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MINISTRY OF LOCAL GOVERNMENT
HOUSING AND CONSTRUCTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

INTERNATIONAL REFERENCE CENTRE
FOR COMMUNITY WATER SUPPLY AND
SANITATION (IRC)

PUBLIC STANDPOST WATER SUPPLIES AND
SANITATION (PSWS) PROJECT SRI LANKA

OVERVIEW AND FINAL REPORT

Edited by:

Dr. H.I. Karunadasa

Mr. S.J.P. Wijegoonewardena



A project supported by the International Reference
Centre for Community Water Supply and Sanitation (IRC)

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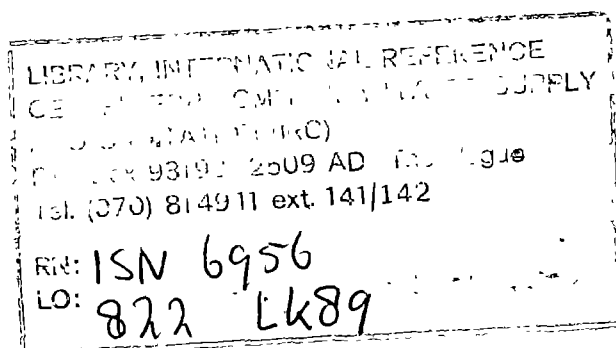
THE OVERVIEW AND FINAL REPORT OF THE PUBLIC STANDPOST
WATER SUPPLