financial delays. The original design estimates given for approval to Donors often do not take the interim escalation of costs into account or underestimate time/resource requirements. Financial problems inevitably result in delays in construction and the commissioning of water. In the Kerala project delays have caused problems in retaining community motivation.

Forming local management systems for decision making, is an important step in empowerment.

The WWC form the most important local representative group for decisions regarding standpost locations and selection of beneficiaries for the sanitation subsidy. This implies making decisions regarding access to resources and solving potential conflicts in the community. The role of the WWCs and SPAs in monitoring use is a move towards greater community control. The Panchayats are increasingly taking over the implementation of the sanitation programme and this too, reflects growing self-reliance of local committees. Local committees for decision making, management and monitoring can have far reaching impacts (peer pressure) on people assuming responsibility at the household or individual level.

Adequate training is crucial in motivating project staff and providing them with skills in project management and in mobilising the community.

A great deal of grass root contact is required and trained staff can act as prime movers in the project. Training for local committees/craftsmen is crucial for them to know what is required of them and how to discharge their duties. In Kerala the key SEU staff is highly motivated and quite experienced. They conduct various types of capacity building training programmes for local WWCs, SPAs, masons and extension workers.

Recognising central roles of women in water and sanitation aid communities in assuming responsibilities.

Problems associated with inadequate water supply and sanitation are intricately linked with the lives of women. The Kerala project have given special emphasis to women. As part of the PC and WWC they have decision making power. In fact the most active WWCs have the most committed and active women. Most SPAs are women, reflecting the importance water has for them. The majority of SEU field staff are also women, which enables access to both genders in the community and understand needs/perceptions of both men and women. This gender bias was especially true in getting community perceptions on the need for sanitation facilities. For women privacy was a real need.

Health, education and information campaigns should accompany water supply and sanitation hardware activities so that facilities are effectively used.

When education campaigns address felt needs the messages are more easily accepted. The communication strategy should be in a language that the community easily identifies with. Traditional media and existing networks are thus important. In the Kerala projects information dissemination hinges around messages on the need to properly use standposts and laterines, keeping the surroundings clean and on the link between clean water and good health. This is accompanied by well chlorination, thus allowing

the project to address the need for ensuring water quality from alternate sources. Data on monitoring latrine use show that 98% of the households used them hygienically and maintained them. Monitoring by SPAs and messages on proper use had resulted in fewer leaks in the standpost and quick fault reporting.

Community contribution to the project increases the sense of ownership, responsibility and hence prospects of long-term sustainability.

Community contributions cash, kind on labour, help to increase the sense of community responsibility for the asset created. Communities can contribute in many other ways - through decision making, monitoring and skills. In Kerala the community contribution to decision making is through the WWCs and monitoring through the SPAs. In the sanitation programme the communities contribute 25% of the total construction costs. Because of seasonality of some types of wage labour, community contributions in cash should ideally be collected in the season when the poor have relatively higher incomes.

Community monitoring and management systems if well established, can enhance the functioning and sustainability of facilities.

Local systems for effective control and monitoring, the SPAs and WWCs in Kerala, imply creating and following use regulations. Adequate local monitoring leads to peer pressures. Peoples perceptions about the facility change, from a perceived personal benefit by non-use or misuse to a perceived cost of not using the facility properly. Relevant information campaigns are a precursor to knowledge about proper use.

Maintenance capability and spare parts distribution are necessary for long-term sustainability.

In the water supply schemes some trained SPAs are involved to the extent of being able to fix minor faults above ground level. The maintenance strategy will depend a great deal on the choice of technology and nature of training given to selected local people. For the centralised supply system and piped water Kerala projects, partial maintenance may be the best option. Spare parts are purchased and replaced by KWA. KWA still has to plan and implement a consistent method of charging for water from community outlets and for collecting payments. This is very important for financial stability and funds for O&M.

6. IMPLICATIONS FOR REPLICATION

In the water and sanitation sector, replicability has been stated to be "the ability to duplicate the processes and benefits of a set of development activities in new locations after their effectiveness have been demonstrated in limited geographical areas". Efforts at involving community participation in the Kerala Project are just beginning to move from the pilot to the demonstration phase and it is too early to comment on the management and monitoring system. However, the method adopted in pilot areas can form guidelines for future replication. For example:

*but who will do this?
answr. paid
workers*

- using existing government agencies and networks for disseminating health education
- local committees (ward, village..) for decision making in locating water points and distribution supply design
- implementing the sanitation programme through the panchayat who give management and financial support
- motivating communities to contribute in cash or kind for laterine construction
- establishing a monitoring system with one attendant per installation

From the project point of view, in the pilot panchayats the health and sanitation operational strategy has succeeded in achieving its immediate objectives. People from the low and middle class who could not avail of the sanitation subsidy, have constructed laterines at their own expense. A local entrepreneur has begun making ceramic pans according to the accepted two-pit design. These features imply growing sustainability and internal replication within the project.

SECTION - B

7. BACKGROUND TO PROJECTS

In 1980 about 98% of the 1219 rural villages in Kerala were identified as problem villages according to the criteria established by the Technology Mission on Drinking Water. By the end of the decade, almost all these villages had been provided with at least one source of protected water supply by the Kerala Water Authority. Under review are 11 of the largest projects-the Drinking Water and Pilot Sanitation projects in Kerala supported by the Netherlands and Danish Governments. To assist the KWA in interacting with the community to be benefited, three Socio-Economic Units (SEUs) were established at Quilon (SEU S) in the south, Trichur (SEU C) in the center and Calicut (SEU N) in the north, with a coordinating office (CO) at Trivandrum. The 11 rural water supply schemes serve the needs of about 2 million people living in 73 panchayats.

The Dutch support to the WES sector in Kerala dates back to 1979 and comprises eight rural piped water supply schemes at Vakkom-Anjengo, Nattika Firka, Mala, Trikunnappuzha, Cheriyanad, Koipuram, Kundara and Pavaratty covering a total population of approximately 1.6 million people. It also included support for the Socio-Economic Units south (SEU S) and central (SEU C), to enhance the implementation of complementary hygiene education and sanitation activities through community participation.

The Danish support to the sector dates from 1986 where an agreement was signed for a project which comprises three water supply schemes at Edappal, Chekode and Kolacherry with a total design population of 525,000 people. A pilot sanitation programme and support to (SEU N) are also included in the project.

PROJECT OBJECTIVES

The long term objective of the project is to improve the quality of life and health of rural population by providing safe drinking water and sanitation facilities to the people of the selected rural panchayats. The overall objective of the SEUs are to:

- closely follow the implementation of the schemes and be directly involved in working out their detailed design
- ensure community participation with particular consideration of women's involvement in any possible aspect of the implementation, operation and maintenance of the scheme
- develop and implement a programme of health education and sanitation
- develop and maintain a system of monitoring and evaluation of the schemes

8. WATER AND SANITATION SECTOR IN KERALA

Kerala is administratively divided into 14 districts. Further administrative subdivisions of each district are at the tehsil, block, panchayat and finally ward level. In this project, the wards have been considered as the basic administrative unit for representation of local people and for planning physical targets.

With a population of over 29 million people (Provisional Census figures, 1991) Kerala is the second most densely populated state with 747 persons per Sq. Km. Most households are nuclear families. Following the Land Reform Act initiated by the communist State Government in the 1970's, each and every family was given ownership of at least 30 cents of land. Today even the poorest families own at least 5 cents of land (100 cents = 1 acre). The high population density and history of land reform has led to a unique settlement pattern especially along the 400 Km. long coastal belt between Trivandrum and Calicut where there are no open stretches of land between villages and the roads and hinterland are almost uniformly lined by small houses, one next to the other. It is often difficult to tell where the urban area ends and rural area begins. This high housing density has been a factor highly favourable to providing piped water supply with standposts for rural areas.

According to estimates, by the end of the IDWSSD in Dec. 1990, 35% of the rural and 70% of the urban population had access to safe drinking water and 22% of the rural and 50% of the urban population had hygienic sanitation facilities.

Parts of Kerala have the highest density of wells in the world, and it has been estimated that there are 250 wells/sq.Km. in the coastal belt, 150 wells/sq.km. in the midlands and 25 wells/sq.km. in the highlands. While there is no apparent water scarcity, and in fact floods can be a major problem after particularly torrential monsoons, it is equally true that there is a lack of water from January to June when surface water dries and ground water levels fall substantially.

It has been estimated that there are over a million privately owned wells in the State. Well water has been and still is the major source of drinking water. With the exception of a few wards in panchayats where the SEUs have been particularly active, wells are still preferred for drinking water even though the KWA has provided piped water supply with public standposts in these areas. To a great extent this is due to the communities perceptions that well water is sweet and better to drink than the water from standposts which is sometimes muddy, too chlorinated and therefore "not good in taste". Water from the few handpumps is used for drinking only as a last resort as the iron content in the pipes is said to affect the taste considerably.

Public standposts are used optimally during the summer. In some Wards where water points have been constructed under previous projects without any health or information campaigns, standposts are used for all domestic purposes including drinking, bathing and washing. Men and children bathe around standposts in the mornings and evenings. If water is supplied after dark and the locations provide privacy, the women also bathe here. These practices are slowly changing in response to the information campaigns and monitoring committees established by the SEUs.

The problems of sanitation is very acute in the densely populated zones especially for women. According to traditional norms, people defecate along the seashore, on river banks or if space is available, in the open. Unlike other parts of rural India where women usually move in groups, the rural women of Kerala prefer their privacy. Most households have a small room made of woven palm leaves in the corner of their plots which is used by the household during the day. This is not only unhygienic but also a health hazard. The problem of lack of space is particularly acute among the poor fishing communities.

An interesting result from initial surveys was that men did not perceive the lack of sanitation facilities as a problem. For women, when approached in their homes, it was a major problem and high on their list of priorities. Community sanitation facilities were however not at all popular. This may have its roots in the nuclear family structure where each household is a separate unit living in their own space, however small it may be. The SEUs have therefore wisely built the sanitation component of the project around household laterines.

LOCAL FACTORS CONDUCIVE TO PROJECT SUCCESS

There are several factors which characterise the people of Kerala that are conducive to the processes of CP. These are:

- High population and housing density, a history of land reform and nuclear family households have been very favourable for providing piped water supply with standposts for rural areas.
- The extremely high literacy rate even among women has had a very positive impact on the acceptance of health awareness and other information dissemination campaigns and it has been easier to involve women's participation in the project.
- The influence of 'Gulf syndrome' has had a very great impact on quick earned 'status' within the community. In terms of the project the ownership of a private laterine for example has become a status symbol among the poorer families.
- The high degree of political consciousness among people has helped the project in that communities have quickly accepted the idea of forming various types of local committees based on voluntary social work and cooperative action.

LOCAL FACTORS WHICH HAVE HINDERED PROJECT

- The abundance of wells in Kerala and people's perceptions that well water is sweet and hence better to drink have been detrimental to the quick adoption of health messages.
- Waterlogging along some coastal areas have caused problems of drainage at water sources and in construction of the 2 pit laterine design
- The Panchayats falling in these 11 projects were excluded by the district authorities in the distribution of relief packages (water tankers, etc) as part of the drought programme. Since the implementation of these schemes was delayed, many people were denied access to drought relief. This created some negative feeling about the projects.
- In the sanitation component of the programme, the beneficiary households are selected on the basis of their being below the poverty line. Those households that are just as needy but may be above this line, are not eligible for the subsidy. This has led to a situation of having to identify "who is poorer", and caused some discontent among the people.

9. IMPLEMENTING ORGANISATIONS - KWA/SEU

The Kerala Water Authority was established in 1984 as an autonomous body and took over the responsibilities of the Public Health and Engineering Department (PHED). The KWA plans, designs, constructs, operates and maintains all piped water supply in Kerala. Spot sources like borewells with handpumps are normally under the Panchayat. KWA has responsibility for 3-urban water schemes and 1336 rural water schemes. About 300 of the rural water schemes are in various stages of expansion or construction. Of the 1336 schemes, 470 provide less than 50 cu. m/day, 293 between 50 and 100 cu.m/day and 573 between 100 and 2000 cu.m/day

KWA sources of finance include government allocation of funds for water supply, financial institutions like the Life Insurance Corporation, World Bank and the Dutch and Danish Governments, and revenue from water tariffs. KWA prepares annual plans which are reviewed by the State Planning Board and passed on to GOI for final approval. Approximately 45% of the total budget is spent on operation and maintenance of the various water schemes. The World Bank finances urban water supply. The Bilateral Donor agencies contribute about 16% of the total funds of KWA for the construction of the 11 rural water supply schemes. KWA work has been divided into two regions, further subdivided into Circles, Executive divisions and Investigation, Planning and Design (IPD) divisions. At present there are 31 executive divisions, 6 IPDs and 9 circles. KWA employs about 6000 people.

The overall management of KWA is the responsibility of the Managing Director. Two Chief Engineers (based in Trivandrum-north and Calicut -south) are in charge of operation and maintenance. A Chief Engineer based in Cochin is in charge of Investigation, Planning and Design and Research activities. The quality of water is also determined by him. Each Chief Engineer is assisted by two Deputy Chief Engineers and a Superintending Engineer. They in turn are assisted by Assistant Executive Engineers, draftsmen and many other personnel. Administrative functions are looked after by an Administrative Officer with his assistants and clerks. All financial matters are managed by the Finance Manager and Chief Accounts Officer assisted by accounts officers and auditors. KWA employs about 6000 persons.

It may be briefly mentioned here that the need to set up the SEUs and initiate community participation in the project did not emerge from the communities or the water supply implementing agency KWA, but came into being more as a result of preconditions set by the two Donor agencies. Nevertheless, it is equally true that after a period of initial uncertainty regarding the role of these SEUs, they have now been fairly well integrated into the preliminary planning and design activities of KWA in the project area, and in fact there is a steady positive change in the attitudes of engineers regarding the value of involving communities in project planning and implementation.

Each SEU is located in a regional office of KWA. SEU N was established in March 1987 with support from DANIDA, and the coordinating office (CO), SEU C and SEU S in August 1988 with Dutch support. Each unit covers a project area with populations between 400,000 and 450,000.

There are three key staff members in each SEU - the unit head, community organiser and health educator. A project coordinator at the office at Trivandrum provides overall integrated support to the three SEUs. There are in addition, two expatriate advisors (Socio-Economic and Technical) to the projects based at Trivandrum and Calicut. The SEUs establish grass root contact with people primarily through temporary field organisers and local assistants and the local committees. The Ward Water Committees are central to this field contact. The pace of their work is much faster than the KWA. That means that the progress of hardware and software related activities sometimes do not move in parallel. This has caused some problems retaining motivation levels among the community.

In the Plan of Operation (KE 6), the SEUs were to act as facilitators between institutions already centrally or marginally involved in similar or parallel activities, including government, non-government and private organisations. In the course of their work, the SEUs have tapped materials, skills and extension services provided by the District Education Officer, Health Officer, Medical Officer, Women's Welfare Officer, Panchayat Officer and Assistant Development Commissioner through the Primary Health Centers, ICDS, Balwadis, Youth clubs, Nehru Yuvak Kendras, Mahilasamajams, College Cadet groups like the National Service Scheme, and to some extent the District Rural Development and Social Welfare Departments. The NGOs such as Nirmiti Kendras (for low cost construction materials), Kerala Sahitya Shastriya Parishad -KSSP, PASS, KANFED and PAD for information and in health education. (See Appendix 3)

The three SEUs have chosen to focus on slightly different aspects in the Plan of Operation, because of the differences in the stages of KWA activity in construction and commissioning of water. For example, the SEUs in Trichur and Quilon began a year after the SEU N in Calicut. In the projects under the SEU C and SEU S, the majority of public standposts had already been constructed and the focus was on mapping each ward, evaluating the existing water points and distribution lines. In some of the newer schemes such as Pavaratty, the SEUs are involved in design from the very beginning. In the sanitation component, they have introduced slightly different designs, based on cost factors of various local low cost building materials. The involvement of the Panchayats in contributing to the sanitation programme also vary. The detailed status of the different projects vis-a-vis the status of work are given in the Appendix 1.

10. TECHNOLOGY CHOICE AND DESIGN CRITERIA

The essential hardware components of the project are to provide piped water supply with community use standposts and construct low cost household (and some institutional) laterines. All costs for the construction of water supply facilities are met from project funds. The low cost sanitation component is implemented with cost sharing between the SEUs and the community, with the individual beneficiary households contributing 25% of the construction costs in the form of labour, and cash contributions. This aspect of the project is substantially different from the majority of rural water supply and sanitation schemes in India, which concentrate on installing handpumps and very occasionally, community laterines.

Different technologies elicit different motivations in users and have different maintenance implications. The project hardware goals in sanitation are thus more in keeping with peoples aspiration of wanting to own their individual family laterines. This has greatly helped to motivate the community and achieve the software goals of the project. By its nature, however, rural piped water supply has a centralised supply system and apart from minor faults, is difficult to maintain at the local decentralised level without trained mechanics or plumbers.

The technical design criteria of these water schemes are: a capacity of 50-55 lpcd for 90% of the estimated population by the year 2011 and twenty four hour supply; a distribution system of 1 tap per 250 people assuming 40% house connections in 1996, and on an average, 50 meters between the standpost and the distribution main. A further criteria introduced in the Danish schemes (and thereafter in the Dutch schemes) is a maximum distance of 250 meters between taps, which is thought to be the maximum distance people would walk to fetch water from a new source.

The original standpost design of KWA can be improved upon. In the present design women have to bend to hold the tap open, and would push sticks/leaves/wire into the tap to hold it open, thus causing it to leak. Aggravated by poor drainage, in the rainy season stagnant water collects at the base and contaminate the bottom of the pots used for collecting water. The SEUs have designed slightly different standposts to overcome these problems. There are different designs adopted in the schemes, but there still is scope for improvement.

The UNDP/World Bank two pit laterine design has been adopted for the household laterines. The SEUs have done very commendable work in reducing costs of the superstructure to the minimum, by using a combination of low cost construction materials. In places where the density of housing is very high and there is little space to construct the pits, an oval pit divided into two halves has been constructed. The Y junction box leading from the laterines to the pits have also been upgraded and improved in design. These reflect innovations and local creativity in the implementation process.

11. GENDER CONSIDERATIONS

A central feature of the project is placing special emphasis on the role of women. While there is no separate programme for women, they have been major participants in the programme. Active Women's club or Mahilasamajam representatives, have been included in decision making WWCs. As prime users of the water supply services, women have been involved in giving base line information, helping to determine standpost locations and monitoring to ensure the correct use of facilities. This also helps to get public commitment to the care and use of water. As the project helps to construct household laterine, women are the prime beneficiaries since inadequate sanitation affects them most. Health education covers some of the most personal aspects of peoples behaviors and most important aspects of family care. There are separate campaigns mounted for women which are lively and well attended. These meetings are convened by SEU field staff WWC members or by local organisations trained by the SEUs. Some special campaigns on environmental issues were particularly well attended by women who participate enthusiastically.

The role of women in planning starts from project professionals, 4 of the 10 SEU professional staff are women. The field officers and local assistants are also mostly women. This makes it possible to interact with both genders in a meaningful way, teach some women a new skill (masons) and react quickly to issues affecting women for example the need for privacy, timings of water, need to improve design of the standposts and eliminate having to bend while filling water. Women's role in the project extends through the representative WWC members, standpost attendants and health, education extension workers. Women also provide labour inputs during household laterine construction and participate in cleaning of the neighbourhoods.

12. FUND FLOWS - SCHEDULING AND CHANNELS

The Government of India DANIDA agreement for the project period between 25 June and 31 August 1990 was for a grant of DKK 132.5 million of which DKK 78.7 million was disbursed upto Dec 1990. The disbursement projection for 1991 is DKK 21 million. Revised cost estimates have been submitted by KWA and a new plan of operations has been prepared. DANIDA has approved the revised budget. In the Dutch funded schemes the total grant was for Dfl million over a six year period starting in 1986. As in the Danish supported schemes, revised cost estimates have been prepared by KWA and approved for project extension.

Although the SEUs receive direct funding from the Donor agencies, they are also accountable to KWA. A coordinating committee headed by the Managing Director KWA with participation of the Chief and Superintendent Engineer of the 11 schemes, the Donors, the two advisors - technical and socio economic and the executive coordinator of the SEUs meet every three to four months to oversee project development and solve problems related to implementation.

SECTION - C B

13. STAGES IN COMMUNITY PARTICIPATION

Policy guidelines from Donors, planning workshops and an initial period of trial and error, helped to consolidate the approach of the SEUs and attempt more cost effective strategies in providing people with water and sanitation facilities. In operational terms this has been translated into five major sets of activities. These are

- forming local committees and involving them in decision making and interacting with the community
- health education and information campaigns
- selecting standpost sites for 90% coverage
- selecting beneficiaries and constructing household laterines
- monitoring the standposts and reporting faults

Each of these major sets of activities have been described in terms of a process model described in Appendix 10 in which a community moves from passive to active participation in management and control over their resources.

14. MOTIVATING COMMUNITY PARTICIPATION IN PROJECTS

UNDERSTANDING COMMUNITY PERCEPTIONS

Among the first activities undertaken by the SEUs during the initial stage were mini surveys on perceptions of community participation such as the one in three panchayats in the Anjengo-Cheriyamad-Kundera projects. The aim was to find out peoples perceptions on the concept, the strategies to be adopted at different stages, on the socio-economic situation which could promote/hinder the project and finally the ideal organisational pattern to implement the project. The 60 respondents were elected Panchayat members and a few local people. Most of them were vague as to how community participation was to be actualised and assumed that it mostly meant proper dissemination of information. In response to questions relating to peoples contributions, they felt that economic difficulties due to lack of space and irregular income would make it hard for people to contribute cash or materials. In the strategy to be adopted, participation of people through committees was the majority opinion. With regard to O&M and repairs, there were two groups. The first set felt that local people themselves should undertake minor repairs and monitor maintenance. About 70% of them felt that the Government should bear the costs and responsibilities while the other 30% felt that local resources should be mobilised to meet costs. The second set felt that the Panchayat should assume responsibility for O&M and repairs.

These results and similar studies helped to link the hardware component of the rural water supply to include community participation and plan and refine ward level methodologies.

INFORMATION AND HEALTH EDUCATION CAMPAIGNS

The SEU strategy aims at initiating a sequence of hygiene education activities with water, sanitation and health as the key information areas. The policy is to use existing government networks such as the ICDS, Balwadis or voluntary organisations such as the Mahilasamajams or Youth clubs to implement the programmes. Communication materials such as booklets, posters, audio-visuals were/are developed and pooled between the extension workers. The health messages are disseminated through: general education to all on drinking water and sanitation; sanitation related information to beneficiaries of the pilot sanitation programme and; water related education in the areas where water has been commissioned.

In 1988 a Task force group (SEUs & CO) prepared a general health education programme for all three units. Pilot Sanitation areas and Panchayats where water arrived during 1989 and early 1990 were taken for a intensive hygiene education programme. By mid-1991 the SEUs were actively collaborating with ICDS in 12 panchayats, with primary health centers in 6 panchayats, womens groups in 4 panchayats and literacy groups in 2 panchyats. There are 33 schools with health clubs in 15 panchayats and health education activities in another 40 schools. There have been 102 different exhibitions, camps and training programmes in 30 panchayats. Most of the intensive campaigns have been concentrated in Mala and Feroke panchayats. For mass contact, the SEUs along with All India Radio, KWA and others, produced "Jeevadhara" a radio broadcast with 32 weekly lessons on water sanitation and health and hygiene.

15. MOBILISATION - EMPOWERING THE COMMUNITY TO PARTICIPATE

LINK MECHANISMS & LOCAL COMMITTEES

The project deals with sophisticated and centralised water supply systems, a highly professional and complicated bureaucratic organisation, a high level of recurrent costs and a mandate for responsible community participation. The strategies for users involvement thus have to work within the framework of a complex environment.

The key actors in policy level decision making are the Dutch and Danish Donor agencies, KWA, SEUs, and various government departments. The institutional links at the implementing stage start from the apex District Coordinating Committee (DCC) consisting of KWA engineers, SEU staff and senior district level heads in the health, education, planning, welfare, information, panchayat, etc government departments. They review, coordinate and expedite activities involving government extension services. Below them are the Panchayat Water Committees (PWC) linking the DCC with the Ward Water Committees (WWC) and extension services. (See Appendix 4 for network of linkages and the composition and responsibilities of the committees).

The 7 member WWCs are the most important local management committee established by the project. They serve as the nodal link between people and Panchayat/KWA/SEU and a route for disseminating information on the project and for the community to express needs and problems. This helps to design a better system of distribution of water schemes and more efficient reporting and caretaking. The WWCs thus represent the channels through which the community are motivated, mobilised and activated to contribute and manage facilities. They are however, time consuming to form, include conflicting personalities, tend to get politicised and depend on the goodwill of members.

The Panchayat Committee try and select Ward members who reside in the ward, are to benefit from the water supply scheme and are literate and respected in the community. The WWCs are made up of members who are a panchayat ward member, two woman from the Mahilasamajam; an active social worker preferably a school teacher, two youth club members a government extension worker from ICDS/nurse and a member from the SEU. As a first step the members are sent a letter informing them that they have been officially selected by the Panchayat and approved by the KWA as a WWC member. The letter is signed by the Executive Engineer of the project, thus giving it formal recognition. A two day training programme is then held in which the members are given orientation classes, shown films/slide shows and supplied with manuals, and kits. The WWC is a planning as well as an executive committee. It is an unpaid position, with responsibilities (with SEUs/KWA) for:

- mapping of wards and identifying areas where the poorer are deprived of clean water and

- design of the distribution system by selecting standpost sites,
- on commissioning of water, monitoring their use, reporting faults to the KWA/Panchayat;
- helping health workers/SEU to organise health education classes, exhibitions, and information campaigns;
- selecting beneficiaries for the latrine subsidy programme, collecting money, managing construction and monitoring use.

Two women and one man from the WWC are given training in health education and organisational abilities to form the health sub committee. The WWC also appoints a volunteer as standpost assistant (SPA), to monitor the use of each water point, keep the surroundings clean and report faults. A ward has a population of about 2000 and there are now more than 160 trained and active committees. The most active have the most committed women, reflecting the high priority water has for women.

MAPPING OF WARDS FOR SITE SLECTION

Before the SEUs were formed, the KWA would send a letter to the Panchayat denoting the number of taps allotted in their area. The Panchayat president and members would indicate locations and the KWA would construct the standposts with the help of contractors. Many of these standposts were installed in areas more accessible to the richer among the community and located on the basis of power hierarchies, rather than real need. This easy access to public water sources also became a disincentive to installing private water connections.

When the SEUs began work, one of the first tasks was to meet with officials in KWA, and discuss the design of the existing water distribution system. In some wards, KWA had already constructed or begun construction of distribution lines and standposts and in others the work was still at the planning stage. The SEU work of mapping was thus a combination of verifying if the existing standposts were located in deserving sites, and if not marking them for removal; indicating sites for additional standposts. In some wards, the mapping preceded or proceeded along with KWA technical planning.

The SEUs began with surveys of the project area and drawing detailed ward level maps indicating the location of houses and water points. These maps at the 1:4000 scale are used by the site selection team. Data on socio-economic and water related conditions was also collected and substantiated with information from other sources in concerned government departments. The minimum design criteria for site selection are that there should be: 15 to 40 households per tap (except under unusual conditions) and not more than 200-250 meters between the taps and needy houses. The distribution network should supply 90% of the people.

Local Panchayat Committees were formed and through them people were informed about the project. The WWCs were also formed at this stage of the project and entrusted with the responsibility of identifying and verifying needy areas in the ward.

Each of these needy areas was visited, and local residents especially women, encouraged to voice their opinion. When consensus for a site has been made, it is marked by a numbered peg and details of the area are filled in a site selection form. If private land is involved, forms surrendering the area to KWA are filled by the owners and handed over to Panchayat officials for necessary action.

When these formalities are completed, the Community Organiser of the SEU and the Executive Engineer of KWA jointly inspect the site to determine its technical, financial and socio-economic suitability. The site is approved, or if unsuitable, an alternate site is selected and approved. The SEUs try to target the site selection activities about 8 weeks before the commissioning of water.

The SEU N has estimated that it takes 9 people 3 manmonths and Rs. 21,000 to complete the mapping exercise in each ward. The KWA would need another Rs. 15,000 and 2.5 months to use the SEU maps in their IP&D Division. Thus 5 months and Rs. 36,000 per ward are required to mobilise community inputs.

TRAINING AND EMPOWERMENT

Short training programmes are an important focus of SEU activity. The SEU staff themselves have been in various training workshops, notably for motivating and mobilising community input. They provide orientation and training to government extension workers, Panchayat Committees, Ward Water Committees and Standpost Attendants (SPAs).

The SEUs have also organised innovative technical training programmes. In Mala, a pilot panchayat under SEU C where household laterines were to be constructed, the SEUs initiated a Women Masons programme in which 15 women were trained in methods of constructing the laterines. The long term intention is to develop them as a self employed Womens cooperative with funding from elsewhere.

The SPAs, most of whom are women, are nominated by the WWC, one for each tap. They monitor the use of the standpost and report faults. As an experiment in Trikunnappuzha panchayat under SEU S, some SPAs have been selected for training in standpost maintenance, so that they can fix faults above ground level. A toolkit has also been supplied to them by KWA/SEU.

16. ACTIVE COMMUNITY CONTRIBUTION

This part of community participation is marked by milestones - when something a community is mobilised towards achieving, actually happens and impacts are felt at the decentralised household level. In the context of the Kerala projects, these include all the decision making activities that lead to the commissioning of water supply in community standposts, the actual chlorination of wells, and laterine construction.

DECISION MAKING

The prime decision making power for water supply coverage, technical feasibility of sites and quantity and regularity of water supply rests with KWA. The SEU input is in indicating additional areas where taps are required. The local Ward water committees have been entrusted with real decision making power in selecting standpost sites. Public scrutiny of the finalised lists of beneficiaries is an important indicator of widespread dissemination of results.

Local decision making structures are much clearer in the sanitation component of the projects. Various approaches tried out during the pilot phase have been collated in a draft sanitation strategy, in which the Panchayats and the WWCs assume the prime role for managing the programme.

WATER SUPPLY & LATERINE CONSTRUCTION

Once the water supply distribution design has been finalised with the WWCs, the KWA has responsibility for constructing water supply facilities without any active community contribution except in the form of some casual day labour.

The WWCs in collaboration with health extension workers however are active in improving the quality of traditional sources - through the chlorination of wells in the pilot wards. Various extension workers, SEU staff, school health clubs, panchayat members and others collect on a prespecified day and begin chlorinating all the wells in the ward. These include both community and private wells. Practical demonstrations and hands on experience is accompanied by health education and acts as incentive for water users to continue with monitoring the quality of their wells. The non availability of chlorine in easily accessible places has proved some hinderances to the programme.

When the pilot wards in panchayats have been selected, locally available masons are selected and trained for laterine construction. Three months before the construction activities, the WWCs begin identifying beneficiary households with the help of the Panchayat members. Once they have been selected, the WWCs begin collecting their 25% cash contributions. Once this is done, the Panchayat with the WWCs organise and manage procurement of building materials, storage, monitoring and supervision of construction activities. The day to day management is done by

local, ward beneficiary committees. During the construction, masons have been entrusted with providing information of the junction box and in maintaining the laterine in a hygienic manner. An independent evaluation has shown that 95% of the households and 100% of the institutions are using the laterines and keeping them clean. Similarly the incidence of diarrhoeal diseases seem to have reduced in these areas.

The SEUs have done admirable work in experimenting with various low cost construction materials and making innovative modification in design. The type of materials used range from laterite blocks, baked bricks and prefabricated concrete slabs to Mangalore roofing tiles, asbestos sheeting, tin sheeting and wood for roofs and doors.

In the pilot programme about 5000 household and 45 demonstration and institutional laterines have been constructed. The cost of a laterine varies between Rs. 1500 to Rs. 2000.

17. COMMUNITY MANAGEMENT

LOCAL COMMITTEES

The WWCs are the most important community based management system institutionalised by the project. With the Panchayat water committee, they provide a community voice to higher levels in the decision making hierarchy. Their members are by and large motivated and believe in project goals. Their participation in management strategies is however limited to those wards in pilot panchayats where water has been commissioned and laterines have been constructed. The results from these wards are encouraging. Systems have been established for local monitoring and reporting faults for repair. It is still too early in the project to evaluate the efficiency of this management strategy.

MONITORING USE

The SPAs are women living near "their" taps, who undertake responsibility for upkeep and cleanliness. They are part of a three member Standpost Committee, whose responsibilities are to ensure that water is not wasted, drainage is kept clean and that the taps are not vandalised, people do not bathe or wash clothes at the tap, etc. Most of the SPAs are young women and how effective they are at getting people to listen to them, remains to be seen, though there does seem to be a progressive acceptance of SPAs by beneficiaries. A novel programme initiated by the SPAs/WWCs is the self-help cleaning-cum-education session. The session is held near the standpost, all the beneficiaries are invited to come, and the educational talk is followed immediately by cleaning activities by all participants. The SPAs are responsible for organising these cleanups regularly.

