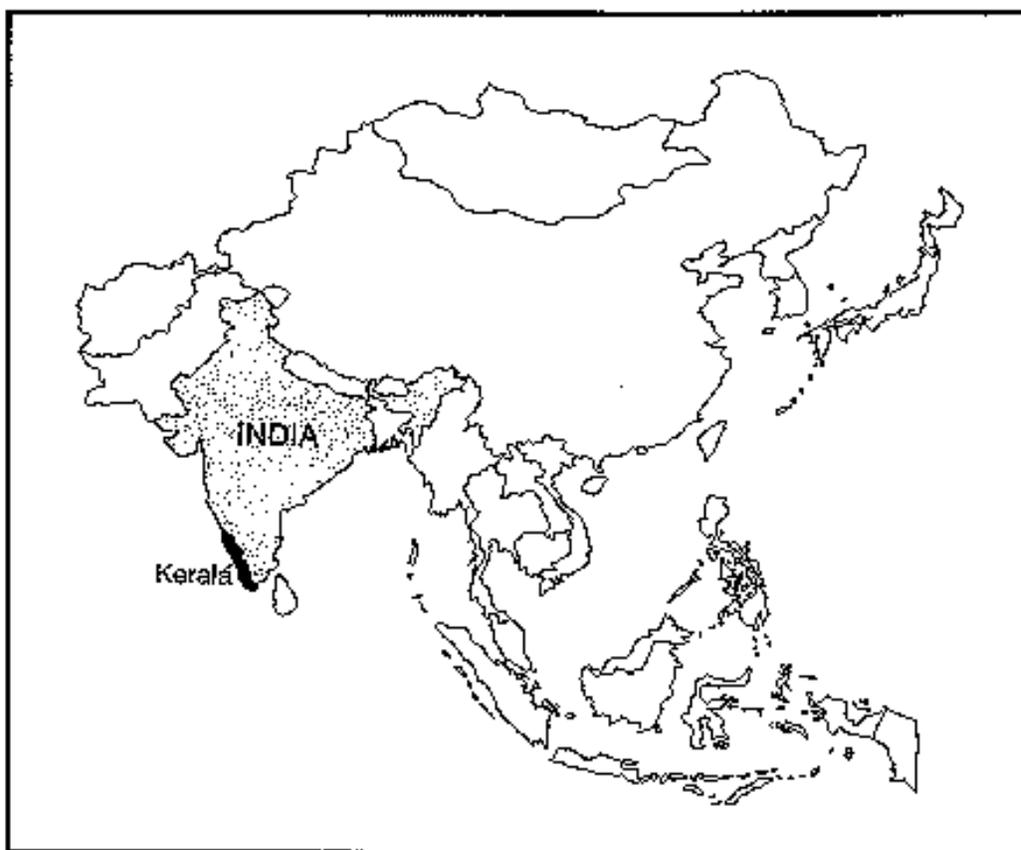


The Community-Managed Sanitation Programme in Kerala

Learning from Experience



IRC INTERNATIONAL WATER AND SANITATION CENTRE

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The multi-disciplinary staff provides support to activities at field level through research, training and briefing, evaluation and advisory services, publications, documentation services and advocacy.

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List of Abbreviations/Vocabulary

AIR	All India Radio
Anganwadi	Nursery school
BPL	Below poverty line
CAPART	Council for Advancement of People's Action and Rural Technology
CBO	Community-Based Organizations
Crore	Ten million
CRSP	Central Rural Sanitation Programme
Danida	Danish International Development Agency
DGIS	Directorate General for International Cooperation (the Netherlands)
DWCRA	Development of Women and Children in Rural Areas
ESP	Environmental Sanitation Programme
ICDS	Integrated Child Development Scheme
ICMR	Indian Council of Medical Research
IUHPE-SEARB	International Union for Health Promotion and Education, South East Asia Regional Bureau.
KWA	Kerala Water Authority
KWSSP	Kerala Water Supply and Sanitation Project supported by World Bank
Lakh	Hundred thousand
MNP	Minimum Needs Programme
NES	National Extension Service
NGO	Non Governmental Organization
NSS	National Sample Survey
Panchayat	Local government with an elected president and elected representatives from each ward. Also refers to the local government area having a population averaging 25,000
PHC	Primary Health Centre
SEU	Socio-Economic Units, three Units with a Coordinating Office.
SPA	Standpost attendant, who looks after a water point and reports faults
WWC	Ward water committee, a voluntary group of seven people responsible for activities in their ward
Ward	Sub-unit of local government, with an average population of 2,500
WSS	Water supply and sanitation

Foreword

Preface

Beginning with the International Drinking Water Supply and Sanitation Decade from 1980 to 1990, policies and strategies have evolved for effective implementation and management of water and sanitation programmes. Many countries, including India, have adopted integrated approaches for delivering services. In order to support effective implementation of the new strategies, multilateral and bilateral donors became deeply involved in the sector.

The Socio-Economic Units (SEUs) of Kerala State in India started as an experimental project in 1988 with support from the governments of the Netherlands and Denmark to assist the Kerala Water Authority (KWA) in developing community approaches for effective implementation and management of water supply and sanitation facilities. The long-term objective of their work is to improve the health and living standards of poor people.

Based on the SEUs' experience in working with communities and local governments, it was possible to develop systematic approaches for the implementation of the sanitation programme. The success of this project lies in its involvement of people of all political and cultural affiliations. The effort of the SEUs have gone beyond implementation of latrines and includes environmental cleanliness around public standposts, wells, springs, drainage and so on. However, the focus has been on developing a decentralized strategy managed by local governments and voluntary community groups.

This publication is significant in that it is one of relatively few comprehensive descriptions of an Asian experience with community-managed sanitation programmes. Learning from experience was a major thrust of the programme. The sharing of this programme's strategies, approaches and experiences should be of use to all those interested and involved in community-based social development. It will hopefully form a useful source of reference for policy makers, planners and development workers.

The publication begins with the background of the SEU programme and its justification in densely populated states such as Kerala. The policy framework at the national and state level are reviewed along with their implication for implementation of community-based strategies. This is followed by strategies and the historical development of the SEU programme. Full-scale implementation, community organization, school sanitation and community monitoring are then described, before examining costs, cost containment mechanisms and local financing. Next comes a focus on results, human capacity building and gender, after which ongoing experiments, design and operation, women masons and participatory techniques are described. Finally potential for sustainability, replication, self-reliant coverage, maintenance, use and institutional integration in the future are described.

The programme described in this book has become a reality through the cooperation, imagination and hard work of many groups. I must express my sincere thanks to each and every ward water and sanitation committee, core group and school health club, and all the stakeholders of the project for their support in managing and implementing the programme.

I would also like to express my sincere gratitude, on behalf of the Socio-Economic Units, to the following persons for their continued support of the sanitation programme: Mr. P.K. Sivanandan IAS, Mission Director & Joint Secretary, Rajiv Gandhi National Drinking Water Mission, Government of India, New Delhi; Mr. N.V. Madhavan IAS, Secretary to Government (Irrigation & Water Supply), Government of Kerala and Mr. K. Mohandas IAS, Secretary to Government (Local Administration), Government of Kerala.

The writing and publication of this document has been made possible with the cooperation of several like-minded colleagues, members of ward water and sanitation committees, school health clubs and core groups. To all those enthusiastic people, I express my sincere gratitude. Indeed, I am equally indebted to Mr. Peter Flik, until recently First Secretary, Water and Sanitation of the Royal Netherlands Embassy in New Delhi, and Mr. Jens Bjerre, Counsellor, Water and Sanitation of the Royal Danish Embassy, New Delhi, for their continuous support and encouragement throughout the completion of the document. Ms. Riet Turksma, First Secretary, Women in Development of the Royal Netherlands Embassy in New Delhi has been most helpful in supporting the improvement of gender development throughout the project.

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The DTP work for the report was carried out by Ms. Lauren Houttuin and Ms. Anneke Groenendal of IRC and I am extremely grateful for their help.

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I hope that this publication will be of help to policy makers, planners, social scientists and social transformers. Sharing the learning experience from the community is the motto behind this and I take this opportunity to share the experience with similar programmes to avoid duplication of efforts in community-based sanitation programmes.

K. Balachandra Kurup

Overview

Environmental sanitation is one of the basic challenges facing humanity. Considerable effort and resources have been devoted to sanitation activities in general, and more particularly to latrine-based programmes, but with mixed or disappointing results. In India the use of sanitary latrines was low at the start of this project: in 1989, 3 percent of rural and 22 percent of urban households owned a facility to dispose of human excreta. In Kerala, the southernmost state of India, this situation was better, with 50 percent ownership in urban and 22 percent ownership in rural areas (see page 11). Generally the more advantaged households rather than the poor have sanitary latrines. The lack of sanitary facilities has a negative impact on water quality, cleanliness of the environment and people's health.

The latrine programmes which cater for the poorer segments of the population are too limited to reverse this situation. Few of them address other aspects of sanitation, such as proper use and maintenance of latrines, washing of hands with soap or ashes, draining wastewater in a safe way and protecting traditional water sources from pollution.

The sanitation programme

The sanitation programme of the Socio-Economic Units (SEUs) began as a component of the rural water supply programme financed by the Indian, Dutch and Danish governments. Because the Kerala Water Authority (KWA) had no expertise on social aspects of rural water supply and no mandate and programme for on-site sanitation, four SEU units were newly created: an SEU North, Central and South and a coordinating office in the capital. They carry out the socio-economic activities in water with the KWA and design and implement the sanitation programme on their own. Though housed in KWA's offices, they are organizationally not a part of KWA; rather they are temporary externally-financed cells.

The programme goal was to provide poor households with permanent latrines of good quality, in such a way that they appreciated the facility and would use it properly. This meant not only construction of latrines, but also mobilization and motivation of the users, and promotion and monitoring for good practices. The essentials of the programme are:

- *flexibility* in planning and experimentation;
- *negotiation* with local government area (Panchayats);
- *decentralized and local management*: central roles taken by the local government and ward water committees (voluntary groups of seven people with at least two (now three) women working with ward populations of about 2500);
- *partnership*: involving personnel affiliated to all major local institutions (schools, nursery schools, clinics, women's or youth groups, local government and so on);
- *no construction for 3 to 8 months after the programme starts in a community* to allow for mobilization, training, contributions, demand creation;
- strong emphasis on *education and capacity building* at all levels;
- *financial contributions from local governments and households*, and other groups before start of programme locally;
- no contractors: reliance on *local materials, local masons, cost reduction* through competitive tenders.

Other elements of environmental sanitation, such as the promotion of handwashing, if possible with soap, the construction of drainage at public taps, the chlorination of traditional wells and the improvement of school sanitation were gradually added to the programme.

The implementation strategy which gradually evolved focuses on enabling the local government and ward water committees to plan and implement their own sanitation programmes in their Panchayats. Although all these Panchayats are classified as rural, many of them have a peri-urban character. The target group in the Panchayats comprises households belonging to the population below the official poverty line, which currently means they have an income of less than Rs. 11,000 per household per year, which in 1995 was equivalent to US\$ 323. In line with the national policy through 1993, the programme covered 75 percent of the costs of the latrines in these households; the households themselves contributed 20 percent in cash and about 5 percent in unskilled labour. Since 1994, the local governments have been contributing 15 percent, which brings the project subsidy down to 60 percent of the cost of latrines.

Apart from providing cash, the programme staff organizes initial motivation activities, provides training and education and works closely with the communities to support implementation of the programme. All other activities - the collection and purchasing of the materials, the selection of the households, the organization of education activities and construction, accounting and administration, monitoring the use and maintenance of the latrines and monitoring selected hygiene practices, are carried out by the local councils and selected ward water committees. This means that in each community the local organizations manage the sanitation programme. They do so with support from the programme's local staff (called field organizers) who work in both water and sanitation programmes. They in turn are supervised by the team of technical and social specialists in the Socio-Economic Units (SEUs) which are located in the north, central and southern parts of the state.

All SEUs are housed by the Kerala Water Authority (KWA), an autonomous parastatal organization for the operation, management and maintenance of piped water supply and urban sewerage systems. The SEUs work together with the KWA in water projects. Rural sanitation, for which the KWA does not have a mandate, is carried out independently by the SEUs. Until recently these SEUs had a mandate to operate only in Dutch- and Danish-supported water projects, which represent about 6 percent (about 1.8 million) of the total population of about 30 million in Kerala.

In total, the programme employs about twenty-four field organizers, nine district-level professionals and two state-level professionals, for all activities, which include the development of large piped water schemes, hygiene education, community mobilization, and environmental sanitation, including the 'latrine-with-education' programme. Thus far the latrine-with-education programme has reached about 200,000 low-income people.

For technology the programme selected the double-pit pour-flush latrine with a permanent superstructure, which was prescribed as a national standard up through 1993. This means a current net unit cost of Rs. 2000 to Rs. 2500 per latrine (or US\$ 56 to US\$ 76 at 1995 prices). The overhead cost is US\$ 3 to US\$ 6 per unit, depending on the number constructed in an area. In order to realize the goal of universal access for the poor, the programme strives to reduce both net and overhead costs of the latrines, without jeopardizing the quality of construction and the educational programme. A second strategy is to stimulate the local governments and other sectoral programmes to provide greater cash contributions and to experiment with a greater share of household financing, for example, through families building either the superstructure or underground structure with their own hands and finances. Efforts are also made to reduce the dependency on external programme staff by training local villagers to take on staff tasks and form skilled support groups for the programme at Panchayat level.

Achievements related to environmental sanitation

Panchayats now have their own community-managed sanitation programme. The Panchayats are often critically short of funds, but many have made this programme a high priority. The local governments as a whole have contributed more than US\$ 380,000 (more than Rs. 1.1 crore) for the programme from 1992 to the present.

In the local programmes the ward water committees (WWCs) play a central role. They consist of seven members including at least two (now three) women. The water committee members are selected through a process of public consultation, with community members and representatives of all formal and non-formal organizations in the area. The committees, which are voluntary, now number about 530. They undertake a wide range of activities related to piped water systems, education and sanitation. These activities include mapping; site selection for water points with the community; organizing reporting systems for water supply; organizing education programmes; home visits; and managing household selection, purchase, transport and much else in the sanitation programme. With their help the programme had built 35,500 latrines by September 1995. The WWCs also monitor the use and cleanliness of the latrines and the indicators for other good hygiene. The results, in general, are good. About 85 to 98 percent of the latrines in each area are judged to be very clean. More than 80 percent have water stored within or very nearby the latrine. Another indicator of hygiene is the availability of soap nearby the latrine, which has been less satisfactory and shows wide variation. About 20 to 70 percent of the families have soap available nearby the latrine. All these results have been confirmed by independent inspections.

Thus far about 5000 public taps have been installed, and to most, improved drainage has been added. A new, user-friendly standpost design has been introduced following consultations between WWCs, SEUs and KWA. The users of some of the public taps have paid 50 percent of the costs of drainage. Local standpost attendants, who are volunteers, keep the drains and areas around the standposts clean. There is a notable difference from other communities where no drains are installed and maintained.

By September 1995, a total of 274 school health clubs had been formed and were operating. The school health club is usually composed of all children in the fifth standard (about 10 to 11 years of age). The school health clubs are involved in a wide range of activities such as ensuring that school grounds are clean and that there are waste containers (which are used) in each class, monitoring the use of latrines and helping to clean them, monitoring washing of hands and cleaning of containers for food, monitoring the school water point and ensuring correct use, and holding campaigns for special health issues in the school and community. For example, one class went to the marketplace to convince vendors to use empty waste receptacles in the correct place. Each year the project provides training for teachers, during which teachers work together to make plans for weekly activities throughout the year. The project also provides some small materials (brightly illustrated book cards, for example) with health messages written on them. Project staff visit schools to support teachers and members of the water committees are stimulated to do the same. Each school has, or through the project is assisting in obtaining, latrines and safe drinking water sources for the children. The schools, usually through the parent-teacher associations, pay 25 to 50 percent of the cost of the latrine facilities. The project considers the school health clubs, the majority of which are very active, to be a good investment in safe hygiene behaviours of the future generation.

In most Panchayats there are some areas where health is jeopardized by the level of environmental and household sanitation. These areas and neighbourhoods have received considerable attention for education programmes, home visits, campaigns and so on. The impact of these activities, which have been ongoing for five years, is considerable in several areas, although unfortunately statistical data are not yet available.

The project has set up a successful women masons programme. This serves two purposes. First, it provides needed construction expertise in locations where masons are not available for latrine construction. Secondly, it provides employment and a good income for very poor women who had served as mason's helpers previously. This small programme, which is being turned into a cooperative, is described in more detail in Chapter 6. A women's group has been assisted in starting a project for chlorination of open dug wells, which are common in many places. The group makes and sells packages of bleaching powder to local housewives and teaches them how to chlorinate the traditional wells. This part of the programme now serves an area with a population of about 100,000 people.

In several districts the authorities have recently established a policy of 100 percent latrine coverage. This means that the local governments will encourage all households, middle income and poor, to build, use and maintain a household latrine. Middle-income households finance 100 percent of the costs themselves.

The possibility for executing sanitation programmes financed by local governments and other agencies as well as through direct payments by households above the poverty line has become greater with the formation of an independent foundation, the SEU Foundation. In this non-profit foundation the SEUs continue their sanitation work and also provide management and education support to other government agencies and NGOs for implementing sanitation programmes. Already the SEUs are carrying out sanitation programmes with the Department of Fisheries in Kerala, Department of Rural Development, Scheduled Castes/Scheduled Tribes Department, and have provided training to a programme in Rajasthan. SEU staff members have also participated in evaluation and appraisal missions of the UNDP/World Bank and Danida-supported integrated water supply and sanitation programmes in the states of West Bengal and Tamil Nadu. The establishment of the new foundation is intended to make it possible to work on a larger scale and with local groups, and tap private sources of financing. It will retain its service to the poorest households as an essential condition to achieve better health and healthier living conditions in the entire State of Kerala. Participatory training on community involvement has been developed and implemented in the programme. Staff have also trained colleagues in other projects within India in participatory techniques.

1. *Background and Start*

1.1 **The State of Kerala**

Kerala derives its name from ‘keram’, the coconut palm. ‘Keralam’ is the land of coconut. It has an area of 38,863 square kilometres, about 1.2 percent of the total surface area of India, but it supports a population of approximately 30 million, which is 3.7 percent of the total Indian population, according to the 1991 National Population Census. The disproportion between its area and population is reflected in the density of settlement. In 1991 the population density was 747 persons per square kilometre. Kerala is situated along a 590 kilometre-long strip of sun-drenched coastline of the Arabian Sea near the southern point of India. The mean maximum temperature is 32° C, with a variation of some 2° C. Kerala is banked inland by the mountain-rimmed border of the Western Ghats. The width of the state varies from 35 to 120 km, with an average of about 65 kilometres (Figure 1).



Figure 1: Location of Kerala State in India.

The state receives a good annual rainfall, which varies from 1250 to 5000 mm with an average annual rainfall of 3085 mm. Kerala is a land of rivers and backwaters. Forty-four rivers, forty-one flowing west and three flowing east, cut across Kerala with their innumerable tributaries and branches, but these rivers are comparatively small, and being entirely monsoon-fed, most turn into rivulets in summer. There are significant backwater areas along the coast which are below sea level (0.6 to 2.5 metres). Thus much of Kerala's coast and plains has a high groundwater table.

Kerala has 1000 rural Panchayats (local government areas) with an average population of about 25,000 people. Settlements are not clustered, but of the ribbon type. Most houses are built along the roads and paths connecting one Panchayat to another (Figure 2). A number of settlements have a peri-urban rather than rural character, some with densities above 2000 people per square kilometre. Each Panchayat is divided for administrative purposes into about ten wards, each of whose population averages about 2500 people. Local government consists of an elected Panchayat president and a council of elected ward members (one member per ward).

Figure 2: Typical settlement pattern in Kerala

Kerala is noted for the early development of its health and education services. The religious diversity and tolerance of its people is commendable. Historically, Kerala has been a pioneering state in the development of programmes for literacy, health care, land reform, emancipation of women, sanitation and family welfare. These programmes were established by the state's princely rulers and Christian missionaries.

The Portuguese set foot in Kerala when Vasco da Gama laid anchor off Calicut on May 21 1498. This historic event marked the beginning of a new chapter in the history of Kerala. The Dutch, the French and the English followed. When India became independent, Kerala was made up of two princely states, Travancore and Cochin, with direct British rule in the northern area of Malabar.

After the State's reorganization in 1956 social services reached fairly high standards. Subsequently the progressive governments started adopting several measures for the uplift of the socially and economically disadvantaged classes including, very significantly, successful land reform and rapid expansion of education and health services. During the first democratic legislative assembly elections in 1957, the first elected communist government in India came to power in Kerala.

With the fairly long tradition of curative and preventive health care, a relatively good network of health and educational institutions was established. The infant mortality rate, which was over 200 in the beginning of the century, came down to 16 in 1991. The crude death rate fell from 16.1 per thousand population in 1951-1961 to 8.6 in 1971-1981 and further to 6.0 in 1981-1991. Life expectancy at birth increased from around 45 years in 1951-1961 to 70 years in 1991. It is currently 68 years for men and 74 years for women. The corresponding figures for India as a whole are 63 years for men and 64 for women (Table 1).

Table 1: Actual and projected life expectancy at birth for males and females in India and Kerala

PROJECTED VALUES OF EXPECTATION OF LIFE AT BIRTH (INDIA & KERALA)				
PERIOD	INDIA		KERALA	
	Male	Female	Male	Female
1980 (base year)	54.1	54.7	64.2	69
1981-1986	55.6	56.4	65.2	69.9
1986-1991	58.1	59.1	66.2	71.1
1991-1996	60.6	61.7	67.2	72.4
1996-2001	62.8	64.2	68.2	73.6

Source: Government of Kerala, Bureau of Economics and Statistics, 1992

Although mortality is low, morbidity rates are high and water and sanitation-related diseases feature prominently, despite relatively high levels of improved water supply and sanitation (Table 2).

In central and some parts of the northwestern Kerala the filarial diseases are quite prevalent, according to the report of Indian Council of Medical Research (ICMR). In the water logged-areas in central Kerala, the mosquito-transmitted disease of Japanese encephalitis was appeared in 1995. Similarly, in many areas, malaria incidence is on the increase, mainly due to inappropriate drainage and garbage disposal facilities.

Table 2: Incidence of infectious diseases in Kerala from 1987 to 1993

INCIDENCE & DEATH DUE TO WATER-BORNE DISEASES IN KERALA										
Year	Cholera		Gastro-Enteritis		Other Diarrhoeal diseases		Polio Myelitis		Viral Hepatitis	
	A	D	A	D	A	D	A	D	A	D
1986	104	3	47837	86	645957	57	140	6	14375	38
1987	203	23	13609	232	665511	62	816	64	15807	23
1988	414	7	24649	247	907606	276	163	7	8961	23
1989	146	6	19760	72	774293	169	45	2	8040	7
1990	178	9		48	871369	122	96	5	9056	17
1991	312	30		140	913431	224	39	7	9287	15
1992	92	6		20	765300	48	91	2	8812	9
1993	36	3		35	812039	60	48	1	9979	9

A = Attacks D = Deaths

Source: Directorate of Health Services, Government of Kerala, Trivandrum, January 1995

Possible reasons for the relatively high morbidity figures are:

- disease reporting in Kerala is high, because the good network of clinics and PHCs (one per 5000 inhabitants);
- Keralites perceive such diseases as serious and will seek help from the government health facilities rather than from traditional health care establishments;
- coverage and quality of performance and use of water supply and sanitation facilities are not yet high enough to have a health impact.

Although it can be argued that the high morbidity figures are the product of a high density of services and reporting of disease, these two explanations alone cannot account for the illness levels in Kerala. Nearly all people are literate, and have access to information about illnesses and diseases. This probably serves to inflate the reported morbidity figures, but what is being inflated is nonetheless a substantial burden of illness. The high morbidity may also in part be a function of decreasing mortality and the greater proportion of older people. This is attributable to lower death rates combined with better child care for the newly born.

The persistence of high morbidity in a region that has seen spectacular successes in the field of health policy may at first glance be surprising. However, it should not be forgotten that Kerala has succeeded in controlling the great scourges of epidemics that lash so many millions in India and elsewhere. The challenge now remains to achieve the same results in the reduction of morbidity.

1.2 Linking sanitation to water supply

The importance of linking water supply and sanitation is expressed in the name of the water and sanitation sector. However, the sanitation half of the equation is still largely ignored. This happens despite the fact that sanitation has a greater impact on intestinal diseases such as dysentery and cholera than water (Esrey, 1994). The three most important sanitation measures to prevent the transmission of diarrhoeal diseases are probably:

- the safer disposal of human excreta, particularly the faeces of young children and babies, and of people with diarrhoea;
- handwashing after defecation, after handling babies' faeces, before feeding and eating, and before preparing food; and

- maintaining drinking water free from faecal contamination, in the home and at the source (WHO, 1993).

The governments of The Netherlands and Denmark have been assisting the Kerala Water Authority financially in the implementation of drinking water supply schemes since the 1980s. Indo-Dutch cooperation in the rural water sector in Kerala was initiated in 1980 and Indo-Danish cooperation started in 1986. The Indo-Dutch cooperation has developed rapidly to cover projects in the states of Andhra Pradesh, Gujarat, Kerala, Uttar Pradesh and Karnataka. Indo-Danish projects are implemented in the states of Madhya Pradesh, Orissa, Kerala, Tamil Nadu and Karnataka. In 1988, on-site sanitation was linked to the Dutch- and Danish-supported water supply schemes.

The Kerala Water Authority (KWA) is entrusted with the provision of safe water, specifically piped water, for the entire state. It is an autonomous parastatal organization in charge of design, construction and maintenance of all urban and rural piped water schemes and piped sewerage networks in the state. It manages 1850 water schemes of varying sizes, although the majority of these are quite small. Among the larger schemes are eleven piped water schemes being implemented with the support of the Netherlands and Danish governments.

In Kerala, socio-economic activities in rural water supply are included only in these bilaterally supported water projects. For this purpose, Socio-Economic Units (SEUs) were established in the late 1980s by the Dutch and Danish governments. There are three Socio-Economic Units located in the south, central and northern parts of the state (Figure 3). Each SEU serves on average 20 Panchayats, that is, a population between 400,000 and 1,000,000 people. A unit is staffed with three professionals specialized in project planning, project administration and management, community organization, hygiene education and monitoring and evaluation. There is a coordinating office in Trivandrum which has two professionals in programme development, financial planning, administration and management, intersectoral coordination. The units and the coordinating office are directly funded by the governments of the Netherlands and Denmark and are located within the premises of the Kerala Water Authority.

The SEUs are responsible for a wide range of water-related education and sanitation activities, not just household latrines. Linkages for sanitation take place with different groups at three levels in the community:

1. With KWA field staff, ward water committees and households, to ensure that standposts are located in sites with good drainage opportunities and roads and paths do not become unintended drainage channels. In addition, user households have participated in developing a user-friendly standpost design. They also choose the location of the standposts, using participatory mapping techniques, to ensure easy access to all;
2. With members of community households and school health clubs to promote environmental hygiene practices and facilities related to personal and domestic hygiene;
3. With wards and Panchayat leaders, to improve public hygiene conditions, such as drainage, school sanitation and environmental improvements.



Figure 3: Areas where Socio-Economic Units are active

1.3 Local conditions

In Kerala, the prevalence of water and sanitation-related diseases is especially high in the coastal belt and the hilly regions of the state. Living conditions in these areas are difficult, due to the very high population density and poverty. Given the lack of basic amenities, people resort to practices such as open air defecation. The situation is particularly difficult for the women.

In the 1950s, the World Health Organization (WHO) sponsored two pilot projects on rural sanitation in India, one in Lucknow and the other in rural Trivandrum. The Trivandrum project, known as the Environmental Sanitation Project (ESP), started in 1957 under the Public Health Engineering Department. It promulgated a single leach pit-type latrine with a squatting slab and the water seal bowl placed directly over the pit. In 1959 there was a scavengers' strike in Trivandrum city and all dry bucket-type latrines were replaced with ESP-type latrines by the Public Health Engineering Department. Subsequently a crash programme was enacted in the National Extension Service (NES) areas to increase the number of sanitary household latrines in the rural areas of Kerala with 75 percent subsidy

(Kurup, 1993). Although the programme succeeded in installing thousands of latrines, construction has not been continued. The programme did not include any user education or monitoring the use and maintenance of latrines after construction, and use of the latrines has been poor.

At the start of the present sanitation programme, coverage figures of sanitary latrines in the project Panchayats ranged from 8 to 32 percent. Data on the behavioural practices were not collected from most of these Panchayats. It is therefore not possible to indicate exactly what facilities, habits and views men, women and children had at the beginning of the programme and how the community-managed programme has changed local sanitation conditions and practices.

However, in 1988, an external consultant carried out a KAP (knowledge, attitude and practices) study in Northern Kerala to assess existing water use and sanitation conditions and practices. The study was carried out in 316 households in twelve Panchayats. Women were the main respondents to the study. Its results showed that some families had already installed a private latrine, either with their own funds or with government subsidies. Convenience and privacy were the main motives for their installation. However, less than one third of the sample population had latrines and nearly two-thirds of these were found to be in an unclean condition. Nearly 48 percent of the households held the opinion that a latrine is unhygienic and not essential and preferred to use open fields. The neighbours' compound was the preferred place for defecation in the absence of latrines. These practices and the unsatisfactory arrangements for drainage and indiscriminate disposal of household water made the areas between the houses very unhygienic (Abraham, 1988).

Data on sanitation conditions in Kerala as a whole indicate that at the time of starting the Indo-Dutch-Danish programme, 50 percent of urban and 22 percent of rural households had a latrine. These included also insanitary types of latrines constructed in the 1960s under the ESP programme as well as overhung latrines (Figure 4). Most households with a sanitary latrine can be presumed to belong to the higher socio-economic strata.

The remainder of the population, including the majority of low-income rural households, rely on excreta disposal in open places, such as canal and river banks and wasteland in private or public places.

To the higher socio-economic strata this situation is not well known. There is a misconception among many well-educated Keralites and professionals that due to the high level of literacy, political consciousness and social awareness in Kerala, it is not necessary to motivate sanitary habits and the proper use and maintenance of water and sanitation facilities. The experience with the Environmental Sanitation Programme (ESP) and other programmes implemented by both governmental and non-governmental organizations shows, however, that most of the provided facilities have not been maintained and used in a satisfactory manner (IMRB, 1994).

Figure 4: Latrine hung over a canal

1.4 The demand for improvements

The demand for sanitary latrines in Kerala is relatively high, but not uniform. Some households are not interested at all, while others are interested, but think that sanitary latrines are expensive and only affordable for the rich.

The demand is usually highest among women, and the demand among the men in fishing villages, which line the long coast of Kerala, is the lowest. In the last few years the demand for latrines has been growing, especially among the lowest socio-economic groups and in the coastal belt. As summarized in Table 3, this growth in demand has several reasons and is gender-specific. The men mention especially better information on low-cost technologies, safety for wives and daughters, savings in medical costs and higher property values. The women mention more privacy, better health, and influence from children, relatives and neighbours.

In contrast to many other places in India, Keralite women historically do not defecate in groups. However, in many places, people go to special sites to defecate in privacy. Some families dig holes as toilets. In some parts of Wayanad district the women defecate in a mud pot during the day time and empty it after sunset. Coastal villages are an exception. Here people use the whole beach for human waste disposal, benefiting from the tide to wash the excreta away.

Table 3: Gender-specific reasons for household latrine demand in Kerala

<i>Reasons for men to construct latrines</i>	<i>Reasons for women to construct latrines</i>
A latrine was a felt need for me but I thought I could not afford one.	Men can go 'out' at any time. We have to wait for darkness for passing urine and defecation and have to control our diet for this.
I was unaware about the possibilities of low-cost latrines - local masons and others always mention septic tank latrines which are not affordable.	We used to go to the beach or canal sides for 'outside area defecation' but when one is seriously ill this becomes a real problem.
I had always wanted a latrine for my family. But suitable technology was not known or not readily available.	My grown-up daughter going to the college started demanding a latrine.
Till recently there was enough open land near my house. Now new houses have come up and going to the 'open air' has become difficult.	Many a time our area has been affected by diarrhoea and dysentery. The Water Committee members continue to insist on the need for cleanliness and use of latrines. SEU campaign on 'Fly Control' in our area also mentioned the need for sanitary latrines.
I am more concerned about the security of my wife and daughter. They face a lot of difficulties in finding a safe place for urinating and defecation during the daytime.	We went to our future daughter in-law's house and saw a good latrine there. They indirectly asked about the facilities in our house.
While using latrines the diarrhoeal diseases can be controlled and money for medical consultation and medicines can be saved.	Our friends in the neighbourhood have proper latrines. We are forced to go outside area for defecation. This is really frustrating.
Having a good latrine increases the value of the property.	As women we are directly/indirectly prone to be teased when we go outside for defecation.

As illustrated in Table 3, the increase in population density coupled with disappearance of open spaces and public lands with a sufficient vegetation cover makes the number of sites suitable for open air defecation increasingly scarce. The distances which people have to walk increase and so do problems with privacy and safety, especially for adolescent girls and women. Women in many areas control their diets to ensure that they only have to go to the toilet shrouded by the privacy of the dark. These habits not only make their lives very uncomfortable, but also increase the risk to their health. The shortage of nearby sites is also strongly felt during times of illness and by old people. Both men and women are therefore interested in building a latrine to solve problems of privacy for the women and increase the convenience for the family.

Parents, furthermore, have a strong desire to provide a better life for their children and improve the living conditions and physical assets of the family. Families with access to extra income tend to invest this not only in consumer goods but also in better housing. One effect

of the Kerala land reform act has been that for home owners, men in particular, installing a latrine is something which increases the property's value, no matter how small that property is. Furthermore, the aspirations to keep up with one's neighbours are high. If some families install a latrine that has a certain status, such as having a shiny white porcelain pan or a good finish on the walls, others want the same.

The demand for other sanitary provisions and practices such as soakage pits, drying frames and garbage disposal facilities is on the increase. However, these activities are quite scattered and are not consistently implemented. Moreover such activities are concentrated at institutions, such as schools, nurseries, Integrated Child Development Scheme (ICDS), health centres and women's centres and seldom include promotion and monitoring of hygienic practices in homes.

A demand exists for water-borne (flush) systems, especially among the higher income households. However, the use of this type of system is only possible in the urban areas. In the rural areas it is not a viable solution because of the prohibitive costs of the facilities, the scarcity of water in many regions and the shortcomings of conventional sewage methods in terms of pathogen elimination and recycling of valuable components. The range of possible facilities for rural populations has not been thoroughly considered. The SEU programme has offered the permanent double-pit pour-flush latrine as the only option, largely because of past policies at state and national levels.

1.5 Existing policies and programmes

Sanitation planning in India is more than 50 years old. In 1923 the first report on sanitation problems with a national perspective was prepared. In 1928 (in Madras) and later in 1935 special provincial orders were issued by the colonial government for a rural latrine construction programme in some of the provinces. This cannot be considered a systematic latrine programme, however. In actual practice it depended on the initiatives of the district health officers.

The history of rural sanitation in India began in earnest with the movement for liberation of scavengers, which was an integral part of the freedom movement launched by Mahatma Gandhi in the 1920s and 1930s. In 1932 Mahatma Gandhi established the Harijan Sevak Sangh for the liberation of scavengers which had very significant social implications as well as serving to launch the rural sanitation movement.

The Environmental Hygiene Committee (1948-1949), appointed by the new Government of India to undertake the overall assessment and planning of environmental sanitation, recommended a 40-year plan to cover 90 percent of the population. However, this committee's report, as with those of its predecessors, was not operationalized. It was only in 1954 that the rural sanitation programme was introduced in the first five-year plan, as part of the health sector. However, until the 1980s, there was confusion and inconsistency on the sanitation component.

The International Drinking Water Supply and Sanitation Decade was launched in 1981 with a target of 25 percent latrine coverage in the rural areas over the next ten years in India. However, it did not receive the desired impetus. During the seventh five-year plan (1985-1990) a new programme for the construction of sanitary latrines was launched for village-level institutions such as health centres, schools, anganwadis (nursery schools) and so on. Furthermore, construction of individual household latrines was supported under a number of government programmes having social objectives. The Ministry of Rural Development was

made the nodal ministry in 1986 for planning, implementing, supervising and coordinating the Central Rural Sanitation Programme (CRSP). The national programme on CRSP stipulated that 50 percent of the resources given for sanitation were to be provided by the central government and 50 percent by the states. Rural sanitation was also included as part of the 20-point programme of the government in November 1986. Also in 1986, the Council for Advancement of People's Action and Rural Technology (CAPART) was formed to accelerate the implementation of rural sanitation programmes through local NGOs.

Following recommendations from the World Bank/UNDP Technology Advisory Group, the double-pit, pour-flush latrine with superstructure became the single prescribed technology in India. Households installing this latrine received a government subsidy of between 80 and 100 percent for construction costs. The criteria and norms under CRSP were modified in February 1991 in the light of earlier experience. The prescribed unit cost of a household latrine was increased to Rs. 2500. The new rules required families to contribute 5 to 20 percent, depending on their socio-economic level, and the local government (Panchayats) to contribute 15 percent of costs. All states, including Kerala, were expected to follow the construction norms and subsidy system.

Then, in June 1993, the Rajiv Gandhi National Drinking Water Mission published new policy guidelines for the Central Rural Sanitation Programme (CRSP). The new guidelines offer a broad technology choice of direct and indirect single-pit, double-pit and VIP latrines according to local preferences and soil conditions. They abolished the subsidy for the households above the poverty line, but retained a flat subsidy rate of 80 percent for those below the poverty line (DRD, 1993). In order to ensure a sense of participation and also to inculcate a feeling that the assets belong to the families, the new guidelines provide for a uniform 20 percent contribution by beneficiaries below the poverty line. All the state governments, including Kerala, are meant to follow the Government of India's policy and guidelines for the implementation of rural sanitation programmes, as set out in the Central Rural Sanitation Programme (CRSP) guidelines. The population coverage of sanitary latrines in 1989 when the SEU programme started was 3 percent for India as a whole and 22 percent for Kerala. A lot of work thus remained to be done to achieve full latrine coverage and also improve other sanitation conditions and practices.

1.6 Implementation in Kerala

A wide range of government departments and agencies are involved in the implementation of sanitation programmes in Kerala. In the last five years many more public institutions and private agencies have become involved. Within the public sector, there are four centrally funded programmes and other special component programmes, as well as the programmes supported by bilateral agencies (Danida, Directorate General for International Cooperation (DGIS)) and international organizations (the World Bank, UNICEF and other donors, mainly through the Christian missions). Implementors include the Departments of Rural Development, Municipalities, Fisheries and Panchayats, the Socio-Economic Units, local NGOs and so on. The number of NGOs involved in sanitation has increased tremendously, although many of them do not have the technical know-how and commitment in serving the community. The role of the commercial sector is substantial among middle-class groups. Contractors also operate within some larger programmes, although no data exist on their current outlay and future potential.

The State Rural Development Department implements the CRSP and the Minimum Needs Programme through its local offices. For these programmes the Government of India provides 50 percent of the funds and the remaining portion has to be met from state

government provisions. This has been a serious problem from the very beginning. In 1989-1990 and 1990-1991 for example, funds for the programmes were not transferred by the Government of India. Table 4 gives an overview of the development of the CRSP and MNP latrine programmes in Kerala from 1986-1987 to 1994-1995. It can be seen from the table that in general the programmes are not implemented consistently and the records are not maintained systematically at the block offices and at the headquarters. Unfortunately, the groups involved in the programmes find fault with each other rather than working together to resolve these issues.

Table 4: Development of Central Rural Sanitation Programme and Minimum Needs Programme in Kerala State from 1986-1987 to 1994-1995

<i>Central Rural Sanitation Programme</i>					<i>Minimum Needs Programme</i>			
Year	Latrine target in numbers	Achievement	Allocation in 1000 Rs.	Expenditure	Target	Achievement	Allocation	Expenditure
1986-1987	1200	61	28.9	6.8	NA	2669	NA	13.5
1987-1988	1200	1369	59	21.8	2000	815	25.0	14
1988-1989	1705	771	83.8	4.2	1000	1599	15.0	17.8
1989-1990	1023	73	74	0.2	8000	0	50.0	33
1990-1991	1845	0	74	0	8000	1469	61.5	19.9
1991-1992	7422	3911	148.4	24.7	3000	0	60.0	NA
1992-1993	3711	2168	64.7	25	3000	0	70.0	0
1993-1994	15000	7868	97.2	256.3	11250	6858	225.0	107.1
1994-1995 CRSP & MNP	15956	20733	194.0	383	included under CRSP	included under CRSP	200.0	136.4

- Sources: 1. Report of Annual Review meeting 22-23 May 1995, Rajiv Gandhi National Drinking Water Mission, Ministry of Rural Development, Government of India, New Delhi
2. Commissionerate of Rural Development, Government of Kerala, March 1995

In the CAPART-supported sanitation programme approximately Rs. 430 million (US\$ 12.6 million at current exchange rates) was provided to 122 NGOs in Kerala from 1987 to 1992 for building approximately 24,000 latrines. However, no data are available on, among others, the number of latrines constructed. Thus, a valid and complete picture of the activities of various organizations and sectors in improving sanitation in Kerala does not exist. Neither are reliable data available on the magnitude of their operations, the strategies and results of their programmes.

In 1988, the Government of Kerala established the State-level Sanitation Cell in the Rural Development Department. According to the government order, the objectives of the cell are to coordinate sanitation activities, to help the state in the formulation and planning of sanitation programmes, and to provide assistance and technical support including both education/training and construction to implementing agencies at state, district and block levels. Subsequently District Sanitation Cells were established for accelerating the sanitation activities at district level and below. In spite of these efforts there does not appear to be a comprehensive overview of the situation, or a widely shared approach for future sanitation

programmes in the state. Notwithstanding the existing policies and programmes, the population coverage for sanitation was only 9 percent for India as a whole and 22 percent for Kerala.

There are further indications that, in spite of the increased efforts, the needs for safer human excreta disposal are likely to outrun the sub-sector's construction capabilities for many more years to come. The 1991 National Population Census estimate for rural latrine coverage in Kerala is 44 percent and for urban latrines it is 73 percent. It appears now that these figures are overestimated, and according to available information, coverage in rural sanitation in the state is only around 30 to 35 percent. According to the National Sample Survey (NSS) and combining rural and urban households, 2.9 million or 53 percent of 5.5 million households in Kerala are without any type of sanitary latrine. It is estimated that public agencies and related groups support the construction of 37,000 latrines each year for households below the poverty line. Between 60,000 and 70,000 houses with latrines are constructed every year in the public sector, according to the estimate of the State Planning Board. However, at present these estimates are only based on construction figures supplied by the larger programmes. The real extent of need and demand --and the capacity to meet this demand-- is not known and urgently needs investigation. For the other organizations no information on sanitation activities exists.

The SEU programme is the biggest facilitator. However, at current rates of population growth, assuming a small but continuing increase in delivery capacity, it is estimated that half of the population below the poverty line will still lack sanitary latrines by the year 2000 (see section 7.1). SEU cannot extend a community-managed sanitation programme to this size of population by itself. If substantial coverage with good use and maintenance and improved hygiene behaviours is to be achieved, then a different strategy is needed by SEU and by others. Chapter 7 examines this, looking to the future.

In addition to construction, there are important related issues of use, maintenance and rehabilitation of toilet or latrine facilities. Some agencies involve user households in planning and construction and have organized education and follow-up programmes. However, this is not yet a universal phenomenon.

2. Approach of the SEU Programme

2.1 Objectives and principles

The programme goal, as defined at the beginning of the SEU programme, was rather general: to develop ways of providing poor households with proper latrines for improved public health. The young project translated this to mean not only construction, but also mobilization and motivation of the beneficiaries, arranging for involvement of local groups, construction of technically sound latrines at low cost, promoting good hygiene practices and monitoring maintenance, use and hygiene.

To achieve this goal, it was decided that community organization, mobilization and education must start well in advance of construction activities. Monitoring and education would also be continued after the installation of the technical facilities.

Based on the experience of the pilot programme described in the next section, and on the experience of other programmes, it was possible to develop a strategy for the sanitation programme with the active participation of the organizations and people in the communities (Panchayats). The SEUs concluded that another approach than usual was required for efficiency and effectiveness. The only answer to the question of how to provide effective sanitation facilities to larger numbers lay in the mobilizing of existing organizational resources. To put it differently: not to do everything themselves, but to collaborate closely with and work through community organizations.

Negotiations were held with donors in 1990. It was finally agreed that the objectives of the sanitation activities would be:

- 50 percent latrine coverage and use by *poor* households who have no sanitary facilities, with the programme giving financial assistance to Panchayats;
- promotion of improved sanitation facilities and habits in *all* households, in schools and at public water points, where households above the poverty line finance the installation.

Because no public health impact is possible without universality of sanitary improvements by almost all households (Esrey, 1994 mentions 75 percent), the first objective was later adjusted to:

- 100 percent latrine coverage and use by households below the poverty line, with a greater financial contribution from the Panchayats to make extensive coverage financially viable.

2.2 Target group and technology

In sanitation the tendency is that persons in the higher socio-economic strata are the first to install latrines in their homes. They are also, in many programmes, the ones who tend to benefit from subsidies for latrines, while in reality they could have installed such facilities without subsidy (van Wijk, 1981:30). This was the reason why the SEU team decided that, in contrast to other sanitation programmes, the latrine component of this programme would focus only on the households below the poverty line. These are households which have an income of less than Rs. 11,000 per year or Rs. 900 per month (US\$ 26 at current exchange rates), such as that of Pathuma (see Box 1). The other components of the programme, such as drainage at public standposts, school sanitation and hygiene promotional programmes are meant to benefit the community as a whole.

Box 1: Interview with beneficiary household

Pathuma is an elderly woman of 55 living in Kozhikode district. She is the head of the household, having been deserted by her husband who married her years back. She wins her bread by helping the local school in their noon meal programme. She also helps in a neighbourhood household as part-time maid. Staying in a small house with very little land around, privacy was the biggest problem for herself and her two daughters of 18 and 24 years. Her daughters also persuaded her to contribute money to own a latrine.

Pathuma is also a member of the local beneficiary committee. She was to motivate 15 other poor families to construct a latrine at the same time so that the transportation costs of the materials could be reduced. It was a difficult challenge. Nevertheless, undaunted she undertook the task. She managed to convince all her neighbours and did not have to pay for the transportation of the bricks.

Households below the poverty line received a subsidy of 75 percent on latrine construction. However, the programme wished to stretch the available funds to reach more families, and decided on a strategy of minimizing construction costs and maximizing local contributions, while retaining basic quality levels for construction and design. Chapter 5 describes how this strategy has been operationalized in the course of the programme.

2.3 Pilot testing of latrine programme

For reasons already explained earlier (see section 1.5), the programme did not investigate the users' preferences and willingness to pay and give them a choice in technology, but decided on a given latrine design and subsidy following national policy at the time. The design used was the double-pit pour-flush latrine with squatting pan in a steep gradient and a trap with a 20 mm water seal (Figure 5). The same model is used in the World Bank and CAPART programmes in Kerala. Because most programmes in Kerala include a complete superstructure, this was also included in the Danish- and Dutch-supported programme.

To start the programme in 1987-1988, the Socio-Economic Units working in north Kerala constructed 1041 household latrines of this type, with the involvement of the families, plus eight institutional latrines. The initiative also included promotion of sanitation and monitoring of maintenance and use. The results of this initial test were very good. It was decided to expand the programme to the areas of the other two Socio-Economic Units that had just been set up.

Faced with the challenge of helping the communities and households to construct a large number of latrines, it was not immediately obvious which management and administrative strategies should be used, particularly regarding institutional linkages. The SEUs therefore decided to try out different institutional arrangements for programme implementation. This pilot testing, which took place in 1988-1989, compared planning and implementation by:

Voluntary and semi-governmental institutions

Three different institutions were identified with sufficient experience and manpower to manage a latrine programme. Each institution was commissioned to construct 500 latrines in different Panchayats.

Panchayats and voluntary ward water committees

The ward water committees include members of active local institutions, such as the Health Department, ICDS, schools, youth and women's organizations. Together they constructed a total of 1000 latrines in two Panchayats.

Socio-Economic Units

Staff of the SEUs worked directly in two Panchayats, constructing some 500 and 1000 latrines respectively.

In all cases, the double-pit pour-flush latrine was built with a permanent superstructure and in accordance with the national policy, which prescribed an 80 percent subsidy on the costs of the materials and skilled labour. The participating households paid a 20 percent cash contribution towards the construction cost and dug the two latrine pits. Adding the cost of digging, the total value of the users' contribution was about 25 percent, with the external subsidy of 75 percent covering the remaining unit costs. Being a poverty-oriented programme, all the communities selected had to have a large proportion of households (at least 40 percent) below the poverty line.

An external evaluation of the pilot programme was carried out by the Gandhigram Institute of Rural Health and Family Welfare in 1989 (GIRH, 1990). The results of the pilot programme executed by the Panchayats and the ward water committees were the most satisfactory. The work of the voluntary and semi-governmental institutions was weaker in education and in obtaining the commitment of the families and community. The work directly implemented by the Socio-Economic Units was good, but required a high staff input. This made the programme very costly and not sustainable on a larger scale. The best way to mobilize local institutions and build up lasting local capacities appeared to be through the local government (Panchayat), the ward water committee and the Socio-Economic Units working together.

The pilot programme further showed the need for sufficient time (about 6 months) for education and mobilization activities to create a demand for latrines and for households to pay their contributions, as illustrated in Box 2. Hence a period of at least 6 months precedes construction. Other lessons were the need to involve the health department staff or members from other institutions which were active locally and the need for monitoring of maintenance and use for at least a year after construction. These aspects became elements of the subsequent programme.

Box 2: Programme from point of view of mother and father who needed motivation

Amina and Mohammed live in Nediyruppu Panchayat with their three children. Amina is a quarry worker and she gets Rs.20 per day. Mohammed is a fisherman and his earnings vary according to the season. However, on an average he gets Rs. 30 per day. Earlier Mohammed thought that like other programmes this will also be just an eyewash and despite Amina's repeated persuasions he did not want to build a latrine. He was adamant that they had other priorities. He was also not sure of the quality of the new structure to be built. It was at this juncture that Basheer, his friend and a WWC member, asked him not to miss the opportunity. Basheer visited him five or six times, but at that time Mohammed did not have any money. He thought he would borrow some money from some of his friends, but they were also not able to help him. Some of them had already paid for their own latrines.

One day when he was returning from work he happened to come across a film show in the hygiene education session. Meanwhile Amina had attended the women's camp. Having decided to try and build a latrine, the sessions increased their desire to join the programme, but they did not know how to pay the deposit. Finally Amina thought of pledging her ear ring, the only gold they had in the family. Even though it cost her high interest from the pawner she thought she could repay it by working overtime. She gave Rs. 500 to her husband and requested him to pay to the Panchayat for the latrine. Within one month they became the proud owners of a sanitary latrine. Asked whether she was unhappy with the huge interest on money she owes, she replied 'I have actually saved eight times the money which we would have invested, had we build a latrine by our own initiative'. It is true that many poor householders are spending Rs. 4000-5000 for making a simple sanitary latrine in the remote rural areas of Kerala.

2.4 Other sanitation elements: drainage and well chlorination

Although latrines are very important, they are not the only element in a sanitation programme. The ward water committees (WWCs) are also involved in maintaining environmental conditions around the standposts, in the installation of low-cost drainage systems, garbage disposal facilities and washing platforms. Furthermore, a special thrust has been given to the overall improvement of environmental conditions and hygiene in homes and villages. In these tasks the water committees are assisted by standpost attendants (SPAs), people who live near the standpost and have volunteered to look after their hygiene and also monitor water supply and report problems.

Standpost drainage

The water supply for poorer households is provided through public standposts. Before the formation of the SEUs, the standposts tended to be indiscriminately located based on suggestions by the politicians and influential people in the locality. The SEU programme, with the support of the water committees, introduced a social dimension to the design and location of standposts. New criteria were developed, which stipulated that one standpost serves a minimum of fifteen to a maximum of 40 households including at least five poorer households, with a maximum walking distance of 250 meters. Similarly, other conditions such as ensuring good drainage and avoiding water stagnating on the platform and in the surroundings are mandatory when identifying sites for standposts. All the people in the immediate area are invited to suggest a convenient place for locating the standpost. Care is taken that in these sessions women participate alongside men and can take part in the decision making (for details on gender aspects see section 5.4).

The standpost attendants are identified by the WWCs from among the regular users of the taps. They are in the best position to report leakages and breakdowns, take care of the

environmental conditions around the standposts and, with the support of the water committees, work to assure good maintenance and proper use of the standpost. A strong link between the committee and attendant has already been established for this. The backup from the committee is very important. For example, in one case, the standpost attendant tried to convince some lorry (truck) drivers to stop washing their vehicles at the standpost. Not having success, he got the water committee to request the local engineer to close down the standpost temporarily. Later the drivers apologized to the SPA and changed their behaviour.

Figure 6: Standpost conditions with and without involvement of standpost attendants.

Well chlorination

In an area with as many private wells as Kerala, it is unavoidable that these water sources continue to be used for drinking, cooking, washing and cleaning, at least during the months they contain sufficient water.

With this in mind, the SEUs commissioned the Kerala State Pollution Control Board to carry out a study on private wells. The purpose of the study was two-fold:

- to assess the quality of water in traditional water sources (open dug wells) with a view to determining if an intervention was needed to improve water quality;
- to determine if there was cross-pollution from the latrine pits to the family wells.

The results showed that the five closed wells with handpumps in the study had superior water quality with no faecal coliforms, while all the 144 open dug wells had bacterial pollution. The degree of contamination varied. Of the 144 open wells, about 18 percent had fewer than 100 faecal coliforms per 100 millilitres of water, while 21 percent had more than 700 faecal coliforms per 100 ml of water. One cause of pollution was cattle sheds which were built too close to some wells. However, no cross-pollution was identified from the SEU-supported latrines. It was concluded by the research team that SEU-supported latrines are well constructed and at an adequate distance from wells to prevent cross-contamination. In addition, there are so many different sources of pollution that it was very difficult to isolate the amount coming from the latrine pits. While it is hoped that there is no cross-contamination from the latrine pits, another study is about to be completed which investigates this issue again.

Because of the problematic quality of well water, the programme decided to take up promotion of well chlorination in its environmental sanitation programme. Chlorination promotion consists of three elements:

- a public mass campaign through radio and press to make the people aware of the poor water quality in unprotected wells (Figure 7);
- an income generation project for a rural women's group to package and sell small quantities of chlorine and provide an education and chlorination service for rural women who want to chlorinate their domestic well (Box 3);
- assistance from a grant from the Government of Kerala to households below the poverty line to renovate their wells, with 50 percent of the expenses met by the beneficiaries.

Translated from The Hindu newspaper, March 16th 1992

Well water highly contaminated

From our Staff Reporter
THIRUVANANTHAPURAM, March 15

All is not well with the water in the wells of the State. Studies in the past on water samples from wells, which cater to the domestic demands of the majority have proved high contamination of water.

With a view to disseminating simple water purification methods at the grassroots level, a one-day training camp was held for 50 task-force volunteers from Vizhinjam Panchayat. Organised by the Kerala chapter of the International Union for Health Education South East Asia Regional Bureau (IUHE SEARB) the camp highlighted various aspects on water handling, storage and purification.

The alarm bells on the widespread contamination of well water were sounded with the findings of a study by the Kerala State Pollution Control Board last year. The study, which analyzed water samples from 50 wells in three districts of the State proved an undesirably high presence of bacteria.

Excess presence of bacteria: Coliform or faecal bacteria, the presence of which is a yard-stick to ascertain whether water is fit for consumption or not, was found in undesirable abundance. The presence of microbacteria in the water samples exceeded the limit of ten Coliform a 100 mm of water prescribed by the Bureau of Indian Standards, by ten to seventy times.

The undesirable abundance of Coliform was caused by a combination of external and environmental factors besides the mode of water usage by families with wells in their courtyards. Surprisingly, the study showed that there was no link between the proximity of latrines pits and a high incidence of Coliform. Rather it was water in the wells kept open which were prone to an alarming presence of microbacteria. Of the 150 wells taken up for study, 144 were open.

Significantly water drawn from wells with a handpump registered a minimal presence of Coliform. In all, 83 wells contained highly contaminated water. It is surprising that with the contaminated water continued to have been in use, no major outbreak of Typhoid or Cholera was being reported in the State.

Non-fatal diseases: Reasons cited for this are that although incidence of major water borne diseases in the State is low, there is a high frequency of non-fatal, yet strength-sapping diseases due to consumption of contaminated water. Vomiting and dysentery are common and lack of awareness among the public has prevented them from recognising these signs as symptoms of a water-borne disease. The general cleanliness of the people of the State is another factor that checked outbreak of major diseases.

Promoting health awareness on the modes of water usages is one of the prime objectives of Socio-Economic Units (SEUs) under the Kerala Water Authority, which implement schemes for distribution of drinking water with public participation. Some of the health habits stressed by the SEUs are -digging latrine pits, garbage disposal sites and cattle sheds at a healthy distance from water source.

Besides, wells should be protected from rain water and other pollutant seepage and periodically treated with bleaching powder (2,5 grammes for 1000 litres of water). Another norm to be followed is washing clothes and cattle well away from wells

Figure 7: Press report of well study

Box 3: Well chlorination for income generation by women

Domestic and public wells are an important source of drinking water in India. The highest density of such wells can be found in Kerala. A bacteriological study of 150 such wells by the Kerala State Pollution Control Board in 1991 (SEU Research Report No. 6) showed that 96 percent of these wells were bacteriologically polluted. To counteract this and provide potable water, the Socio-Economic Units, created under a Dutch- and Danish- supported programme that is temporarily part of the Kerala Water Authority, have started a pilot well chlorination programme with the Mahila Samajams, the local women's organizations.

Those members of the Mahila Samajam that want to participate divide themselves into two groups: those who repack the chlorine powder into small packages of 30 grams, and those who promote and carry out the chlorination through home visits. The repackaging is necessary, as chlorine powder is sold only in large packages of 250 or 300 grams in the shops and poor housewives cannot afford to buy a whole package at once.

Each package is sold at a price of 75 paise (= US\$ 0.03 at 1992 rates). This amount covers the costs of the chlorine powder itself (25 paise), the packing charge (15 paise) and the promotion and education charge (35 paise). The women promoters explain to the woman of the house why the chlorination of her well is important and teach her how to carry out the work. For this purpose, each promoter has a card with a matrix giving the various widths and depths of a well, with in the boxes the amount of chlorine powder required. If 75 grams is required for a particular type of well, the promoter will sell three packages and teaches the woman of the house to divide the third package into half. There is an extra service charge of 50 paise, when the promoters carry out the chlorination themselves. Many women also buy extra packages for other cleaning purposes.

As promotion is more difficult and time consuming than packaging, the promoters get a higher share of the profit. Packers work in a team of six and share whatever amount is made on packing charges for the packages sold by the promoters. The promoters have an identity card given by the SEU and work in teams of two when they go into a Panchayat. Incomes made from promotion charges are shared equally between the two members. Initially the promoters are helped by the female members of the ward water committees, who may introduce them to the households. In villages where ward water committees are already in existence, the promoters usually have few problems. In others, they may need a little time to be accepted, but after education on how the wells are polluted, usually only a few households do not take part. Apart from giving health education and training the women how to carry out the chlorination, the promoters also advise the households not to use the water for two hours, to avoid a strong chlorine taste.

The Mahila Samajam members in Poyya are now selling packages in four Panchayats and have recently started in a fifth. In addition, they have sold 3000 packages outside the area. This includes to Primary Health Centres, since the District Medical Officer has too small a stock and stimulates the centres to buy additional packages from the Mahila. The accounts of the marketing programme are kept by the treasurer of the women's organization. For each Panchayat, a record is kept on the number of teams involved in promotion, and for each team the treasurer records the number of packages sold for chlorination, the number of wells chlorinated, the number of packages sold for other purposes and the total amount received. In this way, the group has been able to earn back the initial starting capital of Rs. 10,000 and to establish a reserve of Rs. 3000 to buy new bleaching powder. The women now manage their business completely by themselves and pay new stocks of chlorine from these profits. Asked why they had taken up this business, they said that they liked to earn some money as well as serve their community.

3. *Full-Scale Implementation*

3.1 **Organization: who is involved?**

Full-scale implementation of the programme started in 1991. The three SEUs and the coordinating office prepared a plan of operations for a period of three years. The plan foresaw work with 58 Panchayats, having a total population of about 1.4 million. All Panchayats had been identified by the government and the donors during 1985 and 1986 for the bilateral-supported water supply schemes.

At the state level, the SEU's sanitation work is linked with various government departments. In some cases the linkages focus on sector policy development through, for example, the State Sanitation Cell in the Rural Development Department. In other cases, government departments support the sanitation programme financially and/or join in implementation (Fisheries and Health Departments).

For the management, planning and implementation of activities the focus is very much at the local level, as the following organizational chart shows (Figure 8). The local government (Panchayats with an average of about 25,000 people) and their wards are the heart of the programme. Wards are the political and administrative areas into which each Panchayat is subdivided. A ward covers about 2500 people or 450 households. Each ward has its own ward member, a person from that place who belongs to a political party and has been elected as the ward's representative by its inhabitants. This person, usually a man, automatically becomes a member of the ward water committee.

Ward water committees

The ward water committee (WWC) is a voluntary group of seven people which, besides the elected ward member, has at least three women and representatives from groups that are active in the ward. These may include, for example, two youth representatives, representatives of the women's organizations, a school teacher, and an anganwadi (nursery school) worker or health worker (based on their interest and involvement in this sector). This composition ensures that all active groups, all points of view and all local political interests or parties are represented. The WWC is able to be a non-political group precisely because all views are represented and all decisions must be made in open meetings of all members. The WWC stands for the development of its ward. The members' political affiliations and belief in a particular political party does not (except in isolated cases) affect the implementation or management of the programme.

For identifying the members for the ward water committees a ward level meeting is organized. The residents from the locality and representatives of organizations in the area are requested to assemble in a communal place, which may be a school or health centre or any other convenient place. During this gathering they will nominate the members for the WWCs based on the following criteria:

- resident of the particular ward
- respectable, reliable and committed person

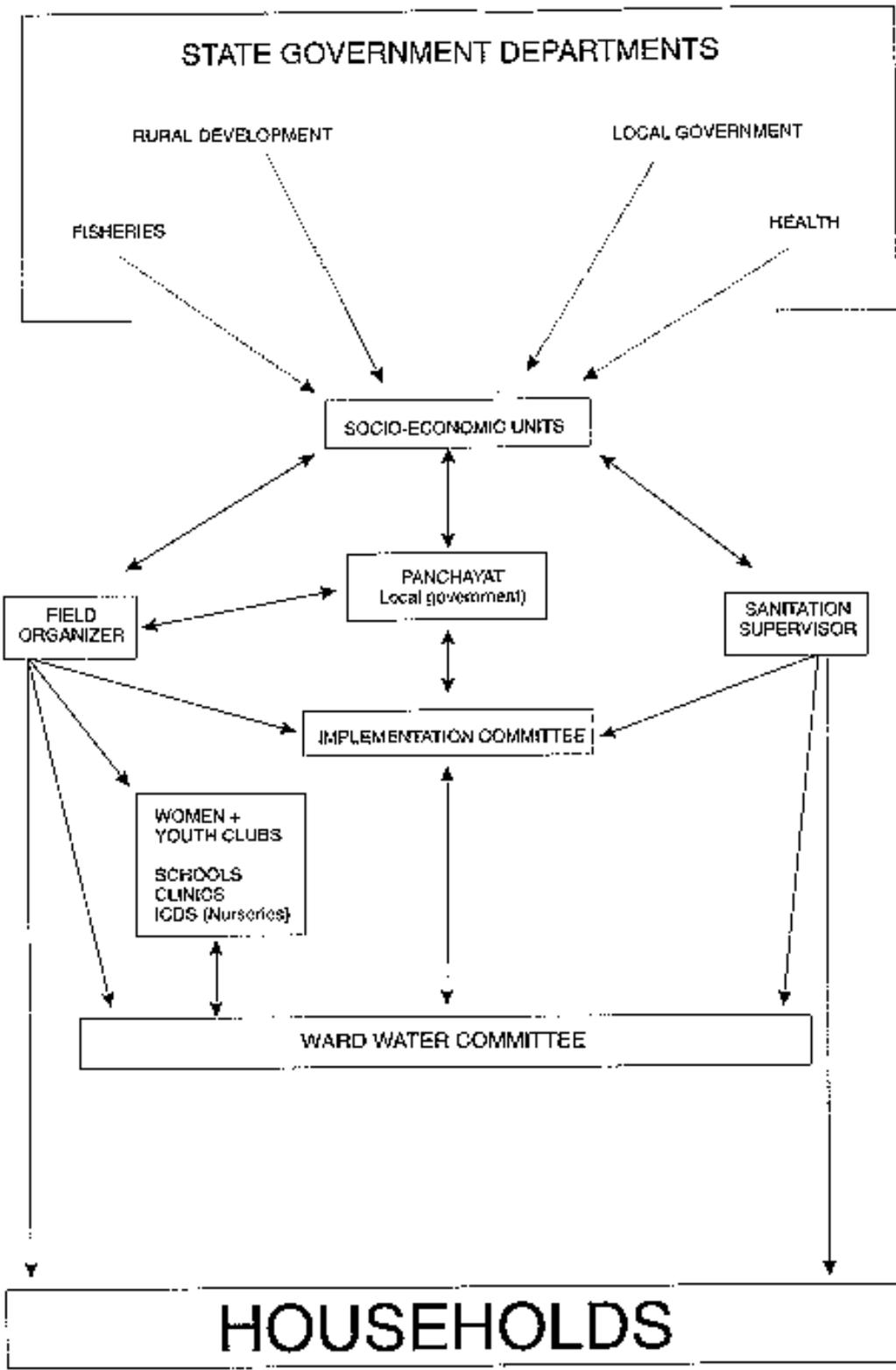


Figure 8: Organizational set-up for the sanitation program

- able to read and write
- over 18 years of age.
- willing to offer voluntary service
- willing to attend training programmes
- willing to organize hygiene promotion and environmental sanitation programmes
- at least three members to be women.

The responsibilities of the ward water committees are discussed at the meeting. The activities which they undertake are listed below. Note that the latrine programme is only one element of their agenda:

Box 4: Activities of ward water committees

For water supply:

- to assist with site selection, social mapping and acquisition of private property for water points in order to provide optimum access for those in need;
- to help in the installation of standposts and solve problems likely to rise in future;
- to organize people's participation for operation and maintenance of the standpost;
- to pursue the recovery of costs for operation and maintenance from the consumers and the local Panchayat;
- to take action as requested by the standpost attendant on reporting of breakdowns and dealing with misuse of water supplies and to provide other required support;
- to plan, manage and/or provide the necessary advocacy and support for the implementation of water supply.

For sanitation:

- to help ensure that standpost surroundings are kept clean and create awareness among users on various environmental sanitation aspects;
- to organize hygiene promotion activities for various local groups with staff of the health, social welfare and other departments;
- to plan, supervise and manage the sanitation programmes including selection of beneficiaries, construction of low-cost latrines, drainage, upgrading of traditional water sources and other environmental protection programmes;
- to monitor and report on maintenance and use of installed facilities.

The ward water committees are in charge of general implementation of the programme in each ward. Each ward water committee is chaired by the elected ward member. The committee itself selects a secretary. Meetings are to be held at least once a month. Organizing meetings and recording minutes of the meeting are the responsibility of the secretary (which can serve to balance the elected member). Any member failing to attend for three consecutive meetings will automatically forfeit his or her membership, and members not sufficiently active in the committee may be removed from the committee upon consensus of the other members. New members of the committee are selected in accordance with the given guidelines.

Implementation committees

At the Panchayat level, an implementation committee looks after the day-to-day affairs of the local sanitation programme, including the education and construction activities. The implementation committee members are: the Panchayat President, the Panchayat Executive Officer, an SEU staff member and one lady member elected by the women WWC members. The ward member from the ward where programme implementation is going on is a special invitee to the implementation committee. The Panchayat Executive Officer - now called the Secretary of the Gram Panchayat - is responsible for keeping the accounts of the programme.

At the Panchayat level, a Panchayat water committee can be formed by two members from each ward committee. The Panchayat committee is only active when there are problems.

Local government services and local groups

To limit the dependency on external agency funding, the SEUs have a policy of not expanding the number of SEU staff paid by the Dutch-Danish grants. Instead they work with established Indian government services, and community groups. This means that at the local level they work with the Panchayat government and with staff and members of local government services and local groups (local health services, schools, nurseries, rural development, literacy programmes, women's and youth groups and so on). The health and Integrated Child Development Scheme personnel support the programme through their hygiene educational input. The arrangements for this cooperation are made directly with the staff concerned and depend to a great degree on the interest and willingness of the particular person to participate. Kerala has no policy on involving these services more structurally in environmental sanitation and the Health Service has no environmental sanitation or hygiene education programmes of its own. Women's groups and youth groups also participate as representatives in the WWCs, in undertaking education, motivation or monitoring activities. Where these groups are well-organized and active, they play important roles in local programme development.

Field organizers

For every one or two Panchayats, the SEU employs a field organizer. He or she oversees community work related to health education, piped water schemes, environmental sanitation and the latrine-with-education programme. The field organizer covers a population of 25,000 to 50,000 people and is the primary link between the Socio-Economic Unit and the ward water committees and Panchayat. The field organizer is usually a young man or woman who has completed some graduate work in social sciences and has at least some prior experience in community work.

Sanitation supervisors

The Socio-Economic Unit together with the Panchayat also appoints a sanitation supervisor. This is usually a young man from the area who has some experience in working with community groups and a basic knowledge of construction. The money for his salary is deducted from the joint account for sanitation under the 1 percent overhead expenses agreed on in the contract with the Panchayat.

3.2 The strategy

The target of the sanitation programme as a whole is consistent and improved sanitation behaviours, not latrines themselves. The latter are 'routes' to facilitate these behavioural changes. Thus the programme has three components, of which construction of improved facilities (domestic and school latrines, soakpits, drainage channels) is only one. The three elements are: community and household motivation and participation, education and communication for improved sanitation and, lastly, construction. The local implementation approach was gradually developed through a process of trial and retrial. It is documented in a written strategy which is something like the 'constitution' of the programme, emphasizing community leadership and responsibility for progress and results. The implementation strategy contains thirteen steps, as shown below (Figure 9). Of the thirteen steps, construction is only the tenth. Each element is equally important. Both communication and education are community-based and are meant to be continued after latrine construction. In the figure below, note that the time-lines are indicative. The exact timing and duration of each step can

vary from one location to another in response to local needs and opportunities, as planned by the community with the SEU. This flexibility is needed to ensure the effectiveness of the activities.

Month >>		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Identify/select Panchayat													
2	Panchayat meeting													
3	Survey/Panchayat provides data													
4	Construct model latrines, masons' training, costing of latrines													
5	Panchayat agreement, plan, contribution													
6	Mobilization & health education													
7	Household selection & contribution													
8	Education (technical & health)													
9	Pit marking/pit digging													
10	Purchase, distribution of materials & construction													
11	Technical verification													
12	Use & maintenance after construction, follow-up monitoring													
13	Documentation													

Figure 9: Implementation steps for promotion, construction and monitoring of household latrines.

The following pages give more detail about the steps in the sanitation strategy.

Identify and select the Panchayat (Step 1)

The suggested guidelines for choosing the Panchayat for the sanitation scheme, from among those where the SEUs are allowed to work, include:

- Interest within the Panchayat for the programme should be high. Ways of assessing this can include: willingness to take on administrative or supervisory tasks; strength of ward water committees; willingness to pay Panchayat contribution for the programme; existence of groups (youth clubs, women's clubs, schools) that would be interested in collaborating; available support for health education activities.
- Availability of water for latrines.
- Preferably less than 50 percent of households should have sanitary latrines.
- Panchayats with low income.

In the early years of the project, the SEUs began by approaching Panchayats and introducing the programme. Extended contacts and negotiation usually followed before a Panchayat was willing to take part in the programme. Now, Panchayats approach the SEUs because the programme has gained a sufficient momentum and reputation. Negotiations are required, however, to reach agreement on the basic principles and importance of sanitation, design and coverage issues, to ensure a Panchayat contribution and to be certain that both parties (local government and SEUs) understand and accept their respective responsibilities in the programme.

Panchayat meeting(s) and ward water committee training (Step 2)

SEU staff discuss the details of the programme with the Panchayat and clarify their questions. Negotiations begin about cost, technology, household participation, role of committees, health education, the proposal or contract and contribution. The ward water committee is in charge of general implementation in each ward and is responsible for all health education activities. The WWCs must be trained to conduct the survey, select households, monitor construction and purchase, organize health education activities.

Data to be provided by Panchayat/survey (Step 3)

This includes basic population and household data, proportion of population below poverty line, number of houses with latrines at the beginning of the programme, information about particularly needy areas within the Panchayat, active institutions, water availability, and so on.

Construct model latrines, cost latrines, train masons (Step 4)

A few (usually two to four) model latrines are constructed in each Panchayat to determine the exact costing using local materials and labour and to create a demonstration effect. The demonstration latrines are constructed for institutions such as health clinics, nursery schools and so on. Labour and material costs are checked carefully during this construction. This determines the total cost, the amount of project subsidy, the amount of beneficiary contribution and Panchayat contribution. Thus the cost must be kept as low as possible for each Panchayat, for example, by using locally available materials (see the next chapter about costs).

Water committees identify local masons. Experienced masons, SEU staff and Health Department personnel train the masons. The training of masons also includes how to communicate with families about the technology and health aspects of sanitation (two to four days of training). In areas where local masons are not available, the women masons' group is engaged.

Panchayat agreement, plan and contribution (Step 5)

Each community sanitation programme is based on a written contract, in which the Panchayat and other groups (Executive Officers, ward water committees) agree to manage and implement the programme according to certain procedures, with the Socio-Economic Units providing assistance and training. An English translation of this contract is given in Figure 10.

Agreement between: ANNAMANADA Panchayat and the Socio-Economic Unit Central (SEU Central). By signing this contract the two parties agree and commit themselves to collaborate in a Sanitation Scheme, according to the following conditions and procedures.

1. SEU Central and Annamanada Panchayat will collaborate in the implementation of the sanitation programme between 18 September 1994 and 31 March 1995 and subsequently to any further period of extension.
2. The scope and nature of this programme is described in the Socio-Economic Units' SANITATION STRATEGY.
3. The latrines constructed with Annamanada Panchayat's involvement are to be considered and presented as part of a joint programme of the Panchayat and the SEU.
4. The Panchayat and the SEU Central will be jointly involved in all decisions, planning and implementation of this sanitation programme. The ward water committee and Panchayat Council will play a central role with the support of SEU Central with regard to beneficiary selection, community organization and health education as outlined in the above-mentioned sanitation strategy.
5. It is agreed that Annamanada Panchayat will maintain proper documents in connection with the construction activities with special care for bookkeeping and accounting procedures for all financial transactions. It is expected that the Panchayat will offer full cooperation with any ongoing and final evaluation of this programme, which will be carried out by an independent agency to be selected and authorized by the SEU. It is expected that the Executive Officer (of the Panchayat) will sign the cheques on production of necessary vouchers duly signed by the ward water committee and the Sanitation Supervisor. The Executive Officer will try to avoid any delay in this programme.
6. The Panchayat will officially delegate a clerk to keep the accounts. The account books, vouchers and so on will be made available for audit by the SEU Central staff once a month during the period of construction.
7. Annamanada Panchayat will open a separate joint bank account for the sanitation scheme. The Executive Officer of the Panchayat and the Programme Officer of the SEU will operate the account. Both parties will ensure the smooth operation of the account to ensure quality and speed in construction.
8. The Panchayat contribution for the construction of 800 latrines in the first phase planned during the year will be Rs. 3.6 lakh, beneficiary contribution Rs. 3.6 lakh and the SEU contribution Rs. 10.8 lakh, at an estimated cost of Rs. 2250 per unit. The SEU and Panchayat hereby commit themselves to pay their share and to ensure the beneficiary contribution.
9. The beneficiary contribution will be collected by the Panchayat with proper receipts and will be remitted to the joint bank account.
10. Thirty percent of the SEU share required for the construction of the 800 latrines will be transferred to the joint account at the beginning of the project.
11. The balance amount will be transferred in three instalments of 30 percent, 20 percent, 20 percent on assessing the progress of the work and the contribution transferred to the joint account by the Panchayat.

continued ...

Figure 10: Local contract for the sanitation programme

Figure 10 continued

12. A supervisor will be appointed for the duration of the project and an overseer of SEU will supervise his work.
13. The Panchayat will provide reasonable office accommodation for the field organizer and sanitation supervisor of the SEU.
14. A maximum of 5 percent of the targeted number of latrines will be provided to the poorest at a subsidized beneficiary contribution of at least Rs. 100.
15. 100 percent of the households below the poverty line are expected to be covered during the programme. The Panchayat and ward water committee together with SEU will ensure that all the eligible households below the poverty line are provided with a latrine.
16. The Panchayat and ward water committee will take all steps to ensure that households above the poverty line without latrines construct water seal latrines themselves.
17. Any publicity with regard to the scheme under the purview of this agreement will be carried out jointly by the SEU and the Panchayat.
18. Any dispute or practical problems will be solved amicably between and by SEU and Annamanada Panchayat.

TOTAL FUNDS REQUIRED FOR THE PROJECT

Estimated cost of one latrine	= Rs.	2 250
Estimated cost of 800 latrines (2250 x 800)	= Rs.	1 800.000
Beneficiary contribution for each latrine	= Rs.	450
Beneficiary contribution for 800 latrines	= Rs.	360 000
Panchayat contribution for each latrine	= Rs.	450
Panchayat contribution for 800 latrines	= Rs.	360 000
SEU contribution for each latrine	= Rs.	1 350
SEU contribution for 800 latrines	= Rs.	1 080 000

FLOW OF FUNDS

Beneficiary contribution will be collected and deposited in the bank before the commencement of the work on each latrine. The first instalment of the Panchayat contribution (50 percent of amount due) must be deposited, after which 30 percent of the SEU contribution (Rs. 324 000) will be deposited before the commencement of construction. Thirty percent of the SEU contribution will be transferred as a second instalment upon payment of the second instalment by the Panchayat (30 percent of amount due). Twenty percent of the total amount due from SEU will be transferred as third instalment on payment of the proportionate amount by the Panchayat. The remaining SEU contribution will be transferred on completion of the superstructure and pit lining of all units. The cost of the traps and pans supplied by the SEU will be deducted from the last instalment. SEU and the Panchayat agree to avoid any delay in construction due to non-transfer of funds.

Signed by the President of Panchayat, Executive Officer of Panchayat and Head of Socio-Economic Unit Central.

Since 1993, each Panchayat has been contributing financially to the programme on a voluntary basis. The amounts range from as little as Rs. 50,000 to as much as Rs. 750,000 (the equivalent of about US\$ 1,500 to US\$ 22,000). The Panchayat contribution was initially used to provide latrines to the very poorest people at the end of the standard construction period. Now it is used to finance the overall programme in the Panchayat. The total of the contributions from 45 Panchayats amounts to more than 1.1 crore rupees (equivalent to more than US\$ 320,000 at 1995 exchange rates). Considering the poor financial situation of many local governments, this indicates the high priority which they have assigned to this programme.

Before the programme can begin, the Panchayat must deposit its contribution in a bank account. This account is operated jointly by the secretary of the Panchayat and a member from the Socio-Economic Unit. All funds for implementation from the participating households, the Panchayat and the donor are deposited into this account. The accounts are checked periodically by the account officer from the Socio-Economic Unit and are subject to an occasional audit check by an external auditor. Orientation and refresher training on bookkeeping and financial management for the Executive Officers and other Panchayat officials are organized according to the local need.

Education and Mobilization (Steps 6 and 8)

Activities such as informing, educating and involving beneficiaries have often been neglected by development programmes in a bid to achieve physical targets, because such activities are both time consuming and personnel-intensive. Involving householders does indeed slow down the physical implementation, but experience shows that this is so only in the beginning. This is more than offset by better used and maintained latrines.

In the current programme two types of education and communication activities occur at set intervals:

- There is a three to six month period of general mobilization, with a range of activities such as group meetings, exhibitions, health camps, films, and street drama. This is meant to increase demand and to inform people on the health aspects of latrines in general.
- Three sessions or 'classes' are held with the families who install a latrine. Each session focuses on a specific topic. Session 1 focuses on health, session 2 on technical aspects and session 3 on maintenance and use. As part of the session on maintenance, brushes are given as incentives to promote proper maintenance of the latrines.

The first promotion activity the programme workers undertake is to create an awareness among people about the dangers of open air defecation and environmental pollution and the implications of these habits with respect to commonly occurring diseases and accidents. Other aspect emphasized in the general mobilization and the classes for families are the following:

- all family members, including children and men, should use latrines;
- washing hands with soap or ash after defecation;
- keeping surroundings and latrine clean;
- other special issues for that family, ward or Panchayat;
- technical aspects:
 - maintaining the water seal
 - using minimum quantity of water to flush latrine
 - preventing blockage
 - function of junction box and changing or desludging the two pits
 - how to clean the latrine, trap and pan.

Health staff, ICDS (nursery) workers, Panchayat departments, water committee members and SEU are mainly involved in the education activities. Pictorial illustrations, instruction booklets and pamphlets are distributed as added incentives. Health and ICDS personnel impart health education and information in the context of their ongoing activities, with support, training and materials from SEUs. Local youth clubs, Mahila Samajams (women's clubs) and voluntary agencies and ward members are trained to carry out educational programmes. As noted earlier, masons who are trained in latrine construction are also trained in imparting health and sanitation messages to the families for whom they work.

All selected householders are obliged to participate in three educational meetings, which start before the construction begins. To monitor attendance, each household installing a latrine gets a special card (Figure 12), which the husband or wife brings along to the session to be signed off by the educator. The mason who builds the latrine checks the card to see that educational sessions are attended. In the sessions the responsibilities of householders, the amount and mode of remittance, the technology adopted, the quality of water seal and junction box and other relevant aspects, such as health benefits and hygiene behaviours, are communicated.

The quality of the hygiene education classes held is very important. Holding classes for classes' sake does more harm than good. In the earlier period of the programme, sessions of a more lecture type were organized and resource persons from other departments were encouraged to handle the classes. After one year some of the women attending the classes and the WWC members revealed that the classes were not effective and a different type of education technique should be adopted. Then along with the lectures, group discussions were also given emphasis. Later on demonstrations, case studies, film shows and participatory training methods were introduced (Figure 11). As part of the new training strategy all the field-level staff, WWC members and staff from other sectoral departments are now trained in using participatory training methodology and techniques.

Figure 11: Participatory training of users by ward water committee

To build management capacities, training and planning activities take place with the ward water committees and the Panchayat officials involved in the programme. Thus, in total, planned education and training are provided to:

- householders in the programme;
- ward water committee members for management and implementation skills;
- masons for construction and health messages;
- Panchayat officials on management and financial procedures.

In addition, in 1990, a series of broadcasts on water, sanitation and hygiene practices were given in Kerala by All India Radio with technical input from KWA and SEU (Box 5). A questionnaire showed that women's knowledge equalled that of men, but they scored better in hygiene practices.

Household selection and contribution (Step 7)

The Panchayats, health and social welfare personnel and ward water committees are the ones best able to identify the areas and households in need of latrines and to suggest the kind of interventions required. The WWCs conduct a detailed survey to identify the poorest of poor households in each ward. The survey results are discussed in the Panchayat committee meeting and the number of selected households in each ward is decided upon. SEU personnel together with the WWC scrutinize the survey form and verify the application of the selection criteria for all cases. The list of approved householders is then displayed for ten days in front of the Panchayat office, PHCs, ICDS centres, market places etc. in each ward for public comments. Any complaints are handled by the implementation committee. When the selection has been agreed to, the WWC members persuade the participating householders to remit their contribution of 20 percent in cash into the local sanitation account. For Executive Officers and other Panchayat staff orientation and refresher training are organized on bookkeeping and financial management.

An important monitoring card is given to each family that has been selected. The card is used to keep track of (a) the family contribution; (b) their attendance at the education meetings; and (c) receipt of materials for construction. The card is used to control the implementation process. For example, the card is signed by the field organizer after each education session and by the Panchayat officer (with a receipt number, date and signature) upon payment of each contribution. The family must produce this card, showing that the contribution is completed and that they have attended the classes in order to receive construction materials. A translation of the card is shown in Figure 12. The family also uses this card to be certain that they have received the correct materials via the WWC and that the construction is done correctly by the mason.

Box 5: Radio broadcasts on hygiene: outreach, gender and behaviour change**Radio as a medium**

The programmes of All India Radio (AIR) can reach more than 95 percent of the population of Kerala. Nearly 85 percent of people have their own radio set, 10 percent listen at their neighbour's. Radio is the most powerful medium of mass communication and its importance for information and education in Kerala is great.

The 'Fountain of Life'

The Jeevadhana (Fountain of Life) programme on water and sanitation was broadcast in the rural programme hour of AIR on all Fridays from 6.50 to 7.20 p.m. Broadcasts were relayed by five radio stations in Kerala. Specialists from NGOs and various relevant government departments and institutions prepared the scripts. Features, discussions, documentaries, dramas and quiz programmes highlighted the themes. KWA engineers, besides helping to prepare the scripts, took part in answering questions from listeners.

Two-way communication

Before broadcasts started, registration of listeners was announced through AIR. Some 1500 individuals registered as listeners. The synopsis of the programme was published in advance and circulated to all who registered. The family welfare section of All India Radio appointed staff to record the registered listeners' characteristics and their questions and give them feedback.

Baseline survey

The section sent a questionnaire to the registered listeners to learn about their backgrounds, find out their preferences on time, contents, style and presentation of broadcasts and get baseline data on reported knowledge and practices. The returns (66 percent) showed that most respondents (71 percent) were male. However, this does not necessarily mean that fewer women than men listened. Some 70 percent of the respondents were in the age group of 15-29, 20 percent were between 30-44 years and 7 percent were above 45. The majority of the respondents had an educational status of standard 10 (secondary school leaving certificate and above). Students constituted the largest group of respondents (39 percent). Unemployed people and pensioners came next (21 percent) and employees formed 13 percent, followed by housewives (8 percent) and farmers, labourers and petty traders.

The questionnaire should have been sent out directly after the first broadcast, but due to some unavoidable circumstances, it was mailed after several of the programmes had been broadcast. Another flaw was that, although a pre- and post-study had been planned, only the pre-study was carried out. Cancelling the post-evaluation meant an invaluable loss of findings that can be brought out by a study like this.

Baseline findings

Of the female listeners, almost 70 percent found the scheduled time for broadcasts very convenient. Almost half the men were of the same opinion. Timing was rated more convenient by housewives, farmers and the less educated and older persons than by the young with an outside job or study. More than 80 percent replied that the programmes had sufficient information, but nearly 25 percent, most of whom were 45 years or older, found the information insufficiently comprehensible. Overall appreciation was high: 95 percent regarded broadcasts of this type as very useful and informative. The respondents liked documentaries and plays best. Almost half of the respondents had discussed the contents of 'Jeevadhara' with their neighbours and friends.

The health knowledge of those reacting was high. More than 67 percent knew the various water and sanitation-related diseases at the start of the programme. Awareness of what constitutes good water use and hygiene practices was also high. More women (84 percent) than men (69 percent) knew that polio is a water-borne disease. The scores for reported practices were consistently lower. Most respondents (85 percent) reported to rely on well water. Of them, 37 percent said they never, or only occasionally, boiled or filtered this water for drinking. Half of the respondents never chlorinated their well. Of those with a high level of health knowledge, only 30 percent said that they regularly chlorinated their well. Pond, river and tapwater were less commonly used for drinking. Of those reporting to do so, 15 percent drank pond water untreated and 27 percent drank river water untreated. The reported use of latrines was high (77 percent). However, more than 20 percent reported continuing to practice open defecation, despite knowing this can cause transmission of diseases. The reasons why so few women responded are not known. However, those who did respond were found to be equally knowledgeable on health and to be ahead of all other groups in the reported adoption of better water use and sanitation practices.

SOCIO-ECONOMIC UNIT KERALA WATER AUTHORITY

Hygiene Education and Latrine Construction

Ward House No No. of family members

Name and address

Serial No Ordinary / waterlogged / Plinth level design

Details of beneficiary contribution

	<i>Date</i>	<i>Receipt number</i>	<i>Amount paid</i>	<i>Balance</i>	<i>Panchayat</i>
1.					
2.					
3.					
4.					
5.					

Details of participation in Hygiene Education Classes

<i>Classes</i>	<i>Subject</i>	<i>Date Attended</i>	<i>Name of participant signature</i>	<i>Signature of Field Organizer</i>
1.	Need of sanitary latrine			
2.	Technical aspects			
3.	Use and Maintenance			

Structure of latrine

	<i>Ordinary design</i>	<i>Plinth level design</i>
Measure of the room	90 x 100 cm	90 x 100 cm
Height of the wall	180 x 175 cm	-
Diametre of the pit	100 cm	100 cm
Diametre of the pit lid	100 cm	100 cm
Depth of the pit	100 cm	100 cm
Effective depth of the pit	90 cm	90 cm
Measure of roof	150 x 130 cm	

Details of receipts of goods for the construction of the latrine

<i>No.</i>	<i>Item</i>	<i>Ordinary/ waterlogged</i>	<i>Plinth level</i>	<i>Date/Signature of recipient</i>	<i>Signature of WWC secretary</i>
1.	Bricks	1000/800	300/350		
2.	Cement	125/110 Kg	75 Kg		
3.	Earth pipe	3 pieces	3 pieces		
4.	Rubble	60 pots	35 pots		
5.	Rings	4 pieces	4 pieces		
6.	Door	1			
7.	Closet, tap	1 set	1 set		
8.	Door padlock	2 pieces			
9.	Door hook	1			
10.	Glass 5"x5"	1	1		
11.	Roof slab (6 mm rod)	1 set			
12.	Pit slab	2 sets	2 sets		
13.	Floor tiles	21 pieces			
14.	Roof tiles	13 pieces	13 pieces		
15.	3/4" metal	4 pots	4 pots		
16.	1/4" metal	1 1/4 pot			
17.	Closet cover	-	1		

Beneficiary must keep this card till the construction of the latrine is complete. This card must be produced for getting the construction materials and for inspection purposes. It is the duty of the beneficiary to keep the construction materials in safe custody.

**Every member of the family should use the latrine.
Wash your hands with soap after defecation**

Figure 12: Monitoring card

Pit marking and pit digging (Step 9)

The sanitation supervisor and trained WWC members select the site for the latrine in discussion with the householders and mark the position of the pits on the ground in chalk dust. Special care is taken to ensure that the pits are at least 10 metres from a well used as a drinking water source. The householders dig the pit according to the dimensions explained by the WWC member or sanitation supervisor. The pits are slightly more than 1 metre deep, except in areas where the water table is high. In these cases, the pits are raised above the ground level, requiring a different design.

Purchase, distribution of materials and construction (Step 10)

The Panchayat implementation committee, which oversees the project, organizes the procurement of local materials for the construction of the latrines. This includes the comparison of prices and the negotiation of favourable terms with the private sector for the supply of materials. Considerable effort has gone into ensuring an honest and relatively efficient financial system. Printed and numbered vouchers are used for all purchases. A separate cash book for all remittances and withdrawals has to be maintained by the Panchayat. Vouchers must be signed and approved by both the sanitation supervisor and by the ward member (or WWC secretary). The Executive Officer of the Panchayat signs vouchers and makes payments.

Considerable effort has been given to ensuring that commodities purchased in bulk are transported in the correct amount and at the correct time from some central place in the ward or Panchayat to the household. This is organized by the householder with support from the WWC. Before construction can begin, the households must have fully paid their contribution (and have a receipt showing this), must have attended three classes (and have a card showing this), must have dug the pits and must have the correct amount of materials at the construction site.

A local sanitation supervisor is hired for the construction. His tasks are (i) finalization of the location of latrines including pit marking; (ii) arranging masons and organizing training with other SEU staff; (iii) identifying the potential suppliers and facilitating the procurement of materials through quotations, (iv) facilitating the payment of purchases and making arrangement for the distribution of materials locally; (v) supervising the construction activities; (vi) maintaining the stock register and the work report register; (vii) reporting the progress of work to Panchayat and SEU. A detailed checklist for supervisors has been introduced for facilitating their work (see Box 6). The sanitation supervisor submits weekly progress reports. He is also supervised on at least a weekly basis by SEU staff during the construction period. Surprise checks of stores and stocks are also made.

The quality of construction is checked by the Sanitation Supervisor on a daily basis with frequent spot checks by the SEU staff. Reports on this are given to the Implementation Committee.

Verification of the construction (Step 11)

SEU personnel or the WWCs verify the fitness of the latrine, using the form shown above. The householder also signs a 'completion form' after construction is completed, indicating their satisfaction with the final product.

Use and maintenance after construction, follow-up monitoring (Step 12)

Monitoring procedures have been developed with considerable effort, trial and error. The project learned that monitoring should not be limited to routine collection of information by a few staff or by external evaluation teams. Nor should it be limited to the collection of data describing the general status of project implementation. Internal monitoring is meant to improve programming and implementation in the short term. The SEUs have tried to develop simple monitoring mechanisms that keep up standards or improve activities at each step. This is meant to improve performance over the short term. The data from monitoring are not meant to be used only by senior SEU staff - monitoring information is fed back to the lowest level which can take action on it. At its simplest this 'in-built' evaluation focuses on three levels:

- inputs (materials, training, accounting and financial transactions, selection of partners and deserving households);
- effectiveness, that is, how the inputs are being used (construction quality, education programmes for households, construction speed);
- impact (cleanliness, continued functioning, use of facilities, changes in personal and environmental hygiene).

With respect to the latter (personal and environmental hygiene such as handwashing and general cleanliness of the compound and neighbourhoods), monitoring the impact deserves greater emphasis and perhaps new approaches.

Monitoring permeates much of the programme and almost everyone is involved in both collecting and using data. The following table lists, not all, but many of the most important monitoring activities in the project. The numbers of each item are taken from the steps of the programme described in Figure 9.

Monitoring of the sanitation habits

After the installation of the facilities, a community-managed monitoring system takes care of follow-up on change of excreta disposal and hygiene habits. Female and male members of the ward water committees visit the households with the new latrines and observe and discuss the latrines maintenance and use with the owners (Figure 13).

Figure 13: Monitoring visit on latrine maintenance and use by ward water committee member

Box 6: Latrine construction supervisor's checklist

- Pits are more than 10 m from well used for drinking water.
- If this is an area of high subsoil water (water table less than 300 mm below ground level for several months),
 - inlet pipe should be at ground level
 - pits are raised 300 mm with compacted earth around top
 - 300 mm filling compacted around pits
 - plinth raised accordingly.
- Plinth is not higher than floor of family's house in water-logged areas.
- Pits are not located where surface water can stagnate or flow.
- Distance between pits is 90 cm to 100 cm.
- Effective depth (from pit bottom to bottom of inlet pipe) is 90 to 100 cm.
- Vertical joints in pit are not cemented. In loose or sandy soil, alternate layers may be cemented.
- In cement concrete ring lining, the holes are below the inlet pipe and are about 200 cm apart.
- If the foundation of the building is close to the pits, holes are not made in the lining facing the foundation.
- Drain pipe projects about 75 mm into pit.
- Drain pipe slopes down about 1:10 or 1:15.
- For dry pits, top of pit cover is not below natural ground level. For covers above the ground level, earth fill is well compacted all around the cover, sloping to avoid a step being formed.

JUNCTION BOX

- Junction box follows all details in drawing. Drains are 'U'-shaped.
- One channel is completely blocked.
- Minimum slope of channel is 1:10 or 1:15.
- Top of junction box must be above ground level.

SUPERSTRUCTURE

- Inside dimension about 90 cm x 100 cm. Shortest wall is not taller than 170 cm.
- Floor surface slopes slightly towards the pan.
- Footrest about 20 mm above floor level and turned out from squatting pan in the front (about 40 degrees).
- Pan and trap have been fixed properly to provide a 20 mm water seal. The joint is water tight and the top of the pan is level with the latrine floor.
- Superstructure has ventilation spaces.

OTHER

- The specifications laid down in the drawing have been followed and the work is finished neatly. No cracks.
- The covers of the pits, drains and junction chamber are placed properly and sealed tight but with a coarse cement mixture.
- The users have been educated on the use and maintenance of the latrine. They know how to operate the junction box.

Table 5: Monitoring of community-based sanitation programme

for what? (criteria)	who monitors?	how?
1. initial communication with community to build demand for latrines, give information on programme and costs to family	staff	<ul style="list-style-type: none"> check to see if poor, isolated families are aware of programme feedback on satisfaction with traditional entertainment feedback and discussion with water committees, local government
4. reduce construction cost per unit	local government, staff, masons	<ul style="list-style-type: none"> construct demonstration latrines, pay by piece rate, not hourly use double vouchers with agreed signatories signing and dating each voucher
6. training water committees and local government personnel	staff, water committees	<ul style="list-style-type: none"> check satisfaction with training committee prepares own action plan periodic check to see if committees call own meetings and keep records of these review progress in implementing plan
7. select only deserving families	water committees, staff, local government	<ul style="list-style-type: none"> agreed criteria, publicize information of families selected for community to react, local government approval
7. identify families who are too poor to provide required contribution	water committee with staff	<ul style="list-style-type: none"> list families after non-payment
7. 25 percent to 50 percent payment by families and local government	water committees and local government	<ul style="list-style-type: none"> financial records, double receipts with copy held by family, joint bank account held between project and local government
8. family members attend educational sessions	staff and water committees	<ul style="list-style-type: none"> attendance forms, recall of contents such as purpose of junction box
10. efficient and honest purchase and disbursement of commodities	local government, staff, external auditor	<ul style="list-style-type: none"> financial records, purchase orders and vouchers signed and dated correctly store house records independent external audit independent spot checking of supplier prices households sign for receipt of commodities observe correct amount of commodities at home at correct time
10. good quality construction	supervisors, staff, committees	<ul style="list-style-type: none"> construction checklist used by all groups (masons, supervisors, WWCs...)
12. latrines continue to function	water committees, local NGOs	<ul style="list-style-type: none"> checklist used by local group for house-to-house monitoring periodically and complaints are monitored
12. latrines used 'correctly' by all family members	water committees, local NGOs, staff	<ul style="list-style-type: none"> checklist used for house-to-house monitoring
12. drinking water unaffected in family wells	professional environmental organization	<ul style="list-style-type: none"> research study on water quality and cross contamination

Initially the WWC members visit households with new latrines after a fortnight, then once a month, then once every three months. On average, each household receives three to four visits. The observations give the householders, committees, Panchayats and the SEUs and coordinating offices as overall managers data on how sanitation habits are being adopted. The visits also provide opportunities for the householders to mention problems and ask for help. The monitoring is also a valuable participatory education tool on better hygiene habits, for the householders as well as the members of the committees.

To record the observations, the WWC members use simple printed formats in Malayalam. Figure 14 gives the translated form. Because male and female literacy is high in Kerala, it is not necessary to use pictorial symbols for monitoring, as done in sanitation programmes in areas with low literacy levels. But there is a real need to reinforce need-based mobilization and motivational programmes for the upkeep of both water and sanitation facilities in Kerala.

1.	Panchayat	.....	
2.	Ward No.	.....	3. House No.	.....
4.	Latrine No	.....	5. Date of latrine built	.....
6.	Number persons in house	.....	
	Number of persons using the latrine	.....	
7.	Condition of pan & trap:			
	a. Cleanliness good (without faeces sand, mud, etc.)		No	Yes
	b. Does latrine flush well? (If not, check junction box/pit)		No	Yes
	c. Foul smell		No	Yes
	d. Yellow colour		No	Yes
	e. Scratches or breakage in the pan		No	Yes
8.	Behavioural practices:			
	a. Water kept inside the latrine		No	Yes
	b. Water kept outside the latrine		No	Yes
	c. Soap kept nearby		No	Yes
	d. Availability of brush		No	Yes
	e. Use by children above three years (ask a child, if possible)		No	Yes
9.	Check whether the person is aware of the purpose of water seal		No	Yes
10.	Is the water seal visible and clean?		No	Yes
11.	If latrine has been in use more than two years ask "Did you change the pit?"			
	If yes indicate the date	.....	
12.	Check whether person is aware of the purpose of junction box		No	Yes
	Date	.....	Name & Signature	

Figure 14: Format for monitoring household latrines

3.3 School sanitation

The school sanitation component of the programme was initiated on an experimental basis in 1989. In 1992 it was expanded to one school in each programme Panchayat. In the initial period activities were concentrated in classes V to VII (age group 10-14). Later on the programme expanded to involve all classes. The primary objective of the school health programme is to inculcate good hygiene practices in young children through information sharing, knowledge and skill developments. Each school sets up its own school health club. The objectives of the clubs are:

- to stimulate and increase the awareness of children of improved hygiene and to promote the adoption of better practices related to the use, handling and collection of water, the safe disposal and handling of excreta and waste as well as good personal hygiene habits;
- to influence the other family members and ultimately the community by popularizing healthy habits in personal hygiene and environmental sanitation;
- to motivate the pupils to avoid the hazards of gastro-enteritis and other water borne diseases and to use sanitary latrines;
- to make them aware that the health of a person is the health and wealth of the family and society.

A school health club has 30 to 50 members, per class five boys and five girls can volunteer. The clubs have activities on water hygiene, personal hygiene, environmental hygiene, food hygiene and home hygiene. Box 7 contains some experiences of school health club members. The concerned school health club teachers and headmasters get the necessary training including how to prepare their own action plan for school hygiene. Monthly monitoring of the club's activities and monitoring of the environmental conditions are built into the regulations of the school health club and form the eighth step of the general sanitation programme (Figure 9). Where schools in the programme areas already had sanitation facilities, they had problems with the insufficient numbers of latrines, poor quality of design and construction and lack of maintenance and hygienic use. As with the household sanitation programme, school sanitation consists of hygiene promotion, technical improvements and monitoring of functioning and use. The school authorities and the Parent and Teachers' Association together contribute 25 to 50 percent of the cost of the latrines and the urinals. For every sixty students one unit with a latrine and urinal is built. The ratio for female and male students is the same, but there are separate cubicles for boys and girls. In all schools double-pit pour-flush latrines are constructed, with different pit dimensions according to the number of users (Figure 15).

By March 1995 there were 274 school health clubs. Coordinating committees have been formed consisting of headmasters, health club promoters and ward water committee secretaries. After an initial training and planning exercise, the coordinating committees have taken up many activities, such as rallies with school children, exhibitions and competitions, including for the best activities among the health clubs. The public has donated trophies and meals for these occasions. In the beginning the clubs organized 'health classes' with a local staff or SEU member as 'teacher' and male and female household members as 'students'. Now one-way teaching activities have been replaced by more participatory methods. The school health club activities receive good support from the parents in all the regions. In the northern region, a quiz competition was held for children in all the Panchayats and the final quiz was presented on All India Radio (Box 7).

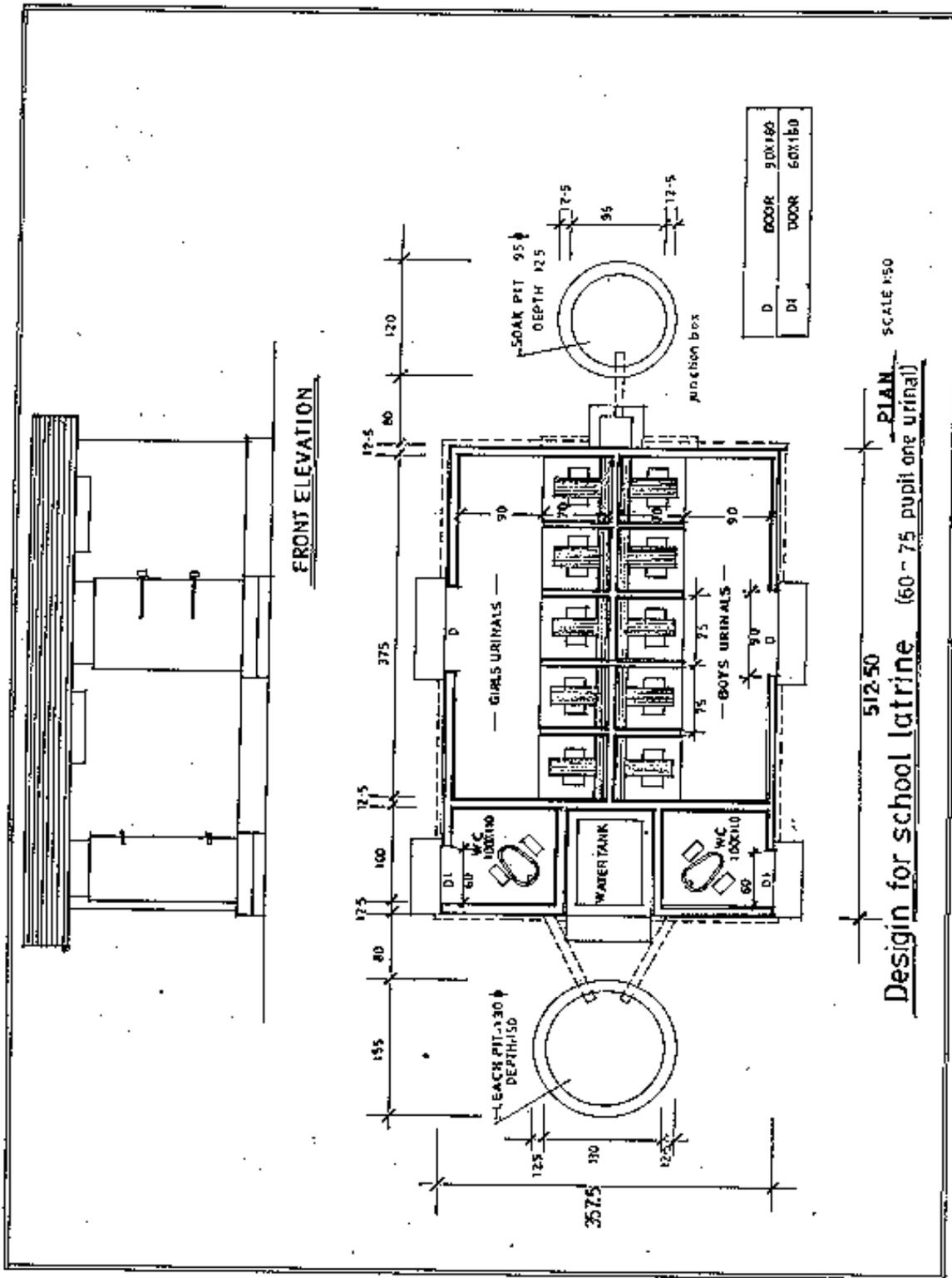


Figure 15: Design of school latrines.

Box 7: Experiences in the school health clubs

Asha, a young girl of seven years in Kannur district came happily to the headmistress. She started babbling. She chatted about her friends, about her mother and house. "Teacher now we are also having a nice toilet. And we wash our hand with soap and water after going to the toilet. You showed the films to us, that was really interesting. I enacted it at home. Everybody patted me. I am so happy..... and on goes the chat.

Aysha, a Muslim friend of Asha has another story. She is the 'teacher' at home. After becoming a school health club volunteer, she makes sure that no one at home eats without washing their hands first. She also insists on clean clothes, clean nails and clean hair for her sisters and brothers. Even her grandmother is not spared ! The schools in the Panchayats where school health clubs are functioning have a very high regard of the activities of Aysha and her friends and a lot to tell about the positive changes brought in the homes of children through the clubs.

For Razak and Arjun it is a question of recognition. During the sanitation week held in the first week of October, they had led a team of boys to clean a big heap of garbage from the nearby market. This was part of the action plan they had prepared for the year. They also visited the nearby commune where poor families live and dug a garbage pit for them. They dug a similar one for their school also. They felt proud of themselves, proud of their capacities and felt recognized - a basic psychological need was satisfied. They felt more responsible for the affairs of the school, home and the neighbourhood.

Sindhu and Sooraj were partners in a quiz competition held by the school health club. Both are studying in Vth standard. After winning the competition in their school, in the Panchayat competing against children of fifteen schools, and then at the scheme level with all Panchayat-level winners, they were selected at the project level (all the schemes together). And wow! what an incredible achievement for them. Initially they didn't believe it when they heard their names announced as the winning team. They had beaten all the VI and VIIIth standard students and came top at the quiz competition which was conducted by a Professor of Calicut Medical College. They became famous in the school and among the teachers they represented. They have started preparation for other quiz competitions as the initial experience was extremely rewarding.

4. Costs and Financing

4.1 Costs and cost containment

During the pilot phase of the project, the unit cost of a latrine ranged from Rs. 1500 to Rs. 2000. Converted to 1995 price levels, this was Rs. 2700 to Rs. 3600. As of September 1995, however, the cost of the unit ranged from Rs. 2250 to Rs. 2500 for normal latrines, that is excluding latrines in water-logged soils. The average was about Rs. 2000 in March 1995. The table below examines the implications of this.

Table 6: Cost of latrines 1989-1995

price range in Indian Rupees (Rs.)	latrine cost in 1989	real cost adjusted 1995 prices	latrine cost in Sept. 1995	percent change in real costs 1989-1995	other programmes 1995	average unit costs
higher range	Rs. 2000	Rs. 3600	Rs. 2500	31 percent decrease	World Bank	Rs. 3500
					Rural Development Department	Rs. 3000
lower range	Rs. 1500	Rs. 2700	Rs. 2250	17 percent decrease	Fisheries Department	Rs. 3500
					CAPART-assisted NGO programmes	Rs. 3000
					Panchayat/SEU programme	Rs. 2000

Note that real costs were contained, despite the fact that the price of many construction inputs increased as rapidly or even more rapidly than the wholesale price index.

The SEUs have worked hard to contain costs and, where possible, reduce costs in order to reach the greatest number of families. These families and the local governments contribute substantial amounts of money (about 40 percent of the total cost of each unit currently); and, there is 100 percent cost recovery as contributions must be deposited before construction can begin. Therefore, it is important to keep these contributions as low as possible in order to reach the greatest number of families. This in turn means that the cost of the latrine must be kept low.

The key strategies for cost containment are described below.

Minimize overheads and avoid contractors

Local masons, Panchayat government and ward water committees control and execute the programme. The programme is built on community management, community transport of commodities, water committee supervision and organization of educational activities, local financial administration and community monitoring. In many Panchayats, local workers, very poor women or workers who were previously unemployed are also involved in producing elements of the latrines.

It must be acknowledged that the project is implemented through volunteer work and the lowest options for labour costs. This means that some costs (for example, transport of commodities from a central place in the Panchayat to the household) do not appear in

accounts, and are borne by beneficiaries and other community members. However, the hidden costs, covered within the Panchayat make the latrine more affordable for poorer families who often lack ready cash. It is with gratitude that the SEUs acknowledge the work of thousands of volunteers on water committees and the voluntary input of local government workers in the programme.

Low overhead

Overhead from the SEU side is reduced as much as possible. In 1992, the total overhead charges (including the salaries and transport of SEU staff) ranged from Rs. 150 to Rs. 200 per latrine constructed. These costs are lower than in many other programmes because: (a) area-based construction saves transportation costs, (b) placing responsibility for significant management aspects with local groups and field workers reduces management costs; and, in general, (c) there is a high level of community participation.

Use of local materials

Prices of materials vary considerably from Panchayat to Panchayat. Different materials (country bricks, cement blocks, laterite blocks) are used depending on local costs and availability. Where the price is high for all types of materials used to line pits and make the superstructure, production is undertaken locally. Currently cement blocks are made in ten Panchayats. Brick production did not prove to be efficient at the household level, therefore it is undertaken by groups of unemployed men and women. Where cement/stone blocks are made, each worker is paid Rs. 0.50 per block. Moulds and materials (cement, stones) are given by the programme. Where laterite bricks are produced, costs are about Rs. 3.50 versus Rs. 6.00 for commercial bricks.

Inexpensive traditional roofing tiles are put into pit slabs and roofs to reduce the amount of expensive metal rods needed, without compromising strength. Doors are provided. The cheapest available materials are used to construct them. Thus in each situation an attempt is made to arrive at the lowest local cost while retaining quality.

Table 7: Variation in average cost of building materials

MATERIAL	Quantity	1988-1989*	1989-1990**	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995
Cement	2.5 bags	356.30	342.59	222.50	273.13	293.44	315.63	324.17
Sand	60 pans	73.73	90.44	92.00	104.00	135.50	146.70	144.00
Brick	1000 pieces	479.24	493.19	470.00	460.00	715.00	778.38	803.75
M.S. Rod	7 kg	94.32	110.95	96.00	93.35	91.91	89.51	95.15
Door	1	178.35	140.54	128.00	130.00	155.75	172.50	173.00
Closet & trap	1 set	98.25	109.80	112.00	120.10	122.33	185.21	205.98
Floor tile	22 pieces	25.25	27.50	28.60	33.00	45.68	41.25	42.17
Roof tile	12 pieces	15.00	15.00	15.36	16.50	20.34	20.25	21.00
3/4' rubble	5 pans	45.93	21.00	20.00	17.50	26.38	26.13	26.75
1/4' rubble	1 pan	5.33	5.20	5.20	5.38	8.10	8.33	9.37
S.W. pipe	3 pieces	46.50	40.20	40.50	42.15	47.93	49.35	50.70
Door latch	2 pieces	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Binding wire	100 gms	10.00	1.00	1.00	1.00	1.00	1.50	1.50
Glass piece	1	5.00	5.00	3.00	3.00	3.00	1.88	1.50
Labour	36 man hours	506.35	225.00	244.50	287.50	320.75	330.25	336.67
COST PER LATRINE UNIT		1949.75	1637.41	1488.66	1596.60	1997.09	2176.85	2245.70

* Construction during this period was done by outside agencies as part of the pilot phase of the SEU programme.

