

**IMPROVING HYGIENE BEHAVIOUR THROUGH
PARTICIPATORY HEALTH ENGINEERING
AND PROGRAMMES FOR BEHAVIOURAL CHANGE**

POSITION PAPER

Ministry of Foreign Affairs
Directorate General International Cooperation
South Asia Country Section
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*Improving Hygiene Behaviour Through
Participatory Health Engineering
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Position Paper

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Foreword

The improvement of health and living conditions in rural areas is a development objective which the Governments of India and The Netherlands have in common. Both Governments have as prime condition that this development reaches the rural poor. Enhancing the participation of women in decision making and preventing negative impacts from development on the environment, causing among other things the drying up and pollution of drinking water sources, are other shared interests.

Public health is closely related to a good water supply, sanitation and hygiene. According to the WHO, 80 percent of diseases in tropical countries are related to deficiencies in these three areas. Hence, drinking water supply and sanitation projects are an important strategy to improve rural health. In the problem areas where Netherlands' assisted projects are carried out, a better water supply is also a felt need with a high priority, especially among women.

Installing better technology is not enough, however. To improve health, the systems should function throughout the year and be used by at least 75 percent of the households. Moreover, other risky hygiene practices and environmental conditions that allow disease to spread will have to be addressed as well.

In environmental health engineering projects the use and functioning of water and sanitation systems and the avoidance of environmental degradation thus become key objectives for technical staff. Fulfilling these objectives requires community participation and a gender approach, for example in locating and managing waterpoints and in financing and managing local maintenance and basic repairs.

In addition, participatory technology projects need to result in behavioural changes in water use and hygiene in homes, schools and neighbourhoods. Programmes to improve village hygiene behaviour have therefore been added to all recent NA water and sanitation projects. These programmes have so far been carried out as separate projects by specially contracted agencies and fieldworkers, with no opportunity for identifying what they have in common and for mutual learning from each other's experiences and results. Now that the programmes have run for some years, the necessity is felt to take stock of what has been done and achieved and to work on strengthening the effectiveness and integration of the programmes into Indian structures.

The purpose of this position paper is to contribute to the formulation of an effective strategy to promote hygiene, and so health, in all NA-project villages and to identify where and how the various implementation programmes can be enhanced. It has been prepared by IRC International Water and Sanitation Centre on the request of DGIS. It is the fourth paper in a series to develop communal policies and strategies on key issues in NA-rural water supply and sanitation projects.

P. Schönherr
Head, South Asian Countries Section
Directorate General for International
Cooperation

1. Introduction

1.1 Relevance and definition of hygiene promotion

Since 1978 the Dutch Government provides financial support to the rural water supply programme of the Government of India. The total annual value of its contribution is some Dfl. 20 million (Rs. 35 crore). In line with the sector policies of the Government of India and the Netherlands, the goals are to improve the living conditions and health of the rural populations, in particular the rural poor.

To achieve better health, the construction of improved water supply and sanitation systems alone is not enough. Health benefits only occur when improved water and sanitation systems function, are maintained and used and risky hygiene practices are changed (Box 1).

Box 1: Conditions for public health impact from water and sanitation projects

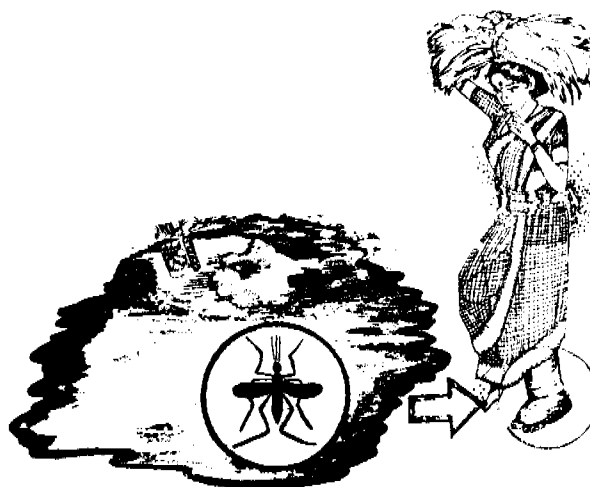
- All families have access to water points that are safe
- No unsafe water points are used for drinking
- Safe water points work throughout the year
- The water sources are not contaminated by human or chemical waste
- Waste water can properly drain and draw drinking water
- All excreta, also of infants, are disposed in a safe manner
- Where latrines are present, all (women, men, children) use them and they are kept clean
- Hands are washed with ash/soap and water after defecation and before touching food
- Water use for domestic and personal hygiene increases
- In areas with schistosomiasis, body contacts with infested water is avoided

Source: "Evidence of links between behaviour and health", in Boot M.T. and Cairncross, S. eds. 1993

For an impact on health, technical water supply and sanitation facilities need to be designed and implemented in such a way that the majority of households use them. Health benefits will only occur when:

- o at least 75% of the local households use either improved facilities or other safe sources of water in a hygienic manner and adopt safe practices of waste disposal (Esrey, 1994);
- o the improved systems function adequately and users do not have to fall back on earlier risky behaviour patterns;
- o design and location of facilities do not introduce new health risks, such as stagnant water at taps (Figure 1) or contamination of groundwater by latrines;
- o hygienic operation and cleaning are easy and poor use of facilities does not introduce new hazards to public health.

Figure 1: Poor drainage causing new health risks, e.g. for filariasis.



A proper methodology and good quality work in environmental health engineering are prime conditions for an impact on people's health. To achieve that the facilities function more reliably, the more recent Netherlands-assisted (NA) water supply projects strengthen operation and maintenance and support community management and financing of operation and maintenance of water supplies at the local level¹.

For more general use, the NA projects have introduced procedures for community participation in local planning and design. Specific steps are taken to ensure that women take part in decisions on designs and locations of user facilities.

Prevention of the creation of new health hazards is also important. In India, improved water supplies without adequate drainage drastically increased the number of people at risk from filariasis and malaria (Rajapalan, 1988, Lindeyer, 1985). This has occurred especially in dry areas, where the introduction of piped water supply without proper disposal of waste water created new breeding places for mosquitoes.

Applying the fundamental principles of good health engineering is thus an essential aspect in the promotion of good hygiene. Promotion of good user practices is not possible when the new facilities are not adapted to the users' needs and do not perform well. Hygiene promotion furthermore has to change the hygiene practices of not only women, but also of children and men and the results of the programmes should be measurable in objective terms.

A definition of hygiene promotion in this wider context reads as follows:

Hygiene promotion is the promotion of objectively measurable reductions of risky hygiene practices and conditions by men, women and children, through participatory health engineering and programmes for behavioural change.

¹ Pilot projects on community management in water supply have started in Gujarat, Kerala and Uttar Pradesh and are planned in Andhra Pradesh and Karnataka.

Promotion of better hygiene practices in connection with water supply and sanitation is often considered to be the task of hygiene educators and community mobilizers only. From the above definition it follows that also technical staff have responsibilities for and roles in promoting better hygiene conditions and practices. Together with other staff and villagers they will have to achieve that waterpoints, latrines and other facilities for hygiene function properly, are used throughout the year by at least 75 percent of the households and do not create new environmental health risks in the villages.

1.2 Purpose, organization and methodology of the paper

Although hygiene promotion is part of all NA- rural water and sanitation projects, each agency initially worked in isolation. Now there is a growing realization that, while acknowledging institutional autonomy and regional differences, NA-water and sanitation projects have certain common goals for hygiene and health. Programme staff from the different states increasingly visit each other and exchange information on their ways of working and results. Nevertheless, there is not yet a clear agreement on what common hygiene objectives all projects aim for and what are the essential elements in achieving these objectives. The present paper is intended as one of the tools for agreeing on the common objectives and key elements of hygiene promotion programmes in the NA- water and sanitation projects.

The paper is built up as follows. Chapter 2 describes the terms used in the NA-programmes with regard to the promotion of hygiene and summarizes national policies on promoting hygiene behaviour. The chapter then gives an overview of scope, objectives, implementors, activities, methods, means and results of NA-hygiene promotion. In Chapter 3, trends in hygiene promotion are described and conclusions presented on the position of hygiene promotion, its institutional set-up and staffing, the degree of community involvement and the gender approach. Chapter 4 indicates areas for further developments and makes recommendations for programme strategy in the light of global developments in hygiene promotion.

The paper is based on information from project documents, suggestions to the paper's initial outline by the Dutch Review or Review and Support Missions, the RNE and DGIS/DAL/ZZ and comments received to its first draft from the project support offices, implementing agencies and RNE in India. In India, hygiene promotion has further been discussed during the NAP India Conference in Bangalore from 26 to 28 May, 1994. After detailed internal review this final paper has been prepared.

2. *Hygiene Promotion in the NA-Programme*

2.1 From 'health education' to 'hygiene promotion'

The promotion of better environmental health conditions and practices in the NA programme is pursued through new water supply and sanitation facilities, through gender-specific community participation in the local planning, design and management of these facilities and through health or hygiene education. Preference is given to abolish the term of health or hygiene education and adopt the term of "hygiene promotion" for all activities aiming at good hygiene conditions and practices related to water supply and sanitation. There are two reasons for preferring hygiene promotion:

1. The term health/hygiene *education* is commonly associated with giving health information and enhancing health knowledge. However, the ultimate aim of the NA-programme is *not* information and knowledge, but realizing measurably improved hygiene conditions and practices.
2. Technical staff do not have hygiene/health *education* tasks. However, promoting hygienic use and habits through participatory health engineering is a part of all public health engineering projects.

A definition of the term hygiene promotion, based on the recent shift from measuring health impacts to measuring improved conditions and behaviours, has already been given in section 1.1.

In the section on policy (2.2) and when describing hygiene promotion implementation (chapter 3), the terms of hygiene or health education have been maintained, if appearing as such in the various documents. In Chapter 4, Trends and Conclusions, it is then indicated to what extent the hygiene activities in NAP are in line with this concept of hygiene promotion.

2.2 Policies on hygiene promotion

Government of India

The Indian Government has a long-standing policy to provide safe water supply and sanitation technologies to the urban and rural populations. Promotion of better water use, sanitation and hygiene through community participation and health education is part of policy documents at national level since 1986.

The 1986 "Guidelines for Implementation of Accelerated Rural Water Supply Programmes" of the Department of Rural Development place the responsibility for community participation and women's involvement on the implementing agencies. These may be the Public Health Engineering Departments, Water Supply Boards, or Panchayati Raj institutions (sections 16, 25 and 10.1 and 10.2). The guidelines further state that "Health education is essential to make the people aware of the need for having proper hygienic and sanitary facilities around the drinking water sources and its relevance for general betterment of the health of the community. This will also help in ensuring proper storage

and use of the water sources and their proper maintenance. The health education workers should be involved for promoting health education and mass communication" (sections 26.1-26.2).

The Indian VIIIth Five Year Plan (1992-97) emphasizes the need to decentralize rural water supply projects to district level and to involve local people and panchayats in all stages of a project. Panchayats and village water committees will get a greater role in maintenance and management of water systems. The task of the district machinery is.. "to provide the necessary technical support to the local bodies for creation and maintenance of installations" (p. 381). In other words, the systems are expected to be better maintained and lead to better use and hygiene when communities are capacitated to plan and manage their own services. The Plan does not mention hygiene education explicitly, but aims at ... "the protection of the environment and safeguarding of health through the integrated management of water resources and liquid and solid wastes" (p. 379).

For hygiene the concept of "total sanitation" is introduced, whereby water availability and provision of sanitation facilities are linked with primary health care, literacy, immunization and women's welfare programmes, with cleanliness as basic human need as their common element (p. 379, 381 and 377). The provision of rural sanitation will be carried out by non-governmental organizations wherever this is feasible. Information, education and communication should be an integral part of all sanitation programmes (p. 379). How "total sanitation" is to be implemented and how the roles of the various programmes are to be adjusted and linked is not mentioned.

In its publication "An introduction to rural water supply and sanitation programmes", the Rajiv Gandhi National Drinking Water Mission emphasizes integration of technical, social and hygiene activities, the participation of NGOs, a gender strategy in planning and technology and more attention to the environmental aspects of engineering.

The Mission stresses that hygiene education needs to be integrated with other project activities, to stimulate the community to participate in the planning, design and maintenance of water supply and sanitation facilities. Participation in decision making is essential, because only the people themselves can decide on convenient solutions and easily accessible sites for the new facilities. Accessibility and convenience of water and sanitation facilities are key factors in the adoption of better water use, sanitation and hygiene practises. Integrating hygiene education activities is further expected to facilitate communication and cooperation between all parties - project staff, members of the community, hygiene promoter and local authorities - to find the most appropriate designs.

The RGNDW Mission emphasizes the importance of NGOs. They can:

- o act as intermediaries in linking rural water supply and sanitation programmes to other development programmes;
- o give health education to improve community health through safer water use and good hygiene practices;
- o help to carry out training programmes.

The RGNDW Mission acknowledges that in practice it will not always be possible to synchronise hygiene education activities with other project activities. However, the mission states that ideally, hygiene education precedes a technical project and continues during its implementation and afterwards. A gender approach in water supply and sanitation programmes is considered essential and can be facilitated by:

- o a better understanding of women's perceptions and needs through participatory studies;
- o developing technologies oriented towards women and emphasizing that technology is not necessarily male-oriented.

The Mission states further that engineers have a role in environmental hygiene by including drainage in water supply systems. Handpumps should have a slab and drain, ending in either a soakpit, a natural drain or a vegetable garden. Awareness raising at the community level should focus not only on personal hygiene, but also on hygiene of the handpump platform and the safe disposal of waste water from handpumps and taps.

Government of the Netherlands

The policy of the Government of the Netherlands changed from support to implementation of technical construction projects to support for more integrated sector projects. Project objectives now include the improvement of hygiene and the enhancement of the efficiency of implementing organizations. Strengthening of institutional development and supporting training activities have become more important. Sanitation receives attention and emphasis is put on changing of hygiene behaviour. Points of special attention in the policy are monitoring of integrated implementation of projects and measuring and increasing the effectiveness of health education programmes (DGIS, 1992).

In view of the impact and sustainability of educational activities, linkages and cooperation with other governmental services and programmes, such as for Primary Health Care, Mother and Child Care and Family Planning, are to be looked into (DGIS, 1992). Frameworks for Collaboration have been or are being prepared with the state governments in states where NA-rural water and sanitation projects are carried out. Organisation, planning and implementation of hygiene education programmes are included in these frameworks.

2.3 Coverage, objectives and implementing organisations

Dutch support for rural water supply is provided since 1978. From approximately 1987 onwards, activities have been broadened. Projects now also focus on sanitation and non-technical interventions for the improvement of hygiene practices and on gender-specific community involvement in planning and operation and maintenance.

Coverage

The NA-programme is carried out in some 7000 villages in five states. The location of the states is given in Figure 2. Hygiene promotion activities in the broad sense of the word (participatory health engineering with supplementary programmes for behavioural change) have grown in scope. They are now carried out in one-third of the project villages in Andhra Pradesh, two-third of the villages in Uttar Pradesh and Gujarat and all project villages in Karnataka and Kerala.

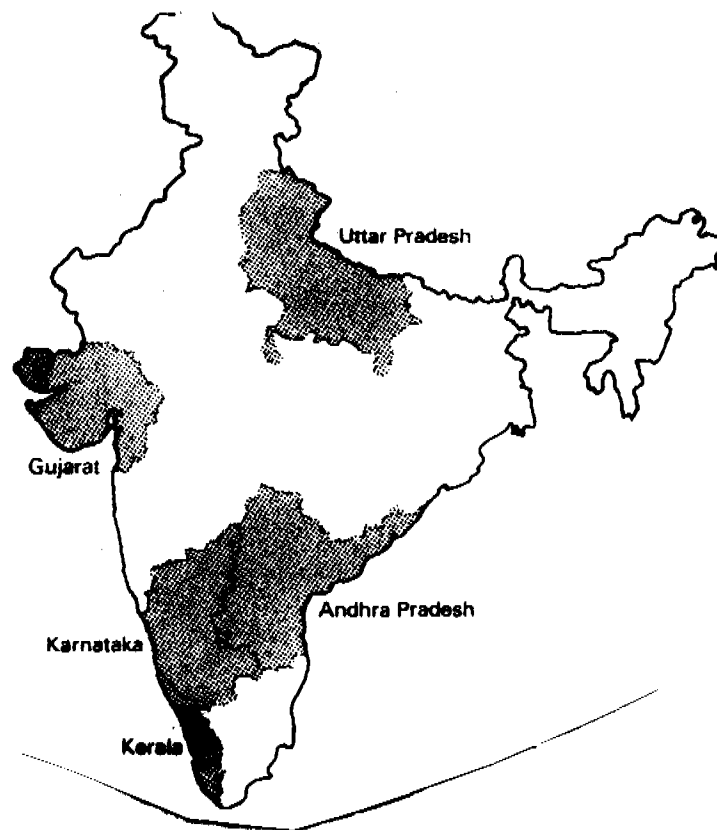


Figure 2: States involved in the Netherlands Assisted Programme
(Source: RNE, 1990)

Objectives

The objectives for hygiene improvements vary from project to project. In some projects they are limited to enlarging women's health knowledge or to addressing the most urgent hygiene problems in public places. Other programmes aim at reducing risky conditions and practices in public places as well as households. The number of intended changes may range from a few key risks to almost all public, domestic and personal conditions and practices.

In the Santalpur project in Gujarat (GU-I), the objective is "to enhance the knowledge of especially the women on the relationships between water, sanitation and health and the awareness of particular risky habits".

Objectives in Lathi-Lilya (part of GU-II) are: "to create health understanding, reinforce positive and change negative practices, adopt water purification techniques, adopt productive use of waste water, adopt water conservation techniques, achieve that scheme water is used only for drinking, and not for washing, bathing and irrigation, make people aware of the roles of the water agency and water committees, make people aware of their rights and duties vis-a-vis agency and committee, increase people's understanding of sanitation and willingness to adopt sanitary technologies, and develop effective and innovative training programmes on the above". In Sami-Harij (other part of GU II) no specific objectives for hygiene seem to have been formulated so far.

In Karnataka, a participatory process of village mapping has been used to identify those community and household risks which the villagers themselves want to change, and make these the objectives for village and household action. Hygiene objectives thus vary from village to village, although there are common elements.

In Andhra Pradesh, the initial objective was to reduce felt problems in public hygiene, such as poor drainage at taps. Currently several NGOs are involved, each of which sets their own hygiene objectives. In AP-III, hygiene objectives will be set by the villagers themselves, using a similar process as in Karnataka.

In Kerala, hygiene objectives are to achieve hygienic use and upkeep of installed latrines and good drainage at public taps. The programme also promotes other hygiene practices, such as the regular chlorination of private wells that remain in use for drinking water, the use of drying frames to avoid that kitchen utensils are left to dry on the ground after dish washing and the improvement of school sanitation and hygiene.

In Uttar Pradesh the aim is to change particular risky conditions in households and at waterpoints through hygiene education and community participation. Specific objectives are: proper functioning of water systems, including regularity of supply and absence of leakage and drainage problems, installation and good performance of household soakpits, installation and proper use and upkeep of bathing platforms and the construction, use and upkeep of household latrines.

Implementing organizations

The realization of improved conditions and practices for environmental health is the joint tasks of technical, social and health agencies and specialists which implement the NA rural water and sanitation projects. The following sections give a summary of the organizational arrangements.

State level

At state level, the implementing agencies are assisted by special advisory units. The units have been set up with temporary Dutch financing in order to operationalize the participatory and integrated approach in the NA-programme. All units are predominantly or exclusively staffed by Indian staff and include staff with expertise in hygiene promotion and community work.

The original thought was that after having demonstrated the effectiveness of the integrated approach to rural water supply, the units will become integrated into the states' water supply and sanitation agencies.

The present development is that two units have developed, or are developing into non-governmental organizations. Both have started to provide services on demand and contract to other implementation programmes than the NAP. In Uttar Pradesh, the Project Support Unit has become the independent PSU Foundation. Besides contracts to provide support services on the social aspects to the NA-projects, the foundation has been involved in the social component of the sodic land reclamation project funded by the European Commission and will support the social activities of a World Bank assisted rural water and sanitation project in UP.

In Kerala, the Socio-Economic Units (North, Central, South and Coordinating Office) developed a participatory approach for water supply, sanitation and hygiene in projects supported with funds from the Dutch and Danish governments. Several other organizations have since asked the SEUs to transfer the sanitation approach to these organizations' own programmes. They include several Keralese Departments, the Government of Kerala ("Operation Clean Kerala"), international agencies, NGOs and individual Panchayats. Procedures for the establishment of the SEUs as a registered NGO are in a final stage. Water-related social activities are not yet replicated outside schemes with Dutch and Danish funding.

In Gujarat and Karnataka developments are more towards integrating social and health/hygiene expertise into government structures for the water sector. In Gujarat, the State Government has established a Socio-Economic Unit in the Gujarat Water Supply and Sewerage Board. The unit is co-financed by the Dutch Government from its Technical Assistance Funds for a period of three years, after which the GWSSB will take over in full.

In Karnataka, there is a Project Support Unit at state level. The unit is financed with TA funds monitors and guides implementation and assists two district project units in peak times. The NA-projects are in two districts and are implemented directly by the Zilla Parishads (districts) through special district project units. The units are staffed by the Karnataka government through deputation or task allotment. Each unit has a technical wing with government engineers and a social wing with two government development officers and a hygiene education officer. The social wing is assisted by temporary Training, Promotion and Monitoring Officers paid from Dutch Technical Assistance funds.

In Andhra Pradesh, assistance to the integrated approach is given by the Netherlands' Assisted Project Office at state level. The office consists of technical and social specialists financed with TA funds from the Dutch Government. Development into an NGO or integration into the government structure are not yet taking place.

Field level

The work in the field is organized in different ways. In Andhra Pradesh and Gujarat, hygiene education and community participation are carried out by NGOs with fieldstaff financed from TA funds. However, cooperation with government staff and capacity building of village organizations are to increase.

In GU-I the NGO for hygiene education has started to train village Government staff, such as linesmen of the water scheme, nursery school teachers, village health workers and members of the water committees for hygiene promotion. In AP-III cooperation with nursery school teachers for promotion of hygiene is planned. In exchange the NAP will provide funds to improve the nursery schools and include better sanitary facilities. In GU-III a general plan for cooperation with existing government programmes for integrated child development and primary health care is waiting to be worked out.

In Kerala, the Dutch-financed SEU fieldstaff implements the programme together with the panchayats (village councils). In addition, the SEUs involve, train and guide local government workers and members of ward water committees in hygiene promotion. Arrangements for hygiene promotion by local health staff are made on a person-to-person

basis with whatever staff is willing to assist. The plan of implementation 1995-96 foresees the withdrawal of direct SEU presence from the community level, as local organizations (ward water committee, core group, standpost attendants) are taking over the responsibilities for community participation and hygiene promotion. SEU's role will be limited to training and monitoring of these groups. Villagers and government workers are not paid by the NA-programme, but receive training, materials and support.

In Uttar Pradesh, implementation of hygiene activities is done by social scientists, first as part of the Project Support Unit at state level and later as Dutch-paid staff attached to the district projects (1 social scientist per district). In addition the projects employ a local woman, called 'community motivator' in each project village to promote better hygiene facilities and practices. The women are paid by the project. The projects also involve existing government staff from health, social and education departments and programmes in hygiene promotion. As in Kerala, this is based on ad-hoc agreements between the project and the government staff concerned.

In Karnataka, the projects share the responsibilities for hygiene education with the Department of Health and Family Welfare and the Department of Women and Child Development. Activities in the field are carried out with the existing local staff: nursery teachers, health guides and birth attendants. In addition, the project selects, trains and employs one female village project worker per project village.

The above developments show that integration of hygiene promotion into the existing structures has started in all states. However, the process is hampered by a lack of operational policies at central and especially state level concerning the institutional responsibilities for the promotion of environmental health and hygiene. The VIIIth Plan links water and sanitation projects with primary health care and welfare programmes, but neither national nor state policies define the roles and responsibilities of the technical, health and social organizations in hygiene promotion and state how the activities of the various programmes will be coordinated. This absence of a clear policy makes it difficult to get a real partnership approach between technical, social and health programmes in the field.

NGO involvement

Indian policy documents at national level stress the value of NGO involvement in community participation, sanitation and hygiene promotion. Experiences with implementation in the NA-programme have been mixed. With a number of NGOs (Sewa, Chetna, ESI and CEE in Gujarat, ASM, Airids, Snird, Herself and Mari in Andhra Pradesh), cooperation has started and is continued.

With others cooperation has come to an end. Major problems were that the more technical NGOs focused only on hardware without participation and behavioural change, while others lacked the managerial capacities for working on a large scale. Another problem was that their philosophy of supporting the weak in any type of problems clashed with the required focus on environmental problems and the necessity to work with all sections of the population.

2.4 Methodologies and focus activities

The implementing agencies combine the use of mass media for health awareness with small group meetings and home visits for personal and domestic behaviour change. All use also community organization methods to involve users in technical projects for better maintenance and use and to improve environmental hygiene.

Mass campaigns, personal communication and community action

In Gu-I, Chetna carried out a baseline study to develop educational messages. They were spread through women's mass meetings. Chetna's fieldwork is now taken over by Bhansali Trust, with the same methods. In Lathi-Liliya and Sami-Harij, work on environmental hygiene is still to gain momentum. The programmes in Andhra Pradesh, Uttar Pradesh, Kerala and Karnataka use folkdrama to raise awareness and transmit key hygiene messages (Figure 3). Only in UP are male and female villagers helped to form their own groups and make their own theatre based on local problems.



Figure 3: Village volunteers in Uttar Pradesh make and stage own plays on community participation in water projects and on hygiene

In Karnataka a general awareness campaign informs all villagers on the relevance of good hygiene. A promotion campaign promotes specific physical improvements and gives information on how households can obtain or construct them and at what costs. The campaigns are based on people's reasons for wanting certain improvements. Often these are other reasons than health.

For home visits, Chetna trains water committee members, nursery teachers and other local women as voluntary hygiene communicators. In Kerala, the members of the Ward Water Committees pay home visits to promote and follow up hygiene practices and monitor latrine use and hygiene. They work as volunteers. In Uttar Pradesh and Karnataka home visits are done by village motivators who are temporarily employed by the projects.

The villagers are further stimulated and assisted to form village or neighbourhood committees with male and female members. The committees not only take part in planning and management of water and sanitation projects, but also in environmental hygiene improvements. Examples are the construction and financing of bathing platforms at handpumps in Uttar Pradesh, co-financing and maintenance of drainage facilities at public standposts in Kerala and community projects for environmental sanitation in Karnataka.

Intensive and extensive approach

To cope with limited staff and a large number of project villages, the SEUs in Kerala make a distinction between communities with intensive and extensive hygiene promotion. Intensive promotion, with campaigns, neighbourhood meetings and home visits, is used in wards where standposts are coming or a sanitation programme is going on. In the remaining wards, existing health staff and local club leaders are given some training and materials for promoting sanitation and hygiene.

To reach more villages staff in Uttar Pradesh also plan a combination of an intensive and extensive approach. The intensive approach is already implemented and consists of forming and training village theatre groups to design and give performances on hygiene and participation. The projects also organize local discussion meetings and home visits. For the extensive approach the PSU plans to carry out a pilot radio project. The unit will assist radio programme makers to develop a series of radio broadcasts on water, sanitation and hygiene. They will then help project villages to form radio listening groups of men, women and youth. As part of the broadcasts the programme will encourage that the groups discuss the themes after each radio show, identify required local changes and undertake action. A before-after study with control villages is to be included.

Participatory tools and techniques

Representatives from NAPO in Andhra Pradesh, SEU in Kerala and PSU in Uttar Pradesh have taken part in training to change their educational techniques. Instead of instructions and discussions more creative methods and techniques of adult learning are used, such as mapping the village of one's dream, the use of serialized posters and the balloon game (Figure 4). The training has led to a greater use of participatory methods in the projects concerned.

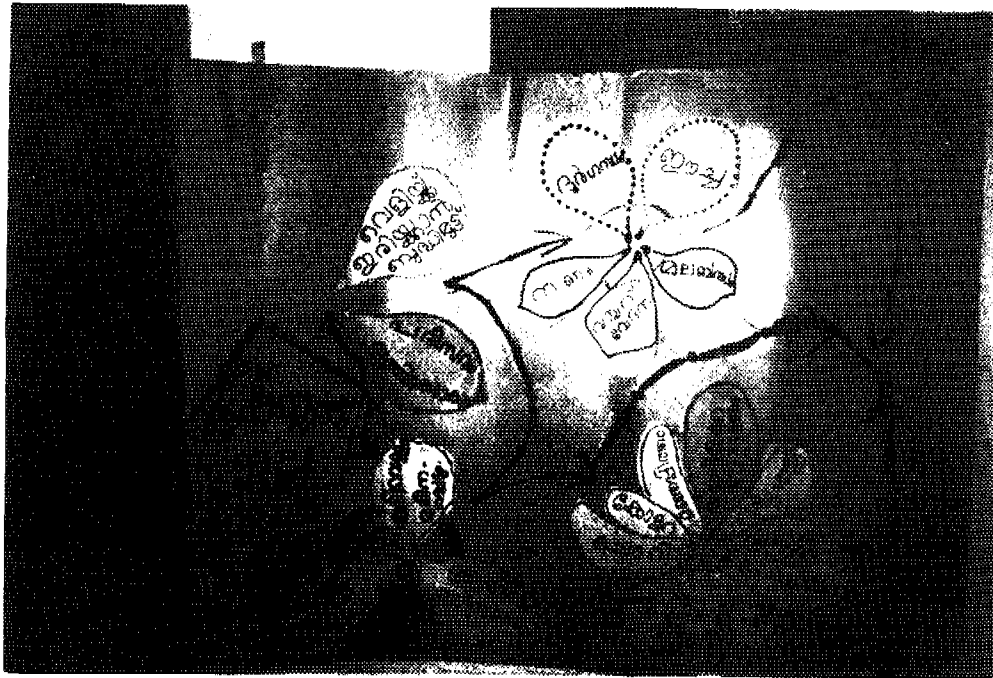


Figure 4: Balloon game for participatory planning of hygiene programme

Government workers are not yet trained in the use of participatory tools and techniques. These techniques not only make training sessions more attractive, but also stimulate local problem identification, problem solving actions and group commitment to change.

Focus activities

Focus activities in hygiene promotion vary from state to state. In Andhra Pradesh emphasis is given to the improvement of drainage at public water points, which was the priority of the consulted villagers. A programme has since been added for sanitary facilities and improved domestic hygiene. In the latter, the emphasis is on women and school age children.

In Karnataka men and women in each village choose the particular focus activities for that village, using participatory rapid rural appraisal (PRRA) techniques. As a result focus activities vary from case to case. Promotion of hygiene is not limited to women and children but also addresses changes by men.

In Gujarat the focus is on better household and personal hygiene of women and schoolchildren. A very wide range of personal hygiene habits is promoted, including hair combing and clean clothes. School hygiene focuses on the clean appearance and personal hygiene habits of the children, such as teeth cleaning and nail trimming. Sewa implements programmes to improve occupational health and living conditions of the most disadvantaged groups, such as salt processors and gum collectors, many of whom are female.

In Uttar Pradesh and Kerala activities focus on a much smaller and selected number of key public and domestic hygiene practices. The emphasis is on promoting four key activities:

- o good drainage at public waterpoints
- o construction of household soakpits (especially in UP)
- o handwashing
- o proper use and maintenance of household latrines.

2.5 Programme inputs: manpower, materials, training, research, funds

Manpower

Because the projects use especially interpersonal communication for hygiene promotion, the costs of staff form the major part of the budgets. Financing of this staff is from Dutch TA funds. With the growth in programme scope the manpower strategy was initially to increase the number of NGO fieldworkers and village motivators paid from Dutch funds. The present strategy is threefold:

- o train and employ local women as village hygiene motivators during the time of the projects;
- o integrate hygiene promotion in ongoing Indian programmes for health and for the development of women and children;
- o build the capacities of community based organizations such as water committees and core groups for village hygiene promotion;

Arrangements for payments vary: some projects pay the village workers and give programme staff an extra payment for the promotion work, while other projects involve villagers and programme staff as volunteers who are given training and materials.

Materials

As part of their personal and mass communication activities all programmes use and to some extent develop and produce their own materials on health and hygiene. Table 1 gives a summary of the type of materials and the purposes for which they are used.

Table 1: Hygiene education materials used in NA-projects

| State | Traditional Mass Media material | Modern Mass media material | Printed materials | Other materials |
|----------------|--|---|---|---|
| Andhra Pradesh | Folk play | Slide show | | |
| Gujarat | Puppet show | Video | Flipchart, folders, posters | |
| Karnataka | Folk plays, puppet show, beating drums | TV, and radio announcements, Wall paintings | Handouts, folders, posters, flipcharts | |
| Kerala | Street drama, folk plays | Radio programme and spots, newspaper articles | Posters, leaflets, calendar, schoolbook, plaque on standposts | Participatory materials: - unserialized posters; use and maintenance charts - planning paintings diary - school programmes |
| Uttar Pradesh | Folk plays, puppet shows, folk songs | Radio listen show (planned) | Flipchart, posters, instructional files | Booklets made by the community and schools |

Research

Research is carried out in a number of projects. Table 2 gives an overview of the type, focus and results of the studies carried out. In a number of projects Knowledge, Attitude, Practices (KAP) studies have been carried out as baseline studies at the start of projects. Baseline studies are not carried out in all cases, which has implications for the measurement of the impact of the programme.

The quality of the studies varies. Sometimes they just consist of the presentation of already existing government statistics. In some of the cases in which social surveys have been carried out the consultants have applied urban standards. This resulted in negative judgements on the behaviour and knowledge of villagers and a lack of understanding of and respect for village knowledge and skills. In contrast, other researchers have used KAP to learn more about the practices, needs and perceptions from the villagers' point of view and to tailor the programme to local needs and knowledge. Most KAP studies have not used a gender approach, that is, they have not investigated and reported the views, conditions and practices of men and women separately.

Table 2: Type, focus and results of hygiene-related studies carried out in NA-projects

| State | Type of studies | Focus | Results |
|----------------|--|--|--|
| Andhra Pradesh | 2 baseline executed by private consultant | 1: Formal statistics; 2: Household data | 1: not used 2: used for agency planning |
| | 1 internal evaluation of hygiene programme by private consultant | environmental hygiene | no difference between project village and others |
| | functioning study of water supply | quality of service | service below design standards |
| Gujarat | 1 baseline executed by NGO | Women's and school children's KAPs | used to plan messages, no follow-up study done |
| | 1 internal water use study by consultant 1 external water use study by consultant | reported source selection practices | tap use said to be high, but no seasonal variation assessed and no observations done |
| | monitoring of water systems | % time of service | service work 85% of time |
| | 1 participatory baseline executed by villages | participatory recording of existing hygiene conditions and practices | used for participatory planning of village action |
| Karnataka | 1 external evaluation | pilot sanitation project | local sanitary conditions measurably improved |
| | community-managed baselines in all project panchayats | Seasonal preference on water source, collection, storage and consumption | used for participatory planning by community members |
| Kerala | Baseline study on water use, by SEU-North, Central and South | type of water source used, environmental sanitation facilities and their use | traditional wells remain in use, sanitation measurably improved |
| | 2 local studies on water supply functioning and use | % time of service | service works 77-83% of time |
| | 2 studies on water use, 1 study on sanitation and health education | % time of service % maintenance of water system | 92% working, 34% tap lacking |
| Uttar Pradesh | monitoring of water systems and sanitation | % use and maintenance of sanitation | local sanitation measurably improved |

A participatory methodology, PRRA (Participatory Rapid Rural Appraisal) has been used in Karnataka and AP-III. With the help of trained facilitators, village men and women drew village maps on which they located their present houses, sites and type of water sources, latrines, drainage systems, etc. (Figure 5).

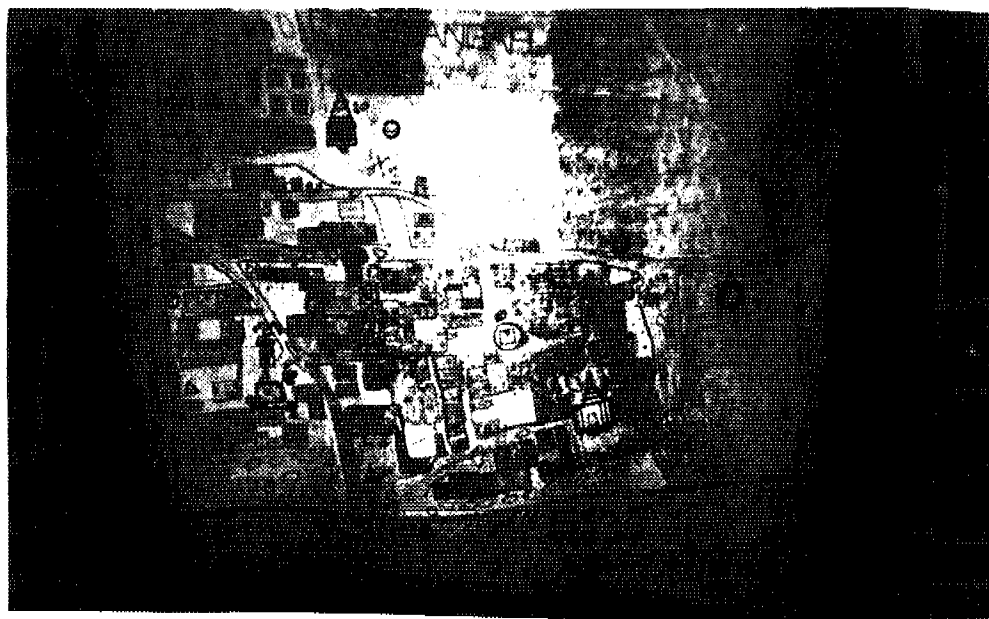


Figure 5: Village map as baseline and planning tool in Karnataka

Local materials (stones, sticks, etc.) were used to indicate how many pots of water women collect for various uses and in various seasons and to find out other useful data for programme planning, such as seasonal variation in income. Results are given pictorially (Figure 6). Together, PRRA data give a clear idea of water use and hygiene conditions of men and women in the different socio-economic groups prior to the improvement of the water system and the promotion of better sanitation and hygiene.

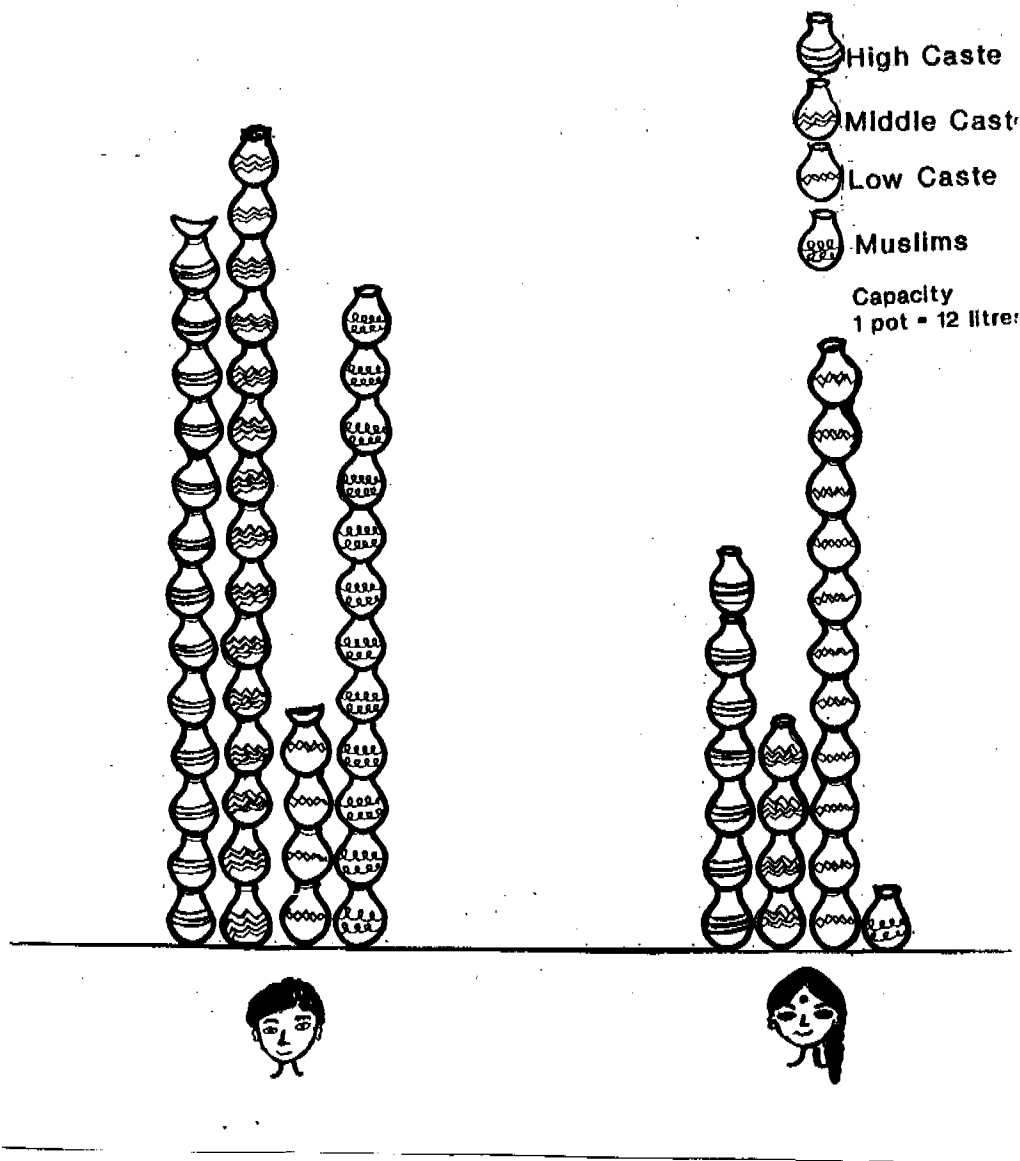


Figure 6: Amounts of water fetched by men and women from different castes and religions in a Karnataka village before the start of the project

In Kerala, members of the Ward Water Committees were given a simple pre-printed exercise book for doing a neighbourhood baseline study on environmental conditions. It is not clear whether all have carried out this study and what has been done with the results.

Training

Training of trainers in hygiene promotion has been limited to the training of staff from three coordinating offices in the use of participatory learning techniques. Some project offices, e.g. in UP, organize internal trainings for their staff. The staff in their turn train others, but they have not had a preparation on training skills. Apart from the programme on handpump maintenance, environmental hygiene related trainings do not have a structural character.

A limited number of engineers from NAP have taken part in the IRC/MDF international course on Management for Sustainability of Water Supply and Sanitation Programmes or in

the IHE international course for Environmental Health Engineering. These courses focus especially on better design (IHE) and management (IRC/MDF) of water supplies and sanitation and pay much attention to the integration of social and health aspects. An exposure training for senior managers by IHE and Aquanet on how water supply, sanitation and water resources are managed in The Netherlands was added in 1994.

Drawbacks for the application of the training results are the limited number of participants and their low continuity in NA-projects. Therefore, and on request of the Indian Government, a training support project has been formulated which will support Indian training institutions and education centres to develop and establish these courses in their own institutions.

Funds

In the first NA-projects in Andhra Pradesh and Uttar Pradesh no funds were allocated to hygiene improvements. This changed in GU-I, where an allocation was given to a local NGO for a hygiene promotion campaign in the Santalpur project. The cost of this campaign were 0,6% of the costs of the technical works.

In AP-II the total allocation for user involvement and the promotion of hygiene is 1,7% of the overall financial assistance from the Netherlands. For AP-III investments are foreseen of 3%, 1% for participatory village planning and 2% for linking water supply and sanitation with integrated child development.

In Kerala, the SEU budgets include funds for community participation, sanitation and hygiene promotion and latrine construction. When the costs for the sanitation hardware are deducted, some 3,6% remains as the percentage allocated to involve the users in the projects and promote sanitation and hygiene.

In Karnataka, support to participation and hygiene promotion activities amounts to 2,08% of the total costs of the two district projects.

In Uttar Pradesh, allocations for community participation and hygiene education in UP-VII and VIII are 7% and 14% of the total fund allocation (FA and TA) from the Netherlands Government.

In the guidelines for the NA rural water supply programme in India in the period 1995-98 a stronger support to promotion of hygiene and sanitation is foreseen. It is expected that this will not be at the expense of allocations for rural water supply, since the actual implementation capacity for water projects stays behind the capacities planned and budgeted for.

2.6 Hygiene promotion and environmental health engineering

In Chapter 1 it was mentioned that environmental health engineering staff also have a part to play in promoting good water use and hygiene. A major task is that they ensure that the supply of domestic water is close, safe, reliable and at predictable hours. Households are then not forced to return to other, often far and contaminated sources. The latter reduces the amounts of water collected for hygiene and necessitates women to boil, cool and

separately store drinking water. Water boiling is something for which poor women lack fuel, time and utensils and is therefore unrealistic to promote.

A first input to achieve good water use is to ensure that the technical facilities are accessible for all and not only for certain groups (Figure 7). The facilities must also be easy to operate and maintain in a hygienic condition. For these reasons all NA-projects involve not just the village leaders in local planning and design, but also the users and especially the women, as they are the ones who manage water and sanitation.

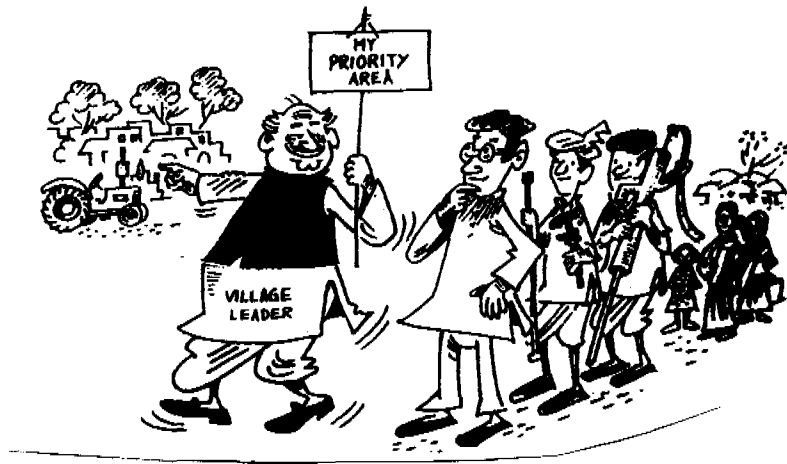


Figure 7: User participation in site selection affects water use (Source: WHO/SEARO, 1985)

Better water use and hygiene practices further require that enough water is available in all seasons, at predictable hours and without long downtimes. In section 2.8 it is reported to what extent the above conditions are presently being achieved in NA projects.

From recent research it is known that better hygiene and sanitation are the prime factors in reducing water and sanitation related diseases. A better water quality comes third. For the latter, NA projects use wherever possible protected groundwater as their water source. Where surface water is used, biological and chemical treatment (chlorination) are part of all NA-schemes. Reviews in among others Kerala and Andhra Pradesh show that the operation of these techniques is not yet optimal, so that a safe water quality is not yet ensured. When safe water is not supplied at the taps it is not efficient and effective to promote that users use safe methods for bringing and using this water in their home.

A last hygiene aspect related to environmental health engineering is that in some states drainage is a weak element in the design and construction of standposts in piped water supply schemes. A problem in changing this situation is that the importance of this aspect as part of sound environmental engineering is not always recognized. At handpump wells drainage provisions are generally good in the NA-projects, but this practice has not yet expanded to handpumps installed under other financing programmes.

2.7 Monitoring and evaluation

Monitoring of activities and results of hygiene promotion has developed farthest in Kerala and Uttar Pradesh. In Kerala, where the majority of men and also women are literate, the SEU has developed a community-managed monitoring system for sanitation practices and for the functioning and drainage of the piped water supplies. For sanitation, members of the local Ward Water Committees pay home visits to observe use and upkeep of installed latrines, presence of water and soap for handwashing and other selected and observable key indicators of environmental hygiene. The data are summarized by SEU staff at Panchayat and programme level. The system was improved to ensure that only objective data are recorded².

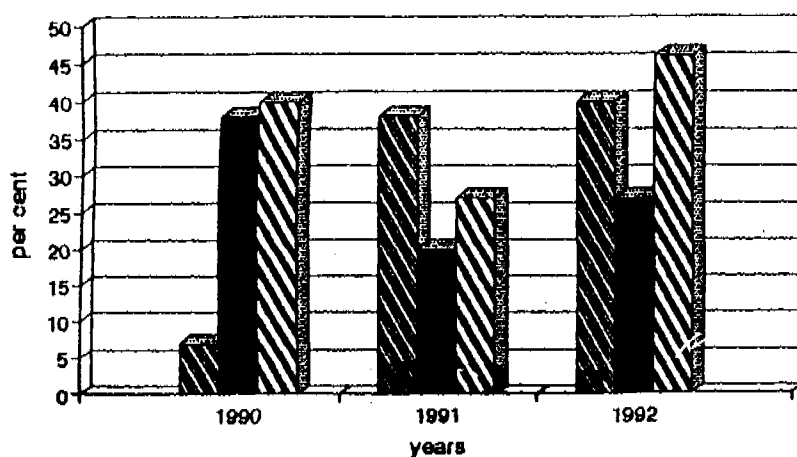


Figure 8: Hygiene monitoring in Kerala: soap kept near the latrine

Besides providing important planning and management data for the ward water committees and the programme staff, the monitoring system is an important learning tool in dialogues with household members.

For monitoring the water supply, the SEU has trained standpost attendants, who are mainly women, to monitor and report scheme functioning and preserve hygiene. Aggregation of data on water supply and sanitation takes place, but is not yet part of the half yearly reports of the programme.

In Uttar Pradesh data on hygiene inputs and results are recorded with the help of pictorial monitoring formats (Figure 9).

² The original system used descriptions like 'clean'. However, different people define clean differently and people may also change ideas on what is clean over time. It is therefore better to use objective criteria that are the same for everyone, e.g. no visible smears in pot, no stagnant water/mud at waterpoint, no uncovered excreta in yard.

ग्राम: _____

माह: सप्ताह:

| दिनांक | पुरवा/मोहल्ला | उद्देश्य | | | | बैठक | | | टिप्पणी |
|--------|---------------|----------|----------|----------|----------|--------|--------|--------|---------|
| | | सम्पर्क | उद्देश्य | उद्देश्य | उद्देश्य | समाचार | समाचार | समाचार | |
| | | | | | | | | | |
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Figure 9: Monitoring format for low-literacy users in Uttar Pradesh

The PSUF summarizes the data on inputs and results in tables (Fig. 10) and graphs and reports them in its quarterly reports. An even better overview is possible when the data are grouped in a) programme inputs, b) physical and institutional outputs, c) performance of water schemes and village institutions, and d) results in water use, sanitation, hygiene practices and further village development.

With regard to water supply, monitoring data are kept on installation and performance of water systems. For the piped schemes it is recorded how many villages are connected and get water. For villages with no or an irregular supply the reasons are given. The system further gives data on the number of standposts and house connections, the numbers of taps that work and the number of pipe leakages in the system.

For handpumps, the PSUF reports, on the basis of the villagers' information, how many handpumps are installed, how many were inspected and how many of these did not give water, operated defectively and had no or broken platforms or drains. The PSUF reports the number of corrections undertaken by either Jal Nigam or the social staff. The length of the periods that handpumps or standposts do not give water is not recorded.

Further data are given on the number and type of social activities carried out for the promotion of hygiene. In non-intensive villages the following data are given:

for inputs:

- the number of health awareness raising activities;
- the number of small group meetings for improving hygiene conditions and practices;

| SL No | Particulars of programme performance | Name of the village (with location codes) | | | | | | | Total | Remarks |
|-------|---|---|---|---|---|---|---|---|-------|---------|
| | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| 1 | 2 | | | | | | | | 10 | 11 |
| 5. | Activities pertaining to environmental sanitation - No. of soakpits constructed - No. of drains constructed - No. of wells biached - Tree plantation | | | | | | | | | |
| 6. | Status of House Sanitation Latrine (HSL) units - No. of site selected preceding to this quarter - No. of site selected in this quarter - No. og HSL units constructed in this quarter - No. of HSL units handed over - No. of HSL units in regular use - No. of HSL units properly maintained | | | | | | | | | |
| 7. | Status of School Sanitation Latrine (SSL) units - No. of site selected - No. of SSL units constructed - No. of SSL units in use - No. of SSL units properly maintained | | | | | | | | | |
| 10. | Storage and use of drinking water - No. of cloth strainers prepared - No. of cloth strainers hygienically maintained - No. of households using ladels | | | | | | | | | |

Figure 10: Format used for aggregating monitoring data on hygiene in UP

for direct outputs:

- the number of water committees and development clubs formed;
- the number (but not %) of female committee members;
- the number of female caretakers;

In intensive villages a much wider range of social activities is reported on.

Data are further given on the results of these activities. In non-intensive villages, the following information is given:

for water supply results:

- the number and % of handpumps where users have started to contribute funds for O&M
- the number and % of handpumps with filled in holes
- the number and % of handpumps with bathing platforms.

In the intensive villages information is also given on:

- the number of women in each type of committee
- the number of active members in water committees
- the number and % of handpumps where drains have been made
- the number and % of handpumps with ornamental plants
- the number of children and pregnant women immunized,
- the number and type of other development activities undertaken by the village groups.

Monitoring of sanitation takes place in 37 villages. Reported are

for latrine results:

- the number of latrines completed,
- the number and % of latrines surveyed on use and maintenance
- the % of men, women and children who report to use the latrine regularly
- the % of men, women and children who use the latrine occasionally
- the % of latrines seen to be well-constructed
- the % seen to be used hygienically and maintained well
- the % of latrines with improvements, such as whitewashed walls and electric light.

On other sanitation conditions data are given on the number of household soakpits and drains, cattle watering troughs and village tree plantations.

In Karnataka, monitoring formats have been designed for use and maintenance of latrines, drainage at waterpoints and in households and the planting of trees. The formats consist of a wide range of questions on objectively verifiable conditions or practices, but are considerably longer than those used in UP and Kerala. The ones received were however still drafts.

In Andhra Pradesh, monitoring of hygiene activities is taking place, but field staff use different reporting formats and collected data are not aggregated. Assist has installed latrines, but their maintenance and use are not yet monitored.

In Gujarat, regularity of water supply is measured through GWSSB registers in each project village. Every day the Sarpanch or his representative records whether the village got water or not. Every month the percentage of days without water is calculated. Subsequently, a summary graph is prepared showing regularity of supply for all NA schemes (Figure 11).

The monitoring does not give the duration of periods of breakdown, but calculation from the raw data is possible. The Review and Support Mission reports that monitoring system has brought transparency on the functioning of the water supply and put an end to contradictory information from different groups. It has created competition between schemes and within the agency to improve the functioning of the water system.

For latrines the sanitation agency monitors the installation and quality of latrines and the percentages installed by the poor and by other households. Not yet monitored are use and maintenance. Inputs and results for other hygiene practices are not yet monitored.

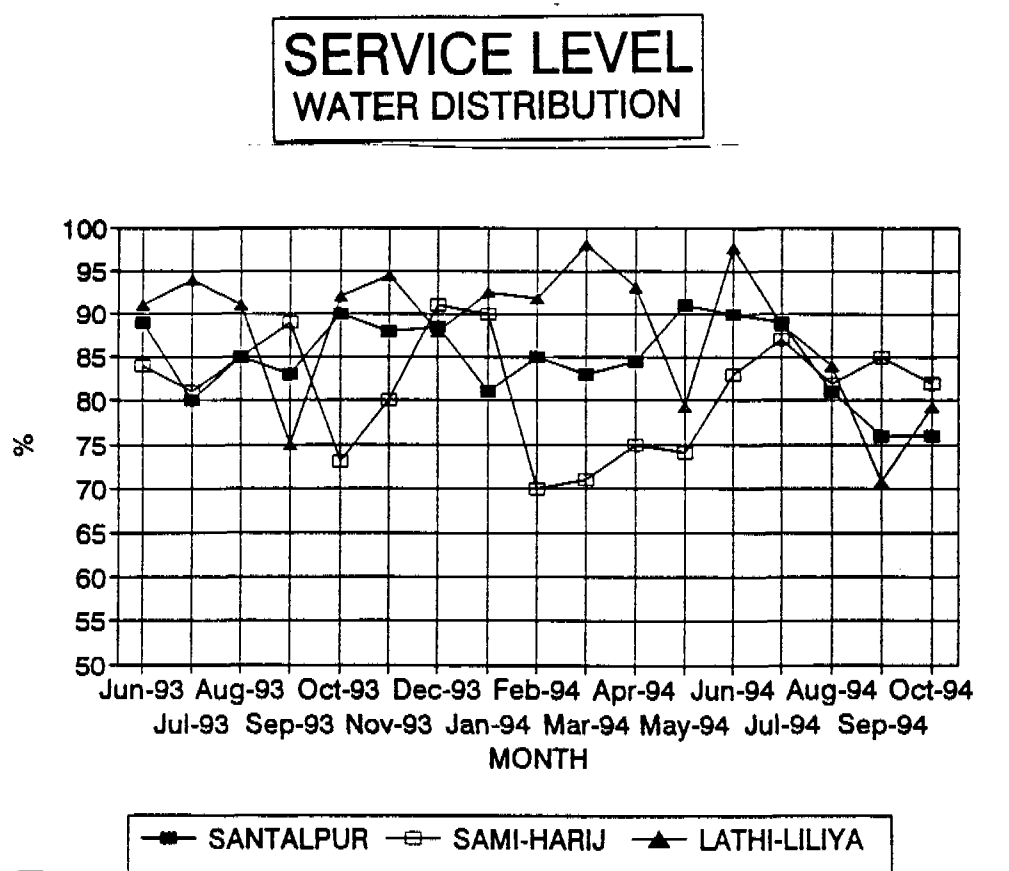


Figure 11: Percentage of days with water supply to all villages in three NA-schemes in Gujarat, from June 1993 to September 1994.

2.8 Results

Because all programmes are ongoing, overall results on water supply, use, sanitation and hygiene are not yet available. This section only gives a preliminary overview of currently available data.

In Andhra Pradesh, functioning and use of piped water supplies was assessed in two third of the schemes of AP-I and II in September 1994. All schemes were either working or had been working just before the review visit. Frequency and duration of downtimes in villages

could not be assessed because no data on scheme performance are kept in the villages. An earlier study in 1991 reported that in 1990/91 60% of the surveyed schemes in AP-I had major breakdowns, which in five schemes had lasted for over one month. Where schemes are out of order for longer than 1-2 days, water use is likely to be seriously affected.

In the villages of AP-I and II the public taps were found to be well distributed. This result reflects the difference made by gender-specific user involvement. Earlier mission reports had shown that when women and men from the different sections had not participated in local designs, the standposts had not been located in all parts of the villages and in particular not in the areas of the poor.

In 28% of the cases the design criterium of 250 users per standpost had been reached or surpassed. Without additional taps this may imply that queuing and nonuse will increase in the remaining years of the design life of the schemes.

The amount of water supplied at the headworks was 18 litres per person per day in summer and 40 litres in winter, while designs are for 50 litres per person per day. As some water is lost through leakage and wastage, actual consumption is likely to be lower than 18 litres. The limited availability of water in the summer is a constraint for people to develop more hygienic habits. Whether this is the case requires a more detailed study of the combined per capita water consumption from all water sources in study villages and the purposes for which this water is used.

The study reports that the standposts are generally used. However, the length and budget of the study did not allow a proper household survey, so this finding has to be viewed with caution. Environmental conditions were found to need improvement. Over one third of the standposts had no drainage and missing taps. Water treatment (filtration, chlorination) needs to be improved as well.

In Gujarat the external evaluation found that water production was 60 litres per person per day, which is close to the design criterium. For information on how much water actually reaches the households the results from the flow metering promoted by the RSM have to be awaited.

A household survey in 15 villages of GU-I reported a general use of tapwater for drinking. The reliability of the answers and variations in source use in the wet season were not assessed. Almost half of the households reported problems with the regularity of the water supply. At the tail end this figure had increased to 63%. Fig. 11 in section 2.6 shows that the monthly periods with water in the three NA-schemes range from 70 to 98%, with an average of 85%. These data are averages for the schemes as a whole; the figures are lower for the supply in some branchlines and tail end villages.

In Karnataka, the results of the pilot environmental hygiene project are available, as evaluated by an external local consultant. They are summarized in Table 5. Data on improved water use are not yet available as the schemes are under construction. Because a baseline was done on existing water use patterns it is possible to assess later the impact from the combined inputs of hard- and software on people's practices.

Table 3: Results of hygiene promotion in three pilot villages in Karnataka

| <i>Improvements</i> | <i>Jaliber</i> | <i>Varachagal</i> | <i>Jeeragal</i> |
|-----------------------------|---|--|---|
| Waterpoints | Taps repaired, platforms & drains, cattle trough, cattle bath and laundry place made at 3 of 4 watertanks and 2 handpumps | Taps repaired, platforms & drains, cattle trough, cattle bath and laundry place made at all watertanks (3) and handpumps (2) | Platforms constructed at waterpoints. River is used for other purposes |
| Drainage | Channels dug at low places and houses, with soakpits or draining into fields | Channels dug at low places and houses, with soakpits or draining into fields | Channels dug at low places and houses, with soakpits or draining into river |
| Lane paving | 2 to 5 streets complete. Also around temple | 5 of 7 streets complete | 5 of 9 streets complete |
| Tree planting | saplings arrived | 40 planted | saplings arrived |
| Household soakpits | 90% households | 90% households | 10% households |
| Latrines under construction | 3 | 2 | 5 |
| Latrine in use | 3 | 3 | 2 |

Source PSU, 1994

In Kerala, the SEU did three studies on the location, functioning and use of public standposts in 1994. The siting study shows that community participation and involvement of women had increased the percentage of the population living within 250 meters of a public standpost by eighty to one hundred percent (Figure 12).

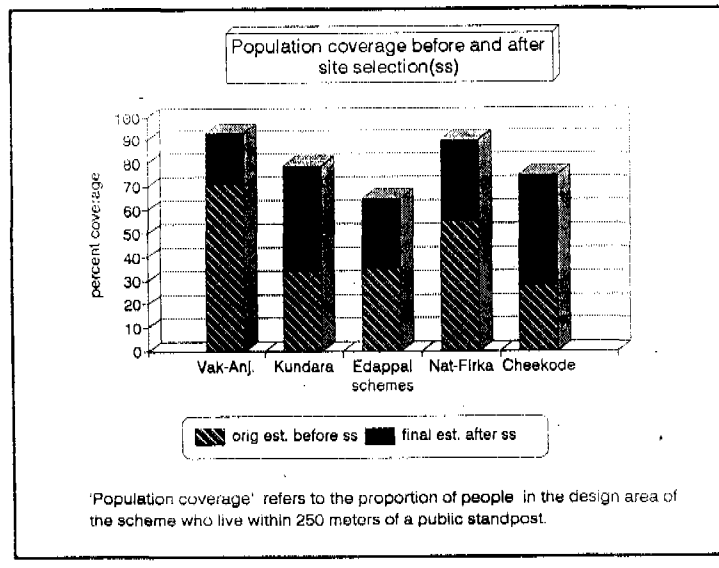


Figure 12: Population coverage before and after participatory site selection in Kerala

Although this helps to improve water use, a pilot study at five standposts in Mala found that exclusive use of tapwater for drinking occurred only in the area with water scarcity. In the other areas seasonal and perennial wells continued to be used, also for drinking. Earlier tests of well water had found most wells heavily polluted. Amounts of tapwater used ranged from 2 litres per capita per day to over 40, depending on whether other water sources are available.

On average, there was water on 90% of the days in the period of study. For individual standposts the range of time with no or little water was 7-31%. A second study showed that the percentage of days with water at the taps was 83% in one Panchayat and 77% in the other. How many breakdowns lasted longer than a day is not clear. When a downtime is less than two days, the extra home storage may be enough to overcome this period, except in poor households who have few vessels for water storage. The study found that households near an unreliable standpost do collect more water on the days it works and store it for the next day, when it might not work.

On sanitation and environmental hygiene the WWCs and SEUs collect information on maintenance and use of latrines, drainage and other environmental health indicators. Summary data are not available because the data are not aggregated and reported at programme level.

In Uttar Pradesh results on operation and maintenance of piped water supplies and hand-pumps and on sanitation are reported in Tables 4 and 5. A point to note is that the first part of Table 5 is cumulative, *i.e.* it gives the results since the start of the programme, while the second gives the results for the last three months. Cumulative tables are also recommended for the other sanitation aspects, to give a clear picture of the project results for all aspects of sanitation.

Table 4 shows that up to 92% of NA-water systems are working, although on average over 10% of the handpumps need repairs. How frequent and long interruptions are is not recorded.

Payments for handpump maintenance and repair have started in 28% of the villages with intensive social organization and hygiene promotion inputs.

Table 4: Functioning and hygiene of NA-water supplies in Uttar Pradesh

| | Subproject IV | Subproject IV | Subproject VI | Subproject VI |
|----------------------|---------------|---------------|---------------|---------------|
| Standposts | Int. vill. | Nonint. | | |
| installed | 31 | 600 | | |
| reviewed | 29 (94%) | 600 | | |
| not working | 1 (3%) | 42 (7%) | | |
| no tap present | 10 (34%) | NA | | |
| tap replaced by city | 7 (24%) | NA | | |
| Handpumps | Int. vill. | | Int. vill. | Nonint. |
| installed | 52 | | NA* | 4529 |
| reviewed | 52 (100%) | | 365 | 2960 (65%) |
| not working | 0 (0%) | | 29 (8%) | 119 (4%) |
| need correction | 11 (21%) | | 3 (0,8%) | 318 (11%) |
| def. platf./drain | 4 (8%) | | 11 (3%) | 219 (7%) |
| no drain | 2 (4%) | | 6 (1.6%) | NA |
| turbid discharge | NA | | 3 (0.8%) | |
| drain improved | 18 (35%) | | 15 (4%) | NA |
| soakpit made | 1 (2%) | | NA | NA |
| bathing platform | 4 (8%) | | 13 (4%) | NA |
| ornamental plants | 17 (33%) | | 34 (9%) | NA |
| O&M payments started | NA | | 103 (28%) | NA |

*) Total cannot be given as number installed in Bahrain is lacking.

Noticeable for piped supplies is the high percentage (34%) of missing taps, but also that in a quarter of the cases in the intensive villages the communities themselves replaced the taps. How this is in the less intensive villages has not been assessed. Regarding O&M of handpumps there is little difference between villages with intensive and non-intensive social activities, but this is probably explained by the fact that both have the same input of trained handpump caretakers. A difference in results is more likely in other hygiene improvements and perhaps in better O&M payment, but as on these aspects no data are collected in the non-intensive villages a comparison is not possible. Data on use of improved water systems, especially for drinking have not been collected recently.

Table 5 shows that latrine use, presumably as reported by the households, is high and that women and men use latrines almost equally well. Use is less good by children, but from the data it is not clear if the 23% non-users are especially babies and infants and if those caring for them deposit infants' excreta in another safe manner. The survey shows that the maintenance of the latrines is generally good. The criterium of 'clean', which is subjective, can better be replaced by objective criteria related to disease transmission risks, e.g. no deposits/smears of excreta in pans and on floors and walls.

Table 5: Use and maintenance of installed latrines and additional sanitation improvements in sub-project V, Uttar Pradesh

| | |
|---|--------------------|
| no. latrines handed over by Oct. 1994 | 260 |
| no. latrines surveyed | 6191 (99%) |
| % female users | 91% |
| male users | 90% |
| child users | 77% |
| % (reported?) regular use | 95% |
| (reported?) occasional use | 4% |
| % not using | 1% |
| % observed maintenance good * | 78% |
| satisfactory | 18% |
| poor | 4% |
| % with water stored in latrine | 27% |
| brush in latrine | 7% Rae Bareli only |
| platforms | 2% " |
| whitewashed walls | 2% " |
| % latrines not operational for technical reasons | 0.3% " |
| No. of soakpits constructed from July to Sept. 1994 | |
| No. of drains constructed | 0 |
| No. of water troughs constructed | 10 |
| No. of wells repaired | 2 |
| No. of trees planted | 15 |
| No. of children immunized | 1359 |
| No. of pregnant women immunized | 8 |
| No. of female masons trained | 10 |
| | 5 |

- *) In Varanasi the presence of water & brush is part of the definition of 'good maintenance'; if both are absent and surroundings unkept but latrine itself is unsoiled the maintenance is reported as 'satisfactory'. If the latrine itself is soiled, maintenance is classified as 'poor'.

The external evaluation in UP concluded that drainage at the handpumps and standpipes in the NA projects was good and compared positively with the conditions in schemes built with other sources of finance. In 1993 villagers in one district had further installed 72 washing slabs at handpumps, using Panchayat funds for financing.

3. Trends and Conclusions

3.1 Position of hygiene promotion

In the NA projects promotion of hygiene takes place through technical and social activities. An integrated approach whereby all partners work together as one team to achieve, as the ultimate objective, measurably and lastingly improved environmental hygiene conditions and practices, has not yet been achieved. Partly this is the effect of the historic development, in which community participation and health education were added later to technical projects. But it also reflects that some project parties still see the work of the other parties as separate programmes and not that all activities, technical and social, are part and parcel of the same programme with the same goals: better water use and better environmental hygiene conditions and practices.

Gradually a shift can be noted towards projects in which technical and social activities are not parallel programmes, but carried out as teamwork between technical staff, social staff and village organizations. Examples are UP-VI, where technical and social staff jointly developed a course to train village youth and women for maintaining and repairing handpumps; the Pavaratty project in Kerala, where for the first time WWCs, SEU staff and KWA engineers jointly carried out the participatory siting of standposts, and the proposed experiment with shared management of the Santalpur scheme in Gujarat, where the GWSSB and SEWA are working out a system whereby the GWSSB will maintain, manage and finance the recurrent costs of the main works of the scheme and the village water committees will look after maintenance, management and maintenance financing of the village distribution nets. These are promising steps, which will hopefully lead to an integrated set of procedures, manuals and timetables for participatory water, sanitation and hygiene projects with measurably improved conditions and behaviours as explicit aims.

3.2 Institutional aspects

Another consequence of the historic development is that in four out of the five states project development and implementation fall under a technical engineering department or water authority. Indian guidelines and criteria for design and implementation of these projects are technical only and do not develop the New Delhi declaration and other global developments in the sector. This makes it difficult for staff to design and implement projects in a different way, especially when their superiors do not support changes.

To deal with this problem the more recent projects have been decentralized to district level and multi-departmental project steering committees have been set up under the district magistrate or collector. This makes it easier for project staff to adopt new working methods and innovative designs. Moreover, in AP-III and Karnataka funds and technical support have been given for participatory project planning. Use of integrated project preparation methods from the IHE course deserves greater attention.

A barrier to integrated project preparation and design is the absence of an Indian design manual for participatory rural water supply and sanitation projects. The present manual of the Central Public Health and Environmental Engineering Organization (CPHEEO) covers

technical aspects only. It does not include social, institutional and financial aspects and does not reflect recent developments on flexibility and sustainability of project designs and participation of communities in local planning decisions.

To develop and test the integrated approach, NA-units have been created for NA water and sanitation projects in all states. The value of the units is high as they see to it that social and hygiene activities are included in the technical projects and demonstrate the effectiveness of these activities for a reliable and better used service and better environmental hygiene.

In the longer run this work is only sustainable when the units, or their work, become part of the Indian policies and organizational arrangements for better water supply, hygiene and a clean environment. As mentioned above the Indian policies are silent on how the intended linkage of technology projects and improved hygiene practices is to be implemented and how the various departments and programmes are to be capacitated for this work.

The long term position and role of NGOs is another sustainability issue. The Indian policy mentions NGOs especially for implementing sanitation programmes and for training. The NA programme involves NGOs also for the social aspects of water projects and for the promotion of hygiene practices. These activities are now fully financed by the Dutch Government. When the water projects end it is unlikely that the NGOs can continue to work in all project villages, so that support for water and environmental hygiene comes to an end after a relative short period of time.

To avoid that NGOs become involved beyond their own capacity, they are more involved in their own districts only. While this is likely to enhance the sustainability of NGO involvement, it places a higher demand on creating a coherent programme and increases the work of the support units for the coordination, support and training of NGOs.

3.3 Staffing

With regard to staffing, a trend can be noted to replace the increase in the number of social staff paid by the Netherlands by working more through existing government workers in social and health programmes and building the capacities of local committees and voluntary groups to manage their own village or ward programmes for better hygiene. Motivating existing government staff to assist villagers in promoting hygiene is sometimes difficult. Health staff and staff in women and child development programmes already work in their own programmes for immunization, family planning, nursery schools and literacy, and in most projects there are no formal arrangements with programme heads which allow them to spend time on the NA-projects. Moreover, the heads of these programmes are not always aware of the value of the hygiene promotion work and the participatory methods and tools for the other social and health programmes.

The work in the NA-projects has further shown the importance of careful selection and engagement of village volunteers, such as water committee members and standpost attendants. The initial tendency in some states to appoint water committees through the village sarpanch did not result in active and effective water committees. When the villagers understand the value and demands of the work involved, they themselves are best placed to select the men and women who have the time, commitment, influence and respect to be

effective members of committees and promoters of hygiene. The role of local groups, such as youth and women's groups is paramount. A lot is being done to involve these groups and to train them to give them roles in measurably improving hygiene conditions and practices. In some instances upgrading communication skills is also part of the training programme.

3.4 Selection and roles of communities

The selection of villages which are taken up in NAP is based on national criteria for problem villages, that is villages with a serious problem with water or water-related diseases. The selection is in principle equitable as far as water is concerned, but the environmental sanitation situation and the willingness of the villagers to undertake and maintain their own improvements are not necessarily included as selection criteria.

Recent NA-projects are therefore increasingly carried out on a district basis. This means that in principle all villages that fall within a particular area with problematic water conditions get access to an improved water supply. This solves also the problem of nearby villages which are bypassed because their water problem happens to be less acute than that of their neighbours. Environmental health conditions are however not different in these villages and often they develop the same water supply problems in some years' time.

The construction of a basic service level (one handpump or standpost within walking distance per 250 users) is free for all, to ensure general access to improved water. Households, usually the better off, who want a higher service level, have to pay for this privilege. In future projects more realistic payments will be strived for through a reduction of the heavy subsidies on private connections and their service costs and in line with the Indian policy for better cost-recovery. A basic service will however be preserved and optimization of performance strived for, to ensure that poor households continue to have a nearby and reliable source of water at a realistic and readily paid cost.

Participation in sanitation projects depends increasingly on the willingness of panchayats and individual households to undertake and finance their own improvements in sanitation and environmental hygiene. Direct programme subsidies on individual latrines are being reduced and are ultimately to be abolished. Instead the programme aims at increasing the local administrative and technical skills for planning and implementing improvements with local resources and funds. Technical and social expertise, training and support are provided by the programme.

In the NA-implementation projects the tendency is to consider community members more as actors and no longer as only beneficiaries. This development seems to be a good entry point for changing the way of working within hygiene promotion. In the past, often the agencies have decided on the objectives, targets and actions of the hygiene programmes. More and more it is now tried to cooperate with communities in such a way that men and women themselves will decide on what water, sanitation and hygiene problems they want to deal with and how they will do so.

This tendency is not equally strong everywhere. A number of agencies still focus on educating and training of especially women and schoolchildren to adopt hygiene practices that have been chosen by the agency and not by the target groups themselves. The main

reason seems the lack of training in suitable skills and techniques for assisting target groups to analyze their own problems and to help them plan, implement and evaluate their own problem solving actions.

3.5 Objectives, approaches and gender focus

Objectives

Although all NA-projects aim at improved health, the projects vary greatly in number and types of objectives. A few projects still have as a major objective to increase people's knowledge on water and sanitation related diseases. However, increased knowledge seldom leads to better practices, especially when it uses classroom type teaching methods in which the project worker is the educator and the target groups are the pupils.

Other projects focus on stimulating people to analyze local conditions and practices and change those that are risky. Yet other projects have many objectives, which are difficult to realize in a limited time. In many cases it will be more realistic to select a smaller number of unhygienic conditions and practices as objectives for change, while keeping in mind which practices are essential for reducing locally prevailing water and sanitation related diseases and which are a priority for the different target groups in the village (men, women, rich, poor, different religions, etc.).

As mentioned above the way in which hygiene objectives are set also differs. While some organizations set objectives from above, others help villagers to set their own objectives for environmental hygiene improvements. Participatory techniques, such as environmental health walks and village mapping, enable the participating men, women and children to identify the main environmental problems in their neighbourhoods and schools, choose priorities and set objectives and targets for change. Advantages mentioned by the organizations using participatory objective setting are that it encourages learning, not teaching, about health and that it stimulates commitment to change and mobilization of resources.

A further aspect concerning hygiene objectives is their measurability. Not all projects have defined objective and easy-to-measure indicators with which they measure whether the set objectives are being realized. Measurable objectives and indicators can be found in the programmes in Kerala and Uttar Pradesh. Examples of measurable objectives are:

- o to achieve that 80% of the neighbourhoods have access to the designed amount of safe water throughout the year
- o to ensure that 80% of the households with access to safe water use this water at least for drinking throughout the year
- o to make 80% of the traditional water sources which compete in accessibility with improved water sources and which remain in use for drinking water safe for domestic use;
- o to realize the visible absence of uncovered human excreta in areas where such excreta were previously found;
- o to obtain the absence of smears of excreta in latrine pans and on floors and walls and the presence of water in the unbroken latrine seals in 80% of the installed latrines;
- o to have water and soap/ashes for handwashing present near latrines and kitchens in x% of the visited households;
- o to achieve that 80% of the households have covered vessels for separate storage of

drinking water which are free from mud at the bottom, with a tap or a long handled dipper to draw water safely;

It is not yet common that engineering staff take part in formulating measurable objectives and indicators on water use and environmental hygiene. Objective setting is either done by the health or social agency alone, or by the agency in cooperation with the villagers. Engineering departments have design criteria on distance to waterpoints, number of users and l/c/d supply. They do not have explicit objectives on the use of the water system, its proper drainage and water consumption rather than production. For environmental health, it is however not the design, but the use which counts.

Approaches

Regarding approaches, some agencies focus especially on mass information campaigns in large meetings. For behaviour change such campaigns are not useful. Two-way communication in small groups and during home visits and assistance to households for installing better household facilities are more effective to bring about improved hygiene behaviour. However these methods are also very time and labour intensive and therefore difficult to apply in large programmes, unless a sufficient number of staff is available and their involvement is sustainable over a considerable period of time. The challenge is therefore to find other methods which require less time and human resources, yet improve environmental health behaviours.

Gender

Women and children are generally acknowledged as special target groups for hygiene promotion. But impacts on health and hygiene also require that men change their hygiene practices and support hygiene improvements in the home and neighbourhood. Thus also attention to men is needed as a target group in promoting better hygiene practices. This is especially the case where cultural values make it impossible for women to influence the practices of husbands and older sons and where women's influence is limited to members of her own sex and age group. Furthermore, women usually need the support of their husbands for expenditures and investments for hygiene and health.

So far, few implementing organizations have recognized the gender differences in hygiene programmes and have formulated a gender conscious approach for promoting better hygiene conditions and practices. In addressing women and girls in their traditional responsibilities and tasks and placing greater hygiene demands on them, hygiene programmes increase the female burdens and do not challenge the existing division of labour in which especially poor women and young daughters in law can be overburdened. A gender approach addresses also men on their responsibilities for health and hygiene and encourages a more balanced division in work, decisions and resources, so that the programme becomes sustainable and exclusion and overburdening of certain groups are avoided.

3.6 Access, functioning and use of NA-water supplies

The involvement of users - men and women - in the location of water facilities has led to a better access to water for all. Where regularity of supply is monitored over the months, averages of between 70% and 85% are achieved, although the situation can be less good in individual villages and neighbourhoods. Monitoring of the regularity of the water supply on a systematic basis takes place in Gujarat and Uttar Pradesh. Because the monitoring system differs - in Gujarat the time percentage of supply is monitored and in Uttar Pradesh the percentage of standposts without water - comparison of results is not yet possible.

In Kerala, monitoring of performance has started, using also time as indicator and a regular system is under development. In Andhra Pradesh no regular monitoring of water supply takes place. Whether access and functioning lead to general use, and how much water is used for consumption and hygiene has not been generally assessed. Methods of use assessment can be improved.

4. Areas for Further Development

Getting measurably improved water use, sanitation and hygiene practices requires a clear and jointly established policy on hygiene promotion in states and districts where NA projects are carried out. Specific aspects are objectives for environmental hygiene, roles of technical, social and health agencies and communities in promoting more hygienic conditions and practices, key principles and approaches in implementation and the measurement of results.

In the following sections, a number of suggestions are made on these aspects. Operationalization is in the hands of the implementing organizations and the staffs of the Support Offices, through dialogue and groupwork.

4.1 Setting priority objectives and formulating indicators

Experiences have shown that the setting of a limited number of clear and measurable objectives is an essential element in planning and implementation of hygiene promotion programmes. This situation does not yet exist throughout the NA-programme. At present there are no common objectives on hygiene conditions and behaviours which are pursued in the whole NA programme. The local objectives may vary from a few key objectives whose realization can be easily determined and for which progress is regularly measured, to a whole list of detailed changes, of which the realization cannot easily be determined in an objective manner.

For the engineering aspects the engineering organizations have objectives which are operationalized in the projects' design criteria. These criteria concern the *designed supply* of drinking water, not the delivery and use. The criteria also do not address the disposal of the surplus water. Besides design criteria, also criteria on delivery, use and drainage are required.

To make it possible to determine the results in hygiene promotion in the overall NA-programme it is proposed that technical, health and social agencies in the NA projects jointly choose a few key improved conditions and practices in water use, environmental sanitation and personal and domestic hygiene as objectives for the integrated programme, while taking into account a number of general guidelines:

- only a limited number of common objectives is set;
- the objectives are relevant for women and men in different socio-economic and cultural classes, for health or other reasons;
- the objectives take into account the present epidemiological insights on where change is most cost-efficient (see WHO-SEARO, 1993);
- the objectives are general enough to allow villagers to formulate their own priority objectives;
- engineers take part and define which of the objectives relate to their own work and working methods;
- for each objective, objectively verifiable indicator(s) are formulated; again with the possibility of local adaptation;

It is proposed that in the next NAP India meeting these objectives and indicators are compared and a few common objectives and indicators for the overall NA programme are

established. In addition, districts and villages can of course set their own locally specific objectives.

4.2 Establishing a baseline

To allow the measurement of the results of hygiene promotion, baseline data are needed to determine what the environmental conditions and behaviours were before the project started. There is no need to collect a large number of very detailed data; concentration can be on the objectives and indicators defined with the project agencies and the villagers. When the baseline study is done as participatory research, the activity also has an awareness raising and mobilizing effect and helps to plan participatory action. It is important that such research is gender specific and that men and women both take part. Implementing staff will need training in participatory research techniques through exchange visits and training support, e.g. from NGOs which are specialized in gender-specific PRA studies.

4.3 Developing or adapting a hygiene promotion strategy

Focus on conditions and behaviours

Because awareness campaigns create new awareness, not new conditions and practices, it is useful to replace all information type activities in the present programmes by activities aiming at objectively verifiable changes in local hygiene conditions and practices. An example concerning safe water storage and drawing in the home is to replace information on safe water storage by a local action in which schoolchildren or members of community organizations visit local homes, observe and record water storage and drawing methods, discuss risks and alternative methods and follow up change. Recording systems for such observations have been developed for illiterate observers (see section 4.7).

Testing alternative strategies

The use of community organization and personal communication methods is very labour and time consuming. It would therefore be very valuable when current attempts at more extensive approaches are continued and intensified. Experiences in India as well as other countries are a valuable resource for these attempts.

One example is the use of radio programmes in combination with the formation of local groups, as planned in Uttar Pradesh. The groups jointly listen to the broadcast, discuss its theme and identify and implement the improvements they want to realize in their own households and community. Important elements of the programme are the forming of groups with a good gender balance and access of the poor, the training of male and female group leaders, basing the promoted improvements on materials, equipment and technologies that are available and affordable to the participants and monitoring results..

Another example is the social marketing, or public health communication approach, to sanitation and hygiene. Public health communication seeks to change a few key behaviours which form the greatest risks in transmitting prevailing hygiene related diseases. A limited number of key messages and a single product to facilitate behaviour change are selected for reaching many people in a limited time. Public health communication programmes follow a carefully structured approach in planning and implementation. A first step is to investigate what hygiene risks are most crucial and which practice(s) will stop these risks. In one Asian

country, for example, the main environmental health risks were the absence of latrines, latrines not being used exclusively and hygienically by all family members and lack of handwashing with soap, mud or ash, and not, as previously thought, the drinking of unsafe water (Boot, 1994).

After choosing the main risks, the programme staff investigates what the people see as the main benefits of changing these practices. These benefits are often not health, but socio-economic in nature and they may differ for each group. They also investigate which media reach each group best and which media they appreciate most, and which constraints need to be overcome. These aspects are also not the same for all the people, but vary with gender, culture and socio-economic level. Women, for example, have a lower literacy than men and printed materials have to take this into account. To find the most suitable messages, products and channels of communication for each target group, the planners segment their programme audience into different groups: men, women, poor, rich, Muslim, Hindu, etc. They investigate for each category what they do and want and what means and control over means they have. The study gives valuable information on what messages and products are most relevant for each group, what an affordable price is and how the messages and products are spread best to reach and convince members of each group. A careful strategy is then drawn up with specific messages, products and distribution channels to reach each target group (WHO, 1993: 11).

Public health communication programmes are used especially in promotion of single products and practices, such as latrines and latrine use, or handwashing facilities and their use before eating and after latrine use. To give the householders access to improved facilities Unicef establishes so-called rural sanitation marts, where households can go after a promotion campaign to see the options, get advice and designs, buy materials and obtain a list of qualified masons.

Defining the roles of implementing agencies

An area for particular attention is the definition and division of hygiene promotion tasks between hygiene educators, community development staff, engineers and community based workers and organizations. An effective hygiene promotion strategy cannot be completely burdened on the non-technical staff. The technical staff will have to adopt a different way of working as well and often the two groups will have to work as one team on a particular issue. Programmes elsewhere have for this purpose developed revised function descriptions and integrated field procedures/manuals, in which the tasks of each participating party are defined. In India this process, which requires consultations between support offices, engineering departments, social and health agencies and local organizations has not yet started.

4.4 Integration into Indian structures

NGOs, health and social departments and CBOs

With the help of external funds NGOs play a role in hygiene promotion in some states. Their own funds seldom allow the continuation of the programme on the same scale. This, and the unavailability of NGOs in some states and districts, makes it essential that government staff in health and social welfare programmes take part in hygiene promotion. This is stated in the Indian VIIIth Five Year Plan, but in what form has not been worked out. The absence of an operational policy and the fact that the Health and Social Welfare Departments have their own priorities and programmes have hampered a joint programme with the technical agencies. In the NA programme, cooperation became possible when it had clear benefits for the departments' own programmes. In AP-III and Karnataka cooperation has been established between the water and sanitation programmes and the social welfare programme for crèches. In exchange for better infrastructure, including proper sanitary facilities, the female crèche workers will promote better water use and sanitation practices with the mothers of the children and the children themselves.

This trend can be built out further by:

- o giving departmental heads of programmes for health and women and children's welfare at district level the opportunity to take part in trainings and orientation visits on modern ways of hygiene promotion, adult learning and gender;
- o support programmes for adult education in including effective hygiene promotion activities in their programmes and obtaining suitable materials and training;
- o capacity building of village level workers and community-based organizations (CBOs) in the use of participatory tools and techniques and theatre for development to promote environmental hygiene practices in neighbourhoods, schools, clinics and women's and youth groups;

Support units

Support units play an important role in introducing gender-specific community participation in the engineering projects and ensuring that technological and social activities together bring better hygiene behaviour. As such they are the indicated party to assist the implementing agencies to review and operationalize the proposed items for a more common policy and strategy on hygiene promotion.

The trend that the support units become Indian NGOs or that their work gets integrated into the government organization in charge of rural water supply and sanitation enhances the longer-term sustainability of the work.

Other support

The Review and Support Missions presently advice mainly on technical, social and organizational issues. Hygiene promotion specialists in some of the missions and ensuring that from time to time the approaches and results of hygiene promotion are analyzed and reviewed will strengthen the NA-programme's pilot character to achieve measurable reductions in risky conditions and practices for environmental health.

An area for support from donors and from sector advisory groups such as WB-UNDP is the adoption of improved scheme objectives, design procedures and manuals which reflect what has been learned on participatory rural water supply and sanitation projects with improved environmental health as aim.

4.5 Use of participatory techniques and tools

The use of participatory techniques and tools has proved to be very valuable for promoting better hygiene. It would be useful when training in these techniques is expanded to engineering staff and to staff and trainers from NGOs, health and social welfare departments which take part in the promotion of better hygiene conditions and practices.

4.6 Formulation of a gender approach

A gender approach in hygiene promotion needs attention. Women and men are already involved in local decisions in technology projects, such as location of waterpoints and design of standposts and latrines and increasingly also in local management of water supply and sanitation. Expansion of this gender approach is needed to ensure that the responsibility of changing hygiene at home is placed not only on women, but that it also gives roles to men, in work, financing and changing their own practices. Awareness raising of technical and social project staff on gender is a first step, to be followed by offering tools, techniques and skills. One example of a recent tool is a manual³ in which staff from various countries in Asia, including the NA water and sanitation programme in India, brought together their techniques for working in a gender-conscious manner in water supply, sanitation and hygiene projects. Ultimately, the programme will need to develop its own gender strategies and tools.

4.7 Organizing a monitoring and evaluation system

Objective monitoring of improvements in local water use and hygiene conditions is important for a number of reasons:

- o The demonstration of measurable improvements shows to decision-makers that is useful to allocate funds and staff to hygiene promotion;
- o Technical staff recognize the importance of hygiene promotion;
- o Clear results improve the status of educational staff;
- o Monitoring is an eye opener for those who monitor; it tells them how effective they are in changing chosen conditions and practices;
- o Villagers find pride in showing achievements;
- o Monitoring gives quantitative data on the effectiveness of a participatory and integrated approach in rural water and sanitation projects.

³ Bolt, E. ed. 1994. Together for water and sanitation. Tools to apply a gender approach. The Hague, The Netherlands, IRC and Colombo, Sri Lanka, NGO Decade Service.

Monitoring can be done in two ways: by periodic reviews of progress since the baseline, using internal evaluation studies, or by setting up a regular data collection system on key indicators for local water use and hygiene.

Evaluation studies are still often done in the form of household KAP surveys (KAP=knowledge, attitudes, practices) by external health or social staff. Current thinking does not favour such surveys much anymore. They use villagers as passive respondents and rely for behaviour on reported changes, which are not always reliable. Engineering staff are seldom involved, so that they do not see where their technologies have failed to change hygiene practices and for what reasons. Moreover, in surveys a large amount of data is collected, which do not always have any relevance, represent the hygiene concepts as held by the survey designers, and are not used afterwards. It is therefore more useful to use other forms of more participatory data collection, or to limit surveys to key aspects for which objectively verifiable indicators have been identified and tested⁴.

More regular collection of hygiene data can either be done by the regular project staff or by members of the project communities. The latter has lower costs and is more educational. Conditions for community-managed monitoring are that the local organizations or workers who collect the data find it useful for their own work and are not overburdened by the work involved. Literacy of community members is not an absolute condition. In Uttar Pradesh, the PSUF uses symbols to monitor community participation and hygiene education activities (Fig. 10). Also for monitoring results, symbols can be used. The format reported in Figure 13 comes from a programme in Guatemala and is an example of simple pictorial monitoring. However, it can still be improved, because 'clean' in 'hands clean' and 'latrine clean' is a subjective concept. It is better to replace this by objective criteria, such as no smears of excreta in latrine and on floors and walls.

The NA-projects use both periodic evaluations and ongoing monitoring to gauge results. However, such gauging is not done by all organizations and as a systematic feature. Recommended is that all parties involved in hygiene promotion include an internal monitoring or evaluation system on water use and hygiene in their projects. Preferably, also engineers will take part in the formulation of the monitoring system/ evaluation and the analysis and use of the data.

For monitoring of service and use of water supplies it is recommended that the monitoring data of NA projects become comparable and that the design of studies on water use is improved.

⁴ For more information on how to measure behaviour change, see: M.T. Boot and S. Cairncross, eds. (1993). *Actions speak: the study of hygiene behaviour in water and sanitation projects*. The Hague, IRC International Water and Sanitation Centre and London School of Hygiene and Tropical Medicine.






| DESIRED PRACTICE | HOUSES IN WHICH IT IS NOT OBSERVED: Houses Visited: // // // // |
|--|--|
|  Wash hands | // // // // |
|  Face washed | // // // // |
|  Wash often | // // // // // // // // |
|  Always use the hand | // // // // // // // // // // // // // // |
|  Latrine often | // // // // |

Figure 13:
Monitoring aid
for home visits

4.8 Assessing cost-effectiveness of hygiene promotion

The budgets for non-technical hygiene promotion are generally small. To assess the effectiveness of these investments is not yet possible for the overall programme, because of the absence of a monitoring system on measured results. Moreover, the technical preconditions for better hygiene, including a reliable water supply leading to a greater water use for personal and domestic hygiene and the use of safe drinking water from source to cup have not yet been generally established.

To compare the impact of a staff intensive approach with alternative approaches, impact research by a team of Indian and Dutch researchers specialized in health behaviour studies is recommended. This research would test the cost-effectiveness of the two approaches for behavioural change in three types of matched villages:

1. villages where intensive (interpersonal and community development action) methods are used;
2. villages where extensive (public health communication) methods are used;
3. control villages, where a water supply project is executed without additional hygiene promotion.

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