SHARING COSTS - WATER TARIFFS

The KWA bears the cost of all rural piped water supply schemes. There are three ways in which revenue is collected by KWA: from urban municipalities who in turn charge for private connections, directly from private users for house connections, and from panchayats for public supply. The inconsistencies between O&M costs in urban and rural areas, and methods of charging and collecting water taxes act as constraints to extending water supply to new areas without service or to public standposts from which poorer people can get water free. In these 11 projects so far KWA bears the entire cost of O&M with no regular methods of collecting water taxes. KWA is in the process of revising its water cess policy. According to a recent order relating to the liability of panchayats for maintenance of rural water supply schemes, the recommendations are:

- 50% of the dues incurred before end 1984 can be written off, and the remaining 50% shared between the GOK/Panchayat on a 50-50 basis
- only those claims with split up details need be honoured
- KWA should collect water charges from private users directly
- water charges for each street tap may be paid at the rate of Rs. 275/tap. This rate may be enhanced by KWA.

MAINTENANCE AND CONTROL

From the users point of view, the most important part of the project starts after the water standpost has been constructed and water is flowing from taps, and that is to have regular supply of adequate quantities of water. This can only be achieved with regular operations and maintenance. There are three types of maintenance procedures. The first is routine maintenance for general checkup, cleaning and minor repairs. The second involves breakdowns in the plant or machinery or distribution system. The third is preventive in nature and brings down operation costs and increases the life of the system.

In the project, the community has been involved in the maintenance of the piped water supply only to the extent of reporting faults and undertaking minor repairs. Perhaps the nature of centralised piped water systems is such, that community involvement has to be partial. The assets created in the water supply programme are owned by KWA. The possibility of Panchayat ownership can be explored.

TECHNICAL SUPPORT AND SPARE PARTS

The KWA provide technical support mainly at the Assistant Engineer level for all technical training of WWC and SPA members. Since the KWA undertake all repairs involving replacements, the procurement of spare parts is centralised with them.

18. PROJECT IMPACT

From the SEU point of view, the project can be said to be a success if the standposts are properly used, are closer to houses and thus have better access, are in working order with adequate flow, and if the community voluntarily chlorinate their private wells to protect water quality. The indicators of success in the sanitation programme are if laterines are properly used, kept clean and maintained.

Changes in peoples attitudes and practices in drinking water supply have not been that dramatic. In many Wards, people still use polluted well water for drinking, and wash and bathe around the standposts. The top community priority is convenience. The impact of the sanitation programme has been quite positive. The laterines are kept very clean and afford privacy especially for women. The construction of a laterine also has other benefits. Owning a laterine also increases the value of the land and is perceived to be a means of improving social status. This has led to some of the better off constructing a laterine on their own.

The WWCs have been very active in Wards where there have not been long gaps in project hardware activities. They have the potential of remaining highly motivated teams capable of taking initiatives. In one or two pilot wards, the WWC have devised their own division of responsibility and initiated neighbourhood cleanup days. This group can act as a catalyst for developing other sectors as well.

The unit cost of piped water schemes is much higher than other technology options like handpumps. However, it is the most appropriate long term choice in the densely populated Kerala.

19. SOME ISSUES FOR CONSIDERATION

The issues identified below are indicative. They are based on local field observations, meetings with SEU staff some representative groups of Panchayat and Ward Committees, KWA officials and background documentation made available.

- The stipulations (90% coverage) of the Donor agencies have sometimes inhibited the flexibility required in project design.
- Many components of the project design were planned for before the SEUs began work. The delay in commissioning water and the interim escalation of costs have greatly affected the budget estimates and caused delays in work.
- The pace of work between the KWA and SEUs vary and this has in some cases caused undue expectations from the community. The nature of activities undertaken by the SEUs (formation of WWCs, mapping) has necessarily to be done before. However it may be many years before water actually comes in the designed standposts.

References ?

- check!*
- Under these conditions, main transmission lines could be designed to cater to future needs while distribution lines are planned for present requirements.
 - Some of the distribution pipes go through private lands and KWA rightly requires owners to give consent before construction. The procedures need to be regularised.
 - The question of water tariffs have not been adequately addressed and require policy level interventions. Some studies suggest that people are willing to pay for private water connections and Panchayats for public water use. There is however a great deal of ambiguity regarding the question of procedure.
 - In spite of fairly well organised awareness campaigns, people continue to drink water from contaminated open wells. It may be time to think of additional options of providing clean water by addressing the question of water storage at the household level.
 - Some thought must be given to formalising the local institutions created, if they are to be sustainable. Their role as nodal points in other development sectors need to be encouraged.
 - *check* → The SEUs must think of ways of ensuring that the potential of trained masons/plumbers do not go waste.
 - Donor agency funding is limited to the WES sector. This excludes the possibility of SEUs addressing peoples priorities in an integrated manner - especially the need for income.
 - Donor agencies such as the World Bank, DANIDA, the Dutch, UNICEF, etc. work in the same State, but have different guidelines within the same/ related sectors. This can cause some problems during implementation, as people are generally aware of other projects nearby. *Da & D. met.*
 - *check* → The technical design for the standposts could be improved. Certainly some attention needs to be given to improve the quality of the taps used.
 - Contamination of well water needs to be addressed more rigourously, ideally along with the chlorination campaigns conducted by the SEUs.