** Please note that quantities of some of the materials during the year 1989-1990 were slightly higher than those in the following year.

Change designs to save costs

A major challenge has been the fixed design that was given by the Government-Sulabh-World Bank Authorities until 1993 (double-pit pour-flush latrine with a superstructure). In particular, the superstructure is expensive (amounting to about 40 to 50 percent of the total cost depending on local conditions). However, now it is difficult to change this, given public demand. The public is used to the SEU programme and other programmes which construct superstructures (see the last chapter about future perspectives). In short, it has not yet been possible to eliminate or dramatically simplify the superstructure. Therefore smaller design changes have been made to reduce costs on the current model: the dimensions of the superstructure were reduced, plastering is limited to a 75 cm band on the inside of the latrine, the thickness of the walls was reduced.

Stimulate competition

Competitive pricing and local tendering is sought for all commodities. Prices are held down and contracts are cancelled if delivery is habitually late or quality is not good. The implementation committee follows fixed procedures (which are audited) to ensure that costs are kept down while quality is ensured.

4.2 Local shares in financing

In 52 Panchayats and four areas outside the water schemes, 35,500 latrines had been completed by September 1995. Furthermore, all Panchayats and wards have made drainage channels at the standposts of the piped water supply systems with soakpits and have, where necessary, organized hygiene education activities to improve personal and domestic hygiene.

Community sanitation is financed through a combination of contributions, in cash and kind, from the participating households, and in cash from the Panchayats and the external financing agencies. The division of financing between the parties participating in the latrine programme is given in Table 8.

Table 8: Division of financing in latrine programme

Latrine Units	Panchayat	Beneficiary	SEU	Total
35,546	Rs. 11,375,826 16%	Rs. 14,659,011 21%	Rs. 45,057,163 63%	Rs. 71,092,000 100%

In other programmes, such as the KWSSP, the total cost of the latrine (Rs. 3000) will be provided to the selected households by the programme, 75 percent as subsidy and 25 percent as loan, before starting the construction activities. In addition the KWSSP programme charges 17.85 percent as supervision charges. The householders have to pay back the loan portion in 60 instalments at an interest rate of 8.75 percent. This comes to approximately Rs. 18 per month. The recovery rate of the loans is below 40 percent.

Because of the required cash contribution in the programme facilitated by the SEUs, it is likely that some poor people are excluded. There is a general feeling that approximately 5 percent of the people in the selected Panchayats cannot afford to make their contribution. The programme therefore includes efforts to address this issue by asking financial support from Panchayats and other potential sources of financing such as housing banks. These additional funds are used to supplement the subsidy to the very poorest households, which are the target group of the latrine programme. The choice is made by the implementation committee and displayed for public approval.

That Panchayats make a contribution despite their poor financial situation is a tangible expression of their interest in and priority for the programme. The Panchayats increasingly want to support latrine construction in the lower-income areas of their communities, but encounter delays in obtaining approval for their contributions from the Department of Panchayats. This has delayed the implementation of the programme in several locations.

Financing other sanitation improvements

Besides the implementation of the household latrine projects, the SEU also helps Panchayats in implementing other sanitary improvements. This involves:

- the construction of 138 institutional latrines (mainly in schools, including nursery schools run by women volunteers), to which the school authorities contribute 20 percent of the capital costs;
- fly control campaigns in ten Panchayats;
- upkeep and improvement of drainage at public taps;
- 274 school health clubs programmes.

The construction of concrete drains at public standposts is undertaken on a trial basis in one Panchayat (Thrikkunnapuzha). First a pilot project was taken up at two standposts in five wards. The drains were built in four days by the lady masons. The programme is now being expanded in the Panchayat. Users of each standpost pay 10 percent (another source said 20 percent) of its investment cost. This ranges from Rs. 50 to Rs. 500, depending upon the length of the drain and the need for a soakpit. The total estimated cost for 162 drains are Rs. 23,977, or an average of Rs. 150 per drain. Improved drainage is not possible everywhere, as some of the older standposts have been located in areas without good drainage potential. The neighbourhood contribution is collected by WWC members as a flat contribution from each user household. This activity was continued in two wards. Users had committed to contribute Rs. 345 for 28 taps, or Rs. 12 per tap. This comes down to less than Rs. 1 per user household and is not difficult to collect. Experience in other wards indicates that collection can be made within a week.

5. Results and Impact

5.1 Physical achievements

By September 1995, 35,546 latrines had been completed in 52 Panchayats within the areas of the Indo-Dutch-Danish water schemes and four Panchayats outside. The progress of the latrine construction over time is shown in the following figure.

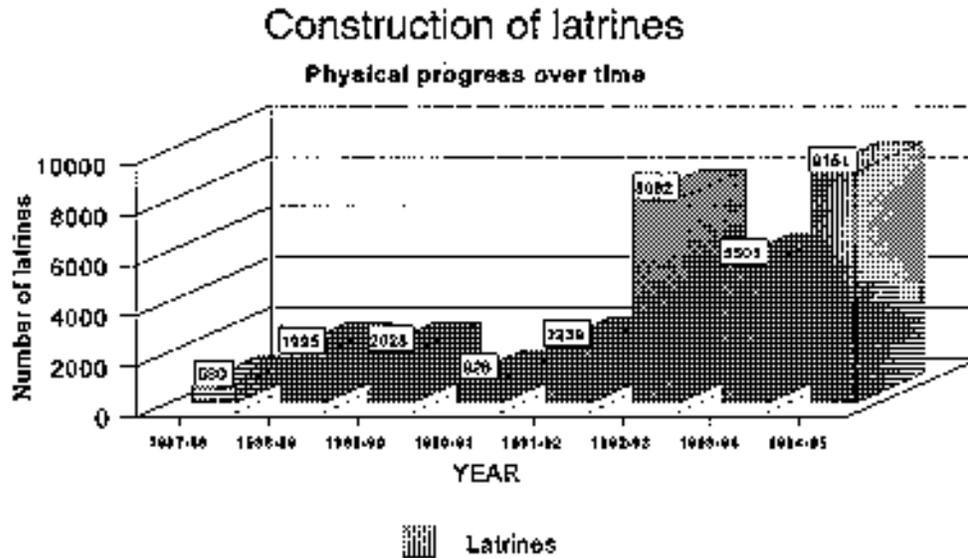


Figure 16: Physical progress over time in household latrine installation

The next figure gives coverage data for ten of the 23 Panchayats in which work first began. The baseline data from the other early Panchayats is not as reliable. It has proved difficult to collect accurate data about increase in coverage with sanitary household latrines as a result of the programme intervention. This difficulty is related to two factors. First, initially, somewhat different definitions were used for 'sanitary latrine'. In some cases, a 'sanitary latrine' was anything from a hole in the ground to a sophisticated flush toilet. In other cases, simple holes (which can be very dirty and disagreeable to use) were excluded. A second problem with the collection of data about coverage is that, in part as a result of this programme, wealthier households built latrines without subsidy. These data are lacking and could not be included. Keeping these points in mind, an approximate picture of coverage before-and-after is shown in the following figure for ten Panchayats with a total population of about 250,000.

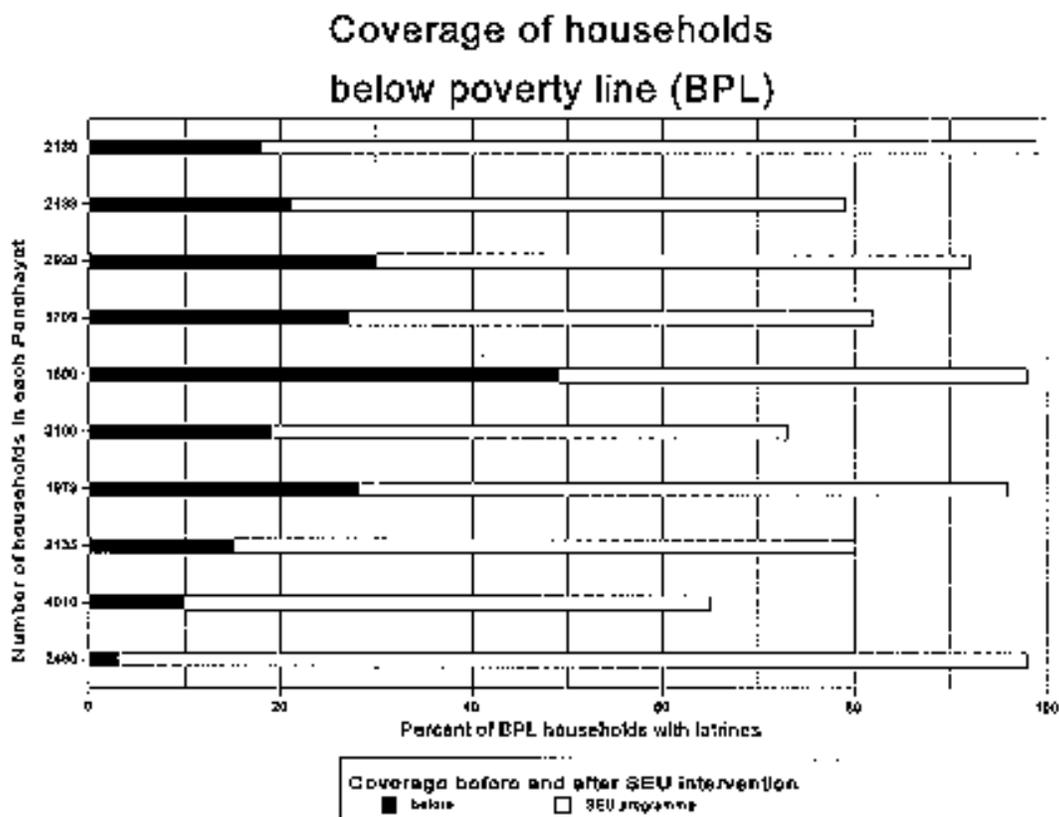


Figure 17: Approximate results of the programme on coverage

As the table shows, the initial coverage of households below the poverty line varied from 3 to 49 percent, largely due to earlier programmes. The average coverage was about 22 percent in a Panchayat before the programme started. In general, poorer Panchayats, where a greater proportion of the population lives below the poverty line, had lower coverage. Before the programme started, about one in four or five poor families had a sanitary latrine. The effect of the SEU intervention was to more than double this, giving a total average coverage, for all Panchayats in the programme, of about 60 percent. There are significant differences in achievement among these Panchayats due to several factors:

- date when the programme started;
- interest of the Panchayat government and water committees;
- special issues such as severe water-logging of soil which slowed the programme considerably in some areas.

There are also seven Panchayats where total (more than 95 percent) coverage of the population below the poverty line has been achieved. By the end of 1995, 49 Panchayats were involved in the programme, with a total population of about 1,200,000. In addition to this, the project is carrying out sanitation programmes with other agencies in four areas.

5.2 Latrine maintenance and use

In general, the maintenance and use of the installed household latrines has been very good. The following figure shows results of monitoring for Panchayats in 1994. The graph describes three measures:

- general cleanliness, that is, latrine has no faeces, sand, mud, garbage in it, no blockage in the trap or pan and no faeces or garbage outside the structure;
- water in or nearby refers to water in a container within or immediately outside the superstructure, meant to be used for anal cleansing and handwashing;
- faecal stain refers to the trap and pan of the latrine which should be free from faecal matter and staining if cleaned correctly.

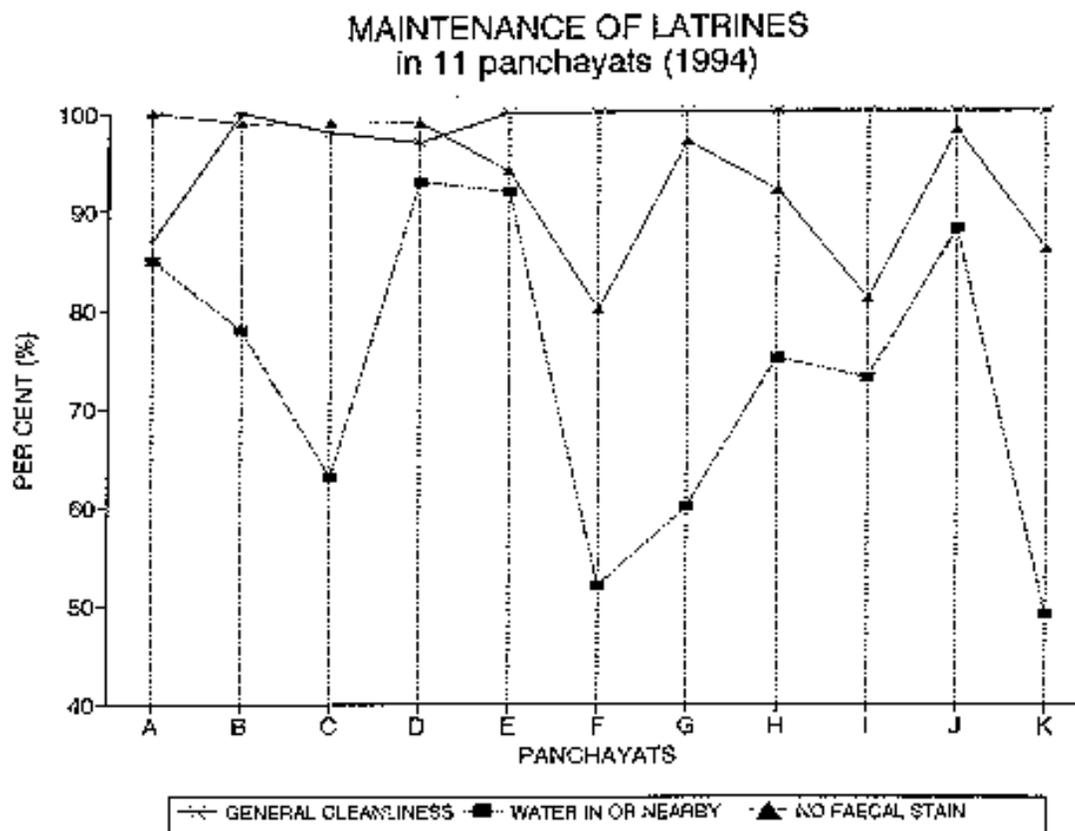


Figure 18: Results of latrine monitoring

Data are also available showing that 96 percent of the latrines are being used. This corresponds to observations of project staff and independent evaluation teams. Another question relates to use by all members of the family. These data, specifically on use of latrines by children, are not included in the graph as they are based on verbal responses and therefore not accurate. However, evidence based on asking children in school if their younger brothers or sisters use the latrine indicates that usage is high among children over five. Under five results are less satisfactory (Box 8). Use of latrines by men and boys in many fishing villages remains problematic, however, and continues to be a focus of project activities.

Box 8: Results from hygiene behaviour study

In December 1995 two teams from the Socio-Economic Unit undertook a participatory evaluation to assess the effects of its activities in water supply, sanitation and hygiene promotion on people's behaviours. The study was carried out in three Panchayats, in the coastal, inland and hilly areas. In each Panchayat three wards were selected with a declining degree of accessibility. Together with a member of the local water committee, the teams carried out structural observations, group meetings and home visits in wards, households and schools. Participatory techniques used were village transect, pocket voting, card sorting, history line and seasonal calendar.

The study showed that traditional water sources continue to be used for bathing, washing and utensil cleaning, but only tapwater is said to be used for drinking. Some 82 percent of the 105 sample households had a latrine. Of these 86 percent were satisfactory in terms of technology and proper operation and cleanliness. All latrines were observed to be in use for excreta disposal, but fishermen on the coast still use the seashore en masse, from habit and convenience. Traditional latrines overhanging water sources are still used by households of all socio-economic levels, although the routes of transmission of water and sanitation-related diseases are generally known.

Drainage and hygiene conditions at the public taps are good, but organized solid waste collection in the communities is non-existent. In the primary and secondary schools hygiene is also good, but it can be improved at traditional wells. Schools which have health clubs are clean, practice staff water storage and food hygiene, and have sufficient and well-kept latrines. Boys do not always use the urinals, however.

The nursery schools often have no latrine, or the latrine is used for other purposes. Children were said to use their own home latrine and in urgent cases use the latrine of a house near the school, but signs were also found that they used the bushes around one school. Teachers in nursery schools help children to wash hands, but all in the same basin of water. Often hands are just dipped in without firm rubbing or the use of soap or ashes.

In the meetings organized with mothers the latter reported that toddlers defecate in the yard or sitting over mother's legs. Most mothers throw the faeces in the latrine, but some throw them on the family's or neighbouring land. Not all mothers consider infant excreta unsafe. Toddlers are not trained in using the latrine. Causes of diarrhoea are well known and oral rehydration therapy or local forms of it are widely practised and have replaced earlier beliefs that a patient with diarrhoea should not take liquids.

Drinking water is stored safely at home, but can get contaminated during transport and drawing as most mothers admit their hands touch water during these activities. Handwashing with soap at critical times is not generally practised. Besides soap or plain water also plantain leaves, curry leaves and shikkakai powder are used for handwashing. The suitability of these alternatives to remove germs deserves further investigation. The findings from the study will be used to develop a more focused hygiene education programme.

Handwashing with soap or ash, safe water storage and better handling of water have been given special emphasis in the hygiene promotion programmes of the WWC. The monitoring data reveal that the presence of soap (which is used as an indicator of handwashing) decreases when the price of soap goes up or education wears off. Efforts are made to preserve handwashing with soap through periodic campaigns by the school health clubs and water committee members, and to reduce dependency on SEU staff for such education.

Operation practices can still be improved. Observations during the joint review mission of 1992 showed that many households used large quantities of water to flush the toilet, thereby unnecessarily increasing the work of women and children in water collection. All the toilets tested during the field visit could be flushed with only two to three litres of water. SEU field organizers now emphasize in the preparation classes that it is important to minimize the use of water to allow for leaching of the pit and to limit the amount of water collection for

women and children. In schools the recent hygiene study showed that conditions and practices need to be improved in angawadis in particular (Table 9). They lack proper latrines and teachers often wash the hands of all children in one communal basin with water, and without soap. Group discussions with mothers learned that the safe disposal of excreta of children under five is another critical area. Not all mothers believe these faeces to be hazardous.

Table 9: Results of hygiene study in angawadis

	Thrikkunnapuzha	Puthenchira	Kuttyatoor
Number of schools visited	3	3	3
Number using tapwater	3	3	1 (when present)
Number waste(water) at tap	2	3	1
Meals at school	3	1	3
Food hygiene observed	3	1	2
Handwashing in school	3	3	3
Unsafe washing method	3	2	3
Covered drink water storage	3	3	3
Unsoiled clothes, skin	2	3	3
Unsoiled environment	3	NA	1
Schools with latrine	-	1	1
Latrine in use	-	-	-
Use neighbour's latrine	3	3	-
Open air urination	NA	3	NA
Open air defecation seen	NA	NA	1
Number of students	NA	360	680
Dustbins in classes	Yes	4/6	yes
Classroom without waste	Yes	yes	yes
Water vessel covered	Yes	4/6	NA
Long handled implement for drawing	No	NA	NA
Enough toilets	Yes	yes	yes
Toilets without soiling by excreta	Yes	not in use	yes
Solid waste buried/burnt	Yes	yes	NA
Tap in school yard	Yes	connected to well	yes
Tap in good order	No	n.a.	yes
Tap in use	Yes	n.a.	yes
School yard waste free	Yes	yes	yes
Food handling methods safe	Yes	yes	yes
Nearby food stalls hygienic	Yes	yes	NA

NA = not answered n.a. = not applicable

In all the Panchayats where the programme has been in operation for more than two years special campaigns have been organized for switching pits by changing the position of the stopper in the junction box. In 26 Panchayats, the junction box of approximately 13,000 sanitation units in use for more than two years had to be changed with the involvement of WWCs and SEUs. The process of moving the stopper in the junction box was demonstrated to the community and users. So far, pits have been changed in more than 6000 latrines in nine Panchayats with participation of water committees. The emptying exercise began on a large scale in 1995. This means that shallow layers (about 5 to 25 cm) of safe, friable soil are being dug out of the pits which have 'rested' for one to two years.

5.3 Impact on the environment

Sanitation projects have a positive impact on the environment when they lead to the sanitary disposal of human excreta, animal waste, solid waste and wastewater. Impact of the present programme concerns human excreta and wastewater disposal. The results so far include the adoption of 35,500 new latrines by poor households, of which 96 percent were used.

In addition, 7044 caretakers have been trained to ensure that the water points are clean and have good drainage. The results of the actions compare favourably with those in Panchayats outside the sanitation programme area.

Sanitation facilities can also have a negative impact on the environment. When latrines are not maintained, they become an environmental health hazard rather than a protection. This is not the case in the current programme: monitoring by the ward water committees with cross-checks from the programme staff showed that domestic latrines are both well used and well kept.

Another negative impact occurs when leaching latrine fluids contaminate the groundwater. To check on such contamination, the Kerala State Pollution Control Board analyzed water from 150 wells on E-coli. The sample included six wells with handpumps which were as close as five metres from the SEU latrine pits, so that if contamination was found it was likely to have been introduced through polluted groundwater rather than through the top. None of these handpump wells were found to contain faecal coliforms (KSPCB, 1991). The other 144 wells in the study were open, hand-dug wells. The study did not identify a relationship between the degree of contamination (that is, different levels of faecal coliform) and the distance from latrine pits (usually about 8 to 20m) in different soil conditions. The result of one study cannot be taken as conclusive evidence, however. Therefore, a second study is in progress.

There is one way that the potential negative impact of the programme on the environment can be reduced. This concerns the economic use of water for flushing. The rural pan which the programme installs is narrower and has a steeper slope than the standard urban pan. This pan not only takes less room in the latrine, but also requires less water (two litres instead of eight to ten litres) for flushing. As mentioned above, the use of too much water for flushing is quite common. This habit not only increases the work of water collection, but is also undesirable from an environmental point of view. Despite its good rainfall Kerala has a seasonal scarcity of fresh water. Activities to promote the use of less water for flushing will therefore continue in the programme.

5.4 Human capacity building and gender

In a community-managed programme, great effort should be made to develop skills in persons who can plan and carry out activities effectively. Since most actors in the programme are volunteers, capacity building is very important - but also a challenge. For example, volunteers will not sit through boring training sessions.

The project approaches human resource development in two ways. The first is by upgrading skills or developing new ones through short-term training. The second is through providing new experiences - giving support for people to take on new roles and new responsibilities. This support is given primarily to groups, rather than to individuals within a community.

Training has been given to WWC members, standpost attendants, school teachers, nursery teachers, health personnel and local government staff. As of September 1995, the following people had participated in training programmes:

- 7000 standpost attendants;
- about 400 ward water committees (with a total of 2800 members);
- about 250 teachers, 500 health staff, 200 masons.

A great deal of emphasis, project resources and time have been given to training - it is, in fact, at the heart of the project. As was mentioned earlier, participatory training styles have gradually been developed. In the WWC training, which lasts about two days, some Panchayats are giving emphasis to forming a group that can act, plan and carry out activities together. Participants explain that they have never experienced such training before: they are enthusiastic. For teachers and nursery teachers, the training helps them carry out programmes which were either overlooked or in which they felt insecure. Nursery teachers improve their communication skills with mothers - they learn and practice how to talk with them about water, sanitation and health. The hygiene study showed that this part of the programme needs improvement however.

The WWC members are taking on roles which are new and challenging (see Box 9). Many are new for the WWC members. This is the first time many have planned their own programmes, organized educational activities, monitored work of masons and clerks in local government, arranged contracts, learned how to construct, done comparative costing, collected funds from neighbours, organized local campaigns.

In addition to the more formal, structured training, a central feature of SEU and community activities is non-formal education. This has integrated hygiene, sanitation and water issues and behaviours. Exact data have not been compiled but hundreds of exhibitions, mobile theatre shows, film events, competitions, group meetings and so on have taken place. This has been a major feature of community mobilization and non-formal education efforts.

SEU staff and temporary workers have also grown in terms of both skills and responsibilities. The temporary field organizers are young professionals, Considerable effort is given to improving their skills through monthly one-day briefing programmes, field visits and short-term participatory training courses. Interestingly, many of these young people, after two to four years, are able to take on far more responsibility within the project, or get new permanent and more senior jobs elsewhere.

There are more than 60 Panchayat governments involved in the programme. Some of these local governments have had little experience in managing and executing their own programmes successfully. This is the first time they have had a development programme that delivers the goods and has in-built accountability. At first the Panchayat governments were

reluctant to cooperate on any terms. Now many come forward with strong commitment both of their staff and money. There is, in fact, a strong aspect of capacity building of local government in the programme.

Figure 19: Ward water committee members being trained with participatory methods

Box 9: Being a ward water committee member

I have been the secretary of the ward water committee since 1990. I am one among seven members who were selected from different parts of the ward. There are three women members in our committee. One is an ICDS worker and the other two are active Mahila Samajam workers.

In the beginning we had many problems. It took us about three months to start performing effectively. As the idea was quite new to us there were serious doubts about the success and sustainability. We had also had bad experiences with several committees in the local bodies and government. The elected members [politicians elected to represent their ward in the commune's council] also had a lot of apprehensions about the committee. They thought that it would undermine their developmental efforts.

In the initial orientation and training most of these doubts were cleared. It was an interesting experience and exposure for people like me. But the most interesting and exciting activity was the "participatory training" given in 1993. During the first training course the topics dealt with were: aims, importance and goals of WWCs; roles and responsibilities of WWC members; mapping and site selection of standposts; importance of protected water; collection, storage and use of water; water-borne diseases and their transmission; value of water and role of consumers in cost sharing; and the role of community in the operation and maintenance of water supply systems.

Our first activity was the mapping of the ward and selection of sites for standposts. We joined SEU's site selection team and visited every nook and corner of our ward. We had a hard time being faithful to the site selection criteria (ie. minimum 15-40 households and a minimum walking distance of 250 meters) as the people and politicians began pressing us to provide more taps at the doorsteps of their politically favoured ones. The SEU's style of work and commitment was our great strength. We were able to resist such temptations from within the WWC and outside till the end, though it was a tiring and strenuous effort lasting for days. We were quite happy to have been collaborators on this wonderful initiative. We felt that we had a say in the overall planning and management of the programme.

Gender issues

In its more recent history, Kerala has a heritage of women's participation in the life of the community and activities outside the home, which surpasses that of most states in India. Kerala is also the state with the highest proportion of literate women in the nation. Balanced against historic traditions which do not stimulate equality between men and women in the sense commonly understood in Europe or parts of Southeast Asia, the recent history of land reform and socialist or communist governments does support female participation in many sectors of life. Nonetheless, there are still many things which militate against full involvement of women in water and sanitation projects such as this one. Among these are:

- Women are rarely involved in decision making in public services and local government. This was a great challenge for the water and sanitation sector. While women are responsible for water and sanitation around the home, they have a weak voice in negotiations and decisions about many aspects important for themselves and their children.
- Rural women are generally shy to express themselves in mixed (male and female) meetings; as this tends to go against cultural norms. Furthermore they are not always taken seriously when they do speak.
- Women have less mobility during the day and are seldom seen out of the house after dark.
- All household work, including fetching water, collecting fuel, washing clothes, care of children and cooking is the responsibility of the woman, even if she has other major income-generating activities.

Box 10: Benefits for women. Suhara explains

Permathura is a Muslim fisherman's village in the coastal part of Chirayinkil Panchayat in Trivandrum district. It is known for its highly concentrated, congested and crowded habitat. The environmental conditions are deplorable. Most of the houses do not have any sanitation facilities. Every year during the epidemic season there are many deaths due to cholera and diarrhoea. People have no other alternative for defecation than using the open beach. The lives of women and girls are quite miserable as they always have to wait for darkness when nature calls. This is the story of Suhara, one of the beneficiaries of the sanitation programme.

"My name is Suhara and we could not dream of building a latrine of our own because we are very poor. When Mr. Sulfikar (WWC member) came to my house one day with the news of a sanitation programme for the poor of the Panchayat, it was like a dream-come-true for me. A woman like me suffers a lot for not having a guarded place for defecation. When Sulfikar told about a share to be paid I was a bit confused and disappointed. I thought, why can't this programme be free if it is meant for the poor like us? Rs. 500 is a big amount.

There were a lot of meetings and we were invited to participate. In those meetings we were told about the various aspects of the programme. We were also told why this is not a free programme. When it was told that one should wash hands with soap after defecation it was a joke for us; we all laughed a lot since we were not able to make any link between hand and defecation. Why should this be so important! Only when it was elaborated how a dirty hand can cause the passing on of fatal diseases like cholera did we realize the seriousness of the issue and understood the link of transmission of diarrhoeal diseases.

Every stage of the programme was explained very clearly and we learned the functions of each of the components of the latrine. The need for keeping an eye on quality of materials and construction was also emphasized during the sessions. I have noticed that this programme is totally different from other programmes because no middlemen could cheat us and we were given many opportunities to associate with the programme.

I keep the latrine absolutely clean like our kitchen. The visits of Mr. Sulfikar and other WWC members remind us of the need for cleanliness. All members of family use the latrine. I should add here that the provision of a latrine is very crucial for women especially during the time of menstruation. This programme is definitely a great relief for the womenfolk in the society.

A central feature of the SEU programme is strengthening community participation. Although in the project's objectives special emphasis is placed on women, there is no separate activity plan or allocation dealing with gender and gender relations. Efforts related to gender are simply part of many features of the work. Perhaps this can best be described conceptually with reference to how the programme deals with certain roles which women and men have in the home, community and project. Some concrete observations about each of these are noted below.

As users and managers of water and hygiene: In order to give women a recognizable role in water and sanitation projects we initially selected only women as standpost attendants. But recently it became clear that this increased the responsibility and burden on women. For example, when visiting a standpost in a ward, there was an unpleasant situation. After his work in the field one manual labourer was cleaning his muddy hands and legs under the tap, and making the whole platform dirty. The SPA requested him to take water in a vessel and clean his body away from the platform. He said: "You are the SPA and must clean all the dirt around the platform". Such hurtful and insulting remarks are also heard in other places sometimes, even from women. Now the programme also identifies men as SPAs for creating a balanced division of labour between the men and women.

Some of these challenges in trying to involve women as partners in this participatory programme are logistical; some are attitudinal. Special care has been taken to find really active women in the water committees - not just women appointed for the sake of fulfilling criteria about having women on the committee. Sometimes women face gossip when trying to take part in social services. When a woman attends a meeting, particularly with managerial or executive work, neighbours sometimes say, 'She has no other work, that's why she can go'. Or neighbours may start rumours which upset the husbands and mothers-in-law. Local norms can be very strong and persuasive. To ensure the best location for public taps so that they will reach those in greatest need, discussions are held with the people who live in each area. For this, the programme ensures that the opinions and information about the area are solicited from men *and* women. This also increases public commitment to the care and use of the water taps. The complementary roles of men and women in the management of water supply, sanitation and community affairs finds explicit recognition in the presence of both.

Hygiene education covers some of the most personal aspects of behaviour and most important aspects of family care. There are separate meetings with women which can be lively and well attended. Although men should also be addressed on their own hygiene behaviour and support (financial and physical) of hygiene in the home and hygienic habits of children, these aspects are not yet being pursued.

Some special campaigns are mounted which have relevance to local environmental issues. Women have a high level of participation and commitment in these - in planning committees, as well as in implementation. These include the well chlorination and fly control campaigns.

As members of disadvantaged groups or in self-employment: In Kerala mason's jobs are monopolized by the men, while women remain unskilled helpers. In several Panchayats the programme has trained and deployed women masons for latrine construction. These are very poor women who had previously been unskilled construction labourers, mainly carrying loads, mixing concrete and doing other manual jobs. As skilled masons, they may be able to double their income, being the first women to enter this type of work in Kerala (see also section 6.2). The women masons are given the same wages as men masons, which initially created social problems. The WWCs, with the support of SEUs advocacy, played a crucial role to resolve the issue amicably.

Another income-generating activity is the production of concrete blocks, which lowers the cost of latrines and can be made into a home industry.

As local functionaries: Originally ward water committees, which are central to the management of the programme, would have at least two women out of seven members. New WWCs now have at least three women. SPAs, who originally were only women, may now also be men. The programme gives training to both male and female local functionaries. The latter are women leaders of children's centres (ICDS, anganwadis), leaders of women's clubs, workers in health clinics and primary school teachers. The purpose is to work together with these women and their network in all the health and sanitation activities - and to stimulate them to take the lead in the future.

As programme staff: The programme's professional staff consists of three females and six males. Fifteen of the 35 field organizers, or 43 percent, are women. A major benefit of having women field organizers is that their interaction with groups of women is much easier and more open. Their commitment to improving water and sanitation issues, particularly with the poorest populations, is high. This can present challenges to the project, as the mandate does not extend to income generation and other support activities for the welfare of women.

However, the needs are real and obvious. The importance for us in Kerala of having well-educated women field organizers has become evident. Each is a young university graduate or has a master's in social work; each has had field experience already. Well-educated women have a higher legitimacy and can hold their own with local government officials.

However, project staff, both professionals and field workers, are subject to the pressures of behavioural norms which can make it difficult for them to carry out their work. For example, their relatives tend to complain when they return from field work after dark in an automobile with other male project staff. These logistic issues continue to cause comments, but the new roles of women as WWC members, SPAs, masons and professionals have become accepted over time and are one of the reasons for the achievements of the programme.

Box 11: Views of a field organizer

I am a field organizer working with SEU since 1989. In our unit the number of women field organizers was always higher than that of the males. From the time of initiation of the SEU we were always reminded of the special concern of this project towards women and their development. All through the years our project was trying its best to implement what it preached. When many people questioned the efficiency of women (mostly young unmarried women) in field work because of the cultural barriers on their mobility, late hours of conducting motivational sessions, dealings with men, etc. the women field organizers were bold enough to perform like the other male staff without much difficulty. The capabilities of women have now been proven and I am proud to say that we have surprised the doubting and frowning faces.

Gender issues were tactfully and carefully taken care of by providing us with special orientation. We were told that conscious efforts need to be taken to make women feel at ease and speak up, especially when men are around. Similarly, we must respect the women, listen to their views carefully and appreciate their opinions and suggestions.

I had a very interesting experience while working in the field. It was at the time of a site selection for public standposts. Our team reached a particular spot in the Panchayat. As usual the menfolk gathered around us. I left the group and moved to the nearby houses to meet the women and ask them to come also to the meeting place. Many said, 'Our men are there and that will serve the purpose'. But I asked them, 'Aren't you the ones who collect the water for the house? Hence you have to come and choose the correct location for the standpost according to your needs'. After counselling and motivation, about fifteen women came to the meeting place. The purpose, criteria and the process of site selection were explained and the group was requested to identify the suitable location of the standposts. The men, especially one or two self-assumed leaders, spoke. The women kept quiet and a few started walking away. I asked, 'Why are you leaving without saying anything, do you have any suggestions?' Immediately one man from the group asked, 'Why ask the women? They know nothing about water supply'. This provided me with a good opportunity to highlight the importance and role of women in a water supply project. After this the men became silent and the women started talking and suggested the appropriate location for the standpost. They proposed a location 30 metres away from the farm. The reason was that more households were living on the other side and this location will save them from climbing the hill. Unanimously the site was accepted by everybody. Since then I learnt that women should be given a lot of attention and their importance as equals should be highlighted often in front of men.

The most striking example of gender difference was noticed in sanitation. When we convene the meetings for planning the sanitation programme most of the participants will be men. Many of these men are reluctant to bear 20 percent of the cost in cash and they fail to register their applications in time. Later on, in the house to house campaign the women become aware of the programme and they pressure their husbands or grown-up children to join the scheme. Learning from this experience, it is now insisted that both men and women should attend the meetings, at least the first one.

6. *Ongoing Experiments*

6.1 **Design and operation**

In general, the management style of the programme has been to launch experiments to solve problems or try out activities when staff members have a new, possibly useful idea. This had led the SEUs to conduct many experiments over the years some of which failed, some of which succeeded. Experiments, therefore, form the basis for the continued efforts to improve the efficiency and effectiveness of the programme. From the very beginning of the programme strenuous efforts were made to minimize the cost of latrines while introducing various changes in the pan and trap, junction box, roofing, door, superstructure, etc.

Pans and traps

The pans used were made of polyvinyl-coated fibreglass. Ceramic pans were initially considered, but local manufacturers were not able to supply them in time. However, with a lot of negotiation and advocacy it was possible to convince a local government manufacturing company in 1988 to manufacture low-cost ceramic pans and traps.

In the beginning of the programme it became clear that masons, construction supervisors and household members did not know the reason for and the correct installation and operation of the water seal. This was taken up in the training programme, where the correct positioning of the trap is explained, as well as the reasons for using the minimum amount of water for complete flushing and for maintaining the water seal.

Junction box

The junction box connecting the pipe from the pan and the trap to the pits can give several problems in this latrine design. The junction box was at first made in concrete but later of fibreglass. Later it was decided to concentrate on a standardized junction box made out of bricks and cement by the masons. Efforts were also made to manufacture ceramic junction boxes, and the unit in the north is still using them.

Superstructure

For the superstructure, aluminium or tin sheets were used for the roof and the door in the early stage of the programme. Later on other roofing materials, such as tiles, asbestos and treated (compressed) paper were chosen to reduce costs while maintaining or even improving the quality of construction. Similarly for the doors, various materials have been used such as tin sheet, asbestos, bamboo-ply, softwood, depending on local conditions and cost.

There is a tendency, unless unchecked, to 'over-construct' the superstructure of a latrine. The current programme installs only rural latrine pans. These not only require less water for flushing, but also take up less space. Hence the dimensions of the superstructure, and so costs, could be reduced. At present, a distance of 175-200 mm is kept between the toilet pan and the wall because of user friendliness. Height of superstructure, wall thickness and plastering have all been reduced to save construction costs.

Pit dimension

To minimize the cost of digging and lining the pits, it is necessary to determine the optimum size, that is, smallest dimensions which will last the longest. Early in the programme staff sensed that the standard design information about pits might not be exactly relevant for the conditions in Kerala. Thus the filling rate of the pit has been monitored to determine the optimum dimensions. Five years of monitoring (fifteen latrines in different soil conditions) by the SEU (north) showed that in Kerala, with an average family size of five to six persons per family, latrine pits fill up more slowly than initially thought. A pit of 1.0 metre diameter and depth fills up to the drain outlet level in about three years. Hence a further improvement in efficiency is possible by having the pit size reduced. Furthermore costs in soft laterite and hard clay soils can be reduced, because pits in these soils do not have to be lined.

Table 10: Costs of experimental double-pit latrine for water-logged soils

Latrine with 7.5 cm raised basement and 40 cm raised pit with side filling			
1.	Foundation Basement item	Quantity	
	1. Bricks	505 Nos.	Rs. 505.00
	2. Sand	12 Bags	Rs. 120.00
	3. Cement	1 1/4 Bags	Rs. 162.50

			Rs. 787.50
2.	Superstructure items	Quantity	
	1. Bricks	383 Nos.	Rs. 385.00
	2. Sand	12 Bags	Rs. 120.00
	3. Cement	1 Bag	Rs. 130.00

			Rs. 635.00
3.	Step and Manhole with Plastering		
	1. Bricks 95		Rs. 100.00
	2. Sand 6 Bags		Rs. 80.00
	3. Cement 1/4 Bag		Rs. 32.50

			Rs. 192.50
4.	Ring and slab (4+1)		Rs. 780.00
5.	Filler slab 1 no		Rs. 190.00
6.	Closet and trap 1 no		Rs. 208.00
7.	SW pipe 3 nos		Rs. 54.00
8.	Door and fittings		Rs. 175.00
9.	Masons		Rs. 240.00

			Rs. 1,647.00
	Total		Rs. 3,262.00
	Less: Beneficiary Contribution		Rs. 800.00

	Total		Rs 2,462.00

In the area around Alleppey the groundwater table is very high, forestalling the installation of the regular latrine model. Four types of designs for latrines in water-logged areas were therefore tried out in three selected Panchayats, based on the maximum water table during the flood seasons:

- latrines with 55 cm raised platform and 30 cm raised pit
- latrines with 65 cm raised platform and 50 cm raised pit
- latrines with 77.5 cm raised platform and 40 cm raised pit
- latrines with 92.5 cm raised platform and 70 cm raised pit.

The basis of the designs were the UNDP/World Bank suggested model for water-logged areas and the model recommended by SEU. Taking a lesson from both designs, two experimental models are now being tried. These models combine features of the two earlier models, including a sealed upper portion of the pits, so that earth mounding is not needed, and a raised and supported inlet pipe to the pits, so that the latrine will be operative during much of the rainy season. The costs of the new models are reasonable when compared to other water-logged latrines (see Table 10).

Pay and use unit

In one Panchayat, Anjengo, it is not possible to install individual household latrines because of the very dense settlement pattern (4500 people per sq.km), which is more peri-urban than rural. In this area, a pay-and-use latrine with bathing facilities has been installed for the exclusive use of women.

Figure 20: Pay-and-use unit for dense settlement

The unit consists of twelve cubicles (ten latrines and two bathrooms) with taps for drawing water for flushing and cleaning, and a handwashing facility. The choice for and design of the unit was discussed with the community, representatives of the women's group, Panchayat and the technical consultant. Use of the latrine costs 50 paise (one half rupee) per visit, while bathing and using the toilet costs one rupee (about US\$ 0.03). The day-to-day management, maintenance and repairs of this facility are carried out by a local voluntary women's group, the 'Deepthi Mahila Samajam'. A management committee composed of representatives from the Gram Panchayat, the women's group and the users has been identified for overall management and decision making. The Panchayat has provided the land. One year after the completion the facility was used daily by 200 women and kept clean. Half of the revenue covers operation and maintenance, the other half goes to the women's group account for other development activities.

6.2 Women masons

In Kerala, and in India as a whole, many poor women work as unskilled labourers in the construction industry, while men work as skilled masons. When the rural sanitation programme of the SEUs started, it faced some difficulty because of lack of local masons. This slowed the pace of the programme in some Panchayats. In the Central Unit a group of women masons' helpers was therefore trained to become full-fledged masons and work for the programme. This group is now being transformed into a cooperative so that it may become self-supporting. In the Southern Unit, women are involved in casting slabs for the roofs and pit covers of the latrines.

On the results, the Central Unit reports, 'Thirty-one unskilled rural women from two Panchayats in the Nattika Firka scheme area were selected to learn masonry. In Kerala, women are only used as helpers in the masonry trade, often doing harder and heavier work than the masons themselves. The women in the group have proven their capability in making cement bricks, constructing double-pit latrines, building walls around compounds, and so on. During this year (1994) these groups have constructed more than 1000 latrines and produced over 25,0000 cement bricks. Training focused not only on construction, but also on finances, cooperative work, management and personal development of the women. The process of registering the group as an industrial cooperative is in full swing. This will reduce SEU involvement considerably in the coming years. The women masons are working in an area where there is currently a lack of masons for our programme'. One more year's follow up is needed for the group to become fully independent from the Central Unit .

Training of lady masons started in 1992. Candidates were selected by announcing the training and inviting female helpers and construction workers to apply. Selection criteria were: below 40-45 years of age; experience as unskilled construction worker; basic education (functional literacy); no small babies and a need to earn an income (widow, single or deserted women with children).

Classroom training covered two technologies: concrete block making and latrine construction. The beginning of the training cycle is depicted in Box 12. Besides training in technical skills, the women are trained in health, hygiene and disease prevention. Training activities are also devoted to team building and individual self-confidence. Practical training in block making and latrine building lasts two months and is given on-the-job in the field by a master mason.

Box 12: Training schedule for women masons**WOMEN MASON'S TRAINING PROGRAMME**

Venue: COSTFORD

PROGRAMME SCHEDULE

18-11-91	9.30 am	Registration
	10.00 - 10.30	Inauguration
	10.30 - 10.40	Tea break
	10.40 - 11.00	Masonry test
	11.00 - 12.15	Class on team spirit and cooperation
	12.15 - 01.00	Technical test
	01.00 - 02.00	Lunch break
	02.00 - 03.00	Square test (Construction of square)
	03.00 - 04.00	Slide show
19-11-91	10.00 - 11.15	Savings and budgeting
	11.15 - 11.30	Tea break
	11.30 - 12.30	Drawing a square
	12.30 - 01.00	Completing the structure
	01.00 - 02.00	Lunch break
	02.00 - 03.15	Women's issues and development matters
	03.15 - 03.25	Tea break
03.30 - 04.00	Concentration exercise number game)	
20-11-91	10.00 - 11.00	Bactolab
	11.00 - 11.10	Tea break
	11.15 - 01.00	Learning to be a woman mason
	01.00 - 02.00	Lunch break
	02.00 - 03.00	Hygiene education
	03.00 - 03.10	Tea break
	03.15 - 04.15	Final test

Training techniques used for team and confidence building include group exercises, songs and slogans (Box 13). These not only help the women to complete the training, but also help them to become a cohesive group and solve internal problems. Women masons in the central area also stress their identity as a group by wearing red saris. Women masons in SEU South wish to do the same, but for practical reasons prefer a punjabi (trousers with dress).

During the training, the women get a stipend of Rs. 35 per day. From this, they save Rs. 5 per day in a post office account to help them tide over the period of heavy monsoon rains, when they cannot work. They were stimulated to increase this amount to Rs. 10 per working day after the training, when they started to earn. The first group that took the training saved Rs. 500 per person. During a meeting it was discussed that this amount was not enough for even one month. The women in SEU Central area therefore proposed that the programme loan them some tarpaulins, so that they could continue block making during the period of heavy monsoons. This would also allow them to reserve their savings for constructing their own household latrine.

Box 13: Ten slogans of the women masons' training programme

- 1 Have an aim: I want to become an efficient mason.
- 2 Have effective means: I participate in the training with eagerness and interest.
- 3 Firm decision: I will face any trouble or hardship to become a mason.
- 4 Self-confidence: I can become a mason.
- 5 Unrelenting effort: Even if I don't succeed at first, I will go on trying.
- 6 Cooperation: I must be ready to cooperate with other members of the team and with the trainers
- 7 Unity: Together we can do it.
- 8 Hard work: Be ready to work hard and win.
- 9 Faithfulness and Punctuality: Be very honest and faithful in what we do and to one another.
- 10 Tolerance and Consideration: Willingness to accept criticisms and support one another in spite of shortcomings and temperaments.

Motto - One for all and all for one

During and after the training the women start making concrete blocks in groups of three: two make the blocks and one mixes the concrete. Each team works at a beneficiary's house. The concrete mixture is put into metal moulds, three stone chips are placed in the middle to reduce costs and increase strength, and the mixture is pressed firmly together and smoothed on top before the mould is carefully released. The beneficiary households provide the team with food and drinks and help in collecting the materials from a central place in the Panchayat.

Block making is taken up in areas where bricks from the private sector are more expensive than blocks (Figure 21). The women get 35 paise (Rs. 0.35) per block. Earnings are paid per team and divided by three. During training the women have been already able to make Rs. 45 per day, as compared to Rs. 25-30 when they were still a mason helper. Their earnings increase when they gain speed through practice. Other benefits reported by the women are: less hard work; no more scolding and blame; regular work (previously there was no ongoing programme and they were fired between jobs); treated as skilled craftspeople by the householders; offered refreshments and food by the household; and increased respect from men, but also some jealousy (Box 14).

Figure 21: Block making by women masons.

Box 14: My life, from mason helper to mason

Ms.V.V. Mony, who is a deserted mother with two children tells, 'I had to work very hard and still the contractors would shout at me and others working with me. Payment was also not that satisfactory. Now I am able to build a latrine all by myself and earn up to Rs. 150 per day. What is more, I am master of myself. I have more dignity, the other members in my family give me more respect and I am more recognized in my neighbourhood. I feel proud about my improved status in the community at large.'

Another women mason, Fathima says, 'My husband cannot work. I have three children who are small and at school. Formerly we were having much less to eat. Now we buy milk, fish, meat, eggs etc. for our meals. My children have better clothes and better care too. We lead a prosperous and happy life.'

Omana, the president of the women mason's group (Jeevapoorna Women Mason's Society) is now a very determined woman. She says, 'I am a widow and as such I was very much put down, depressed and had to work very hard to support my children. I was shy and afraid to travel alone or speak with other people, especially the men. After joining the group I have found I have good leadership qualities. I can now build confidence in my co-workers; I feel sufficiently bold and courageous to face any comments from people; I am determined to do everything possible to make our women mason's society grow and support many women like me. I am confident now to learn new aspects of masonry.'

Lalitha, a 40-year old mother and a participant of the sanitation programme remembers her fears when she saw two women coming to build her latrine, 'My husband had already left for work, and I didn't know whether to let these women work or not. I was very puzzled, reluctant and doubted the skill of these women whom I had known as helpers. Once the work was over and found to be really well done, I breathed with ease. Nowadays when the women masons visit any areas where they are working they are considered and treated as important persons.'

6.3 Reduction of subsidies

Another experimental area is the reduction of subsidies on household latrines. So far there have been two efforts to reduce the subsidies for latrines, using different strategies.

Poyya is a poor Panchayat under the Mala rural water supply scheme. The population mainly consists of marginal agricultural labourers, small farmers and inland fisherfolk. Fifty-five percent of the population lives below the poverty line. Seventy percent of the households were without sanitary latrines. At the time the SEU Central initiated the sanitation

programme, the water committees and the Panchayat agreed that a different type of approach should be adopted in the programme, as they were interested in total coverage. Furthermore the users in this Panchayat were not able to remit the contribution within the stipulated period, hence a special type of construction pattern was tried as an experiment. The challenge was to have high coverage rapidly with a low subsidy.

Initially the SEU with the cooperation of the WWCs and the Panchayat constructed some latrines up to plinth level for demonstration purposes. The beneficiaries did not provide any financial contribution beforehand. They were expected to complete the remaining part of the latrine with a superstructure, roof and door themselves. All the other steps of the programme were based on the regular SEU sanitation strategy. Before starting the programme the Panchayat was given the responsibility of motivating the beneficiaries to complete the latrines. The experiment was started in 1992 and 1665 plinth-level sanitation units were constructed in 14 months. The unit cost of the plinth-level latrine was Rs. 900.

This was a very good learning process for the SEU and there were positive and negative points of the programme. The positive points are:

- the coverage was suddenly increased to 83 percent. Most of the below-poverty line households got the facility in the inception phase of the programme;
- motivation and logistical efforts were rather easy due to the large concentration of households together;
- many of the householders were able to construct bathing facilities by extending the plinth and using the side wall of the latrines as one wall of the bathing area. Thus, the community was able to make the facilities according to their needs and convenience;
- it was possible to bring together all community groups and local institutions for mobilization of the programme;

The negative points are:

- only 46 percent of the householders constructed the superstructure within the stipulated time; intensive motivational campaigns had to be arranged for activating the group;
- not all the householders had shown interest to complete the latrine as envisaged;
- the Panchayat was not able to motivate and convince the hesitant householders and they could not fulfill their commitment;
- the planning from the SEU side (not realistically taking into account the need for greater delivery capacity) was not systematic and there was a change of sanitation supervisor and field organizer;
- as households gave no financial contribution, some were not particularly interested in the project.

Other lessons were learnt from the programme. Women were more concerned than men about the completion of the facility and they were constantly persuading their husbands to complete the units. The initial enthusiasm of many households and the Panchayat faded within a few months. It was concluded that free facilities are attractive to everyone, but did not result in the commitment to complete the superstructure. It is, however, very important to note that many very poor households completed the construction with a very good superstructure by taking loans and pledging valuables. They appreciated the intervention and stated that the 50 percent subsidy encouraged them to own a latrine.

About the programme, the SEU Central reports, 'The beneficiaries and ward water committees are very enthusiastic about the programme. But motivating the householders to

complete the latrine and use it without delay is rather tedious for the WWC, and they become less enthusiastic as time goes on. The householders become less interested once the SEU investment is over.’

The second experiment in subsidy reduction was carried out by the SEU North. In the Panchayat of Edappal a lower subsidy of approximately 50 percent was introduced, as in Poyya. However, to avoid the delays with completing the superstructures, a new strategy was introduced, whereby each participating household had to have three packages of cement and 320 laterite bricks ready at the site before construction began. Construction of the entire latrine was done by masons monitored by the SEU. During 1994 only 256 latrines were constructed. The work was slowed down considerably because the financial management and accounting for the programmes were managed directly by the SEU, rather than being handled by the Panchayat authorities through a local joint account. Another problem was that households collected the materials at different times, meaning that it was difficult to organize the programme on a geographic basis. The lessons learned in this experiment thus far are:

- the subsidy rate can be reduced and the demand still exists; in this case some very poor householders came forward for this programme;
- some logistics are more difficult, as masons can only start work when the householder has placed all the commodities at the site;
- financial management should be done by the Panchayat with the SEU, using a local joint account.

Experimentation will be continued based on the lessons from the first two cases. The above elements will be adapted and taken up in the ongoing programme.

7. *A Look at the Future*

7.1 **Closing the sanitation gap**

The SEU programme was set up to work in the areas of the Netherlands- and Danish-supported water schemes. Together these currently include about 1-8 million people, or 6 percent of the total population of Kerala. With funding from other sources, sanitation activities have also been undertaken in certain coastal areas and Panchayats nearby the water scheme areas. These activities are relatively new and on a small scale so far. Nonetheless they hold promise for the future.

The SEU programme is not perfect, but it is a viable and less expensive model for the large-scale improvement of environmental sanitation both in rural areas and in areas that by virtue of their dense settlement and socio-economic characteristics have obtained an urban character.

The programme is not limited to construction of latrines, but has focused, with success and against low overheads, on continued functioning and use of latrines; better personal and better sanitation in a broader sense, including drainage, solid waste disposal and environmental cleanliness. Moreover, by assisting local government and community groups to manage their own community sanitation programme, the programme has contributed to local managerial capacities. Closer cooperation between people and government has been established. Women have obtained new positions in construction and management. Their traditional work, authority and expertise has been recognized and given a formal status.

After six years of learning from experience it is time to look at the future in a larger context. The Dutch- and Danish- funded programmes gave scope for experimentation and development, but they cover only part of Kerala and will not go on forever. Other programmes also address sanitation, but again to a limited extent. For future good sanitation for all it is necessary to look at the total context, that is, the need for improved sanitation conditions and practices in the whole State of Kerala.

The following graph examines the construction need for improved latrines, one of the activities of the environmental sanitation programme. The graph focuses on the below-poverty line families in Kerala, as they are the prime target group of the programme. It is based on data extrapolated from the National Census, the National Sample Survey and data from the Department of Rural Development. It examines future latrine needs based on expected increase in the number of households below the poverty line and compares these with estimated construction taking place under programmes aiming particularly at below-poverty line families.

The graph assumes that in 1991, according to the National Sample Survey, 2,900,000 or 29 lakh out of the 5,500,000 (55 lakh) households in Kerala were without sanitary latrines. It is assumed that about 85 percent of these are below-poverty-line families, so some 2,600,000 poor families had no sanitary latrine. It is estimated that new families being formed in this group will grow by about 1.5 percent a year, which is a somewhat larger growth rate than the state average growth of 1.4 percent. According to the State Planning Board approximately 30,000 subsidized latrines are built annually for below-poverty line families. The department assumes that this may increase by about 3 percent annually. The graph shows that the new construction will not even cover the increase in the number of households by the year 2000. This implies that at least 2,600,000 will still remain without sanitary latrines at the end of the century.

Figure 22: Construction versus population growth: construction of latrines in programmes for below poverty line families from 1992-2000

The graph shows a growing gap between the capacity to deliver with current programmes and the needs for the future. In other words, given the current programmes it will not be at all possible to achieve a high level of coverage with sanitary latrines for the population below the poverty line by the year 2000. The poor population as yet uncovered will remain around 50-55 percent.

To be meaningful in the State of Kerala, with a total population of 30 million or 3 crore people, the SEU programme will thus have to grow. For doing so it has three options:

- expand the current programme in current communities; achieve full coverage;
- expand the current programme to new communities; work with new partners;
- adjust and diversify the programme and develop strategies that enable households and local government to take charge of all direct tasks and costs, while the programme does the capacity building and monitors implementation and results at the level above communities.

These options are discussed in the following paragraphs.

7.2 Towards programme sustainability, replicability and community self-reliance

Expand the current programme in current communities

An important test for any community-managed sanitation programme is whether local groups can keep up the established practices and also serve new households without direct external help.

Organizationally, local capacities for self-managed sanitation are increasing in the Panchayats which take part in the programme. In Thrikkunapuzha Panchayat two committed community members, one man and one woman, have become a core group for the sanitation programme and have taken on the role of the SEU field officer. The core group liaises between the work of the Panchayat and the ward water committees and sees to it that all sanitation work -technical, social and educational - goes smoothly. In other Panchayats, the ward water committees are trained and should be stimulated to take on the local promotional, managerial and training tasks of the field organizers and staff of the Socio-Economic Units.

The SEU South reports, 'Now training will be shifted to the Panchayat level, with the trained core group members conducting the training. Seven core members have so far been trained and some of them have become capable of handling sessions with a bit of support. The future sessions will give them more confidence. Another purpose of this experiment is to ensure, at low cost and with less staff time, that ward water committee skills and group coherence can be improved. If this approach to enhance local self-reliance by means of training core groups is effective, it will be expanded to other areas'.

When similar core groups can become functional in other Panchayats, the local sanitation will in due course be fully managed by community-based organizations: Panchayat, core group and ward water committees. However, the dependency on external subsidies for individual latrines continues and means that the programme is not self-sustaining.

Although programme communities still rely on subsidies of 50 to 60 percent for latrines for below-poverty line households, several of them have started to replicate the programme with higher income groups within their borders, to achieve 100 percent local coverage with sanitary latrines. An initial spin-off for the poor was that wealthier households, who were not entitled to take part, were nevertheless encouraged by the programme to privately build a sanitary latrine and undertake other sanitary improvements. They also benefitted from the better latrine designs available, lower prices for materials and the availability of trained masons. In these communities, the programme for poorer families and private construction by households above the poverty line leads to total - or almost total - coverage. In August 1995, fifteen Panchayats with a total population of about 375,000 people had reached coverage of 80 percent or more with sanitary latrines. In nine of these Panchayats, more than 90 percent of the households had sanitary latrines. By June 1996, another ten Panchayats will hopefully have attained these very high levels of coverage.

Expand the current programme to new communities

In 1993 the SEU began to try to replicate the sanitation programme in other areas of Kerala on a small basis. It started very cautiously, taking into account the fact that the major donors stated that neither funds nor staff time should be diverted from the main water programme for this. The SEU was invited by Matsyafed, a welfare cooperative working among fishing communities, to replicate the programme with 500 households of poor fisherfolk. When this was done successfully, a second programme was started for 700 households. Expansion to households in three other coastal districts is expected in 1996. The programme model is similar to the one in the Dutch- and Danish-supported programmes, although it also involves a small loan component, to make it easier for the households to finance their cash contribution. Matsyafed, Panchayat and SEU are jointly responsible for the new programme. The ward sanitation committee has been authorized and equipped to manage the programme.

A replication by another agency concerns the women masons programme. Members from the Mahatma Gandhi University have started to replicate this programme under their National Service Scheme.

Meanwhile, individual Panchayats outside the Dutch-and Danish- supported programme areas began approaching the SEUs to enquire about replicating the programme in their communities. Sanitation programmes catering to low-income households and managed by local groups and government clearly prove to be attractive when they are seen to have results. The main bottleneck in meeting such requests has been the absence of a capable organization, such as the Department of Panchayats or the Department of Rural Development, which is willing to second staff to replicate the programme when local governments and people are willing to put up part of the funds themselves.

These isolated efforts need to be developed under a coherent plan. An opportunity for this is the creation of the programme 'Clean Kerala'. Four districts have begun to develop an operational sanitation strategy and action plan for covering the entire district, while using all resources available in various government departments and NGOs. SEU is giving assistance in the planning exercise and supports the State and District Sanitation Cells responsible for getting the partners together and coordinating the work.

In low-income urban areas replication is at a more preliminary stage. In December 1992, the Kerala government invited the SEUs to give a presentation at the KWA/World Bank Workshop on Low-Cost Sanitation. Subsequently, SEU North assisted in the preparation of a plan of implementation for a low-cost sanitation programme which the World Bank may finance in Calicut and surrounding areas. SEU's coordinating office did the same for a sanitation programme in the state's capital, Trivandrum. During the planning, the estimate which a private engineering consultant gave for an average latrine in this programme turned out to be Rs. 3750 (US\$ 110). However, the experiences of the SEU demonstrate that this cost could probably be brought down to around Rs. 2500 (US\$ 74). It is hoped that the personnel involved in the preparation of the implementation plan will examine several different sanitation programmes already operating in Kerala including that of the SEUs before completing their plan.

Developing self-reliance: diversify the programme and develop strategies that enable households and local government to take charge

While expansion and replication do occur, it is doubtful if the present Kerala sanitation programmes, including that of the SEU, can ever be large enough to close the gap depicted in Figure 22. Other steps will be needed to improve sanitary conditions and practices in Kerala's densely settled rural and peri-urban areas. Moreover, from a public health point of view 45 percent or even 60 percent latrine coverage is insufficient to reduce faecal-oral disease. Comparative research shows that a reduction in such diseases only occurs when at least three-quarters of the population has good sanitation (Esrey, 1994).

Subsequent Indian sanitation policies have been reluctant to place the responsibility and capability for better sanitation on local governments and households. Improved sanitation has so far been something that the national and state government supply to the people, by building latrines. High subsidy levels have become the norm, but available funds can serve only a limited portion of the needy population.

The experience in Kerala indicates that households above the poverty line will indeed finance all costs of the latrine themselves if subsidies are reserved for the poor only. It also shows that government subsidy to low-income households can be lowered to 50 percent and the remaining 50 percent can be shared between the households and the local body. This trend should continue. Much greater emphasis should be given to resource mobilization at the local level, rather than investing a huge amount of state funds in private sanitation.

SEU experience shows further that low unit costs result from a strategy of cost reduction, from the involvement of the local private sector rather than contractors and from charging real expenses for overhead, rather than percentage-wise establishment charges. Yet the latrines produced in this low-cost manner are durable, appreciated, well-maintained and used. The number of poor households served with the given funds is substantially higher than would have been the case with a different strategy.

7.3 Adapting the strategy

If the strategy documented here is adopted in all sanitation programmes in the state, many more poor households could build and use a sanitary latrine than is presently the case, even when the amount of central or state funds for sanitation remains the same. Nevertheless, with a growing population, more drastic steps are needed. If all households below the poverty line in Kerala are to own and use good sanitation facilities, it is necessary to move beyond cost reductions in the present programme - to adapt the programme itself. The following adjustments and diversifications may be the most relevant for this.

Lower external subsidy

An important step is the promotion, on an experimental basis, of latrines with a lower or no subsidy except that which can be provided through local government, local and state organizations and fund raising. Completely unsubsidized latrines are being tested by UNICEF in West Bengal, showing that with sufficient promotion willingness to finance one's latrine is high, also by the poor. A visit showed, however, that maintenance, use and environmental impact are not yet optimal.

The SEU intends to continue its work in the direction of subsidy reduction. The programme will follow a strategy of gradually reducing external subsidies to below poverty-line households through a combination of mechanisms. Examples are a greater share of local contributions, including from the local government and from other local resources; reserving

these resources for subsidies to the poorest households in the below-poverty category; establishment of a savings and credit fund to reduce financing problems; and the creation of local sanitation funds with voluntary fund raising or other forms of community contributions.

More user choice

Thus far, the project has selected the technology for households. The households only have the choice of joining or not joining. Households can make only minor adjustments, such as plastering, whitewashing, purchase of foot-rests and sometimes adding bathing facilities. With the reduction of the subsidies, households can be given an informed choice also on lower cost options, leaving the choice to them rather than the programme. A gender strategy should ensure that both men and women will have access to, and understand, the information and take part in the decision process.

More partners

A more serious look at the roles for the commercial, community and voluntary groups is needed, including the trial (which is already planned) with local sanitation marts. These are local places where households wanting to build a latrine or other sanitary facility can see designs, learn about cost, buy materials and get a list of trained local masons for doing either all or only the skilled part of the work involved. While in principle these places are either run by a programme agency on a subsidy or non-profit basis or by the private sector on a profit basis, a variation being tried is to have community members, under leadership of a ward water committee, develop a sanitation mart. This would also include providing services of masons to households and assisting poor households to do their own latrine building.

The small private sector could be brought in more purposefully, The small retail shops which exist in most locations could be stimulated to supply 'packages' of basic materials including traps and pans, pipes, junction boxes, construction plans, sample costs including labour costs and lists of 'approved' masons. These stores would charge more than sanitation marts, having a higher profit margin. Nonetheless, their outreach and accessibility throughout Kerala would be much better.

Moreover, if the women masons cooperative is shown to be capable of attracting enough private business in construction, expansion of this form of private sector involvement in other districts becomes attractive, under funding of the government's TRYSEM scheme (training for women and youth).

Another option could be to stimulate local banks to provide a simple, transparent credit line to poor households for latrine construction, with loan guarantees being provided by the local government or other local institutions. A small effort was attempted in this direction, but may need to be pursued as part of a larger, more coherent package.

Supportive legal measures

Several legal measures for promoting sanitation will be pursued, such as the establishment of local and state building codes in all Panchayats to ensure that all new houses include affordable low-cost latrines. A measure at the national level which would considerably reduce latrine costs is the tax exemption for rural design latrine pans. Tax on all latrine pans is now 22 percent.

Continued monitoring

The ward water committees and local institutions such as schools and women's groups will continue to monitor construction, maintenance and use. Above the local level, aggregation

and analysis of sanitation conditions and practices will have to be organized, also outside the areas where SEU works. Arrangements for monitoring at district and state level are also needed.

Strong sanitation cells

For full sanitation coverage, the Kerala government has created district and state sanitation cells. The cells have been established to bundle all government and NGO resources to address sanitation planning and improvement. To be productive, they require technical support for two or three years on a continuous basis, due to the frequent transfer of senior officials. External agencies have yet to give serious thought to strengthening the cells instead of target-based implementation programmes.

Enabling policy

More than half of the below-poverty line households in Kerala do not have good sanitary facilities. Addressing this problem with the existing policies and strategies requires unrealistic increases in funds and scales of implementation. An enabling government policy abolishes replication of sanitation programmes that use strategies whose efficiency and effectiveness is low. It encourages programmes to adopt strategies proven to provide more and better changes at the same overall costs. And it stimulates new research and development into yet better strategies, as current ones cannot yet cope with a deteriorating environment which threatens people's health and poisons fresh water.

The SEU cannot do this by itself. A different set of state-wide policies is needed which uses past experiences and carries them several steps further. In this, essential features must not be lost, but be given greater emphasis in all sanitation programmes. These include:

- cost sharing with beneficiaries, local institutions, local and state government;
- reduction in total costs through a wide range of mechanisms;
- empowering each community to manage programmes for themselves;
- focusing beyond hardware, on functioning, use and hygiene behaviours.

7.4 Institutional implications

During its six years of work, the SEU programme has been changing from an implementor of externally-financed sanitation to a facilitator which trains local government and voluntary community organizations to implement and manage their own programmes. Increasingly SEU also trains staff who work in sanitation programmes financed by departments in the Kerala Government and by NGOs. This growing integration into Kerala society and programmes necessitates a more permanent character for the SEU. Only then can it work more easily with other funds and will the continuity of the sanitation programme not depend on a continued flow of external funds for integrated water projects.

In the present Kerala set-up there is no other agency available which can take the sanitation strategy, which SEU proved to be efficient and effective, several steps further. As of April 1996 SEU started to become an independent NGO, the SEU Foundation (SEUF), whose services will be available to government departments and programmes, local government, NGOs and external support agencies.

Yet to be decided is what will then happen to SEU's work in water supply. As an autonomous body the SEU can either become an organization specialized in sanitation, and transfer its tasks and expertise in water supply to a yet-to-be-established socio-economic unit in the

KWA, or combine work in water with that in sanitation and let market demand decide to what extent water-related work will remain part of their services.

The former is the option proposed by several joint Indian-Danish-Dutch government missions. It would facilitate the expansion of participatory strategies to all rural water projects of the KWA and it would also allow the SEU to specialize fully in environmental hygiene, for which there is no other institute in Kerala. But a final decision has not yet been taken.

As a foundation, the SEUF continues to work as direct implementor of community-managed sanitation programmes with local Panchayats and groups, as well as trainer for other agencies who take on this strategy. At the same time, the organization is to try out new ways to shift sanitation from central, state and donor governments to local governments, groups and households. As such, its work will not only involve implementation, training and research, but also documentation, publication and advisory services on technical, socio-economic, institutional and environmental aspects. A comprehensive, specialized and multidisciplinary approach is conditional for community-managed sanitation to realize its full potential.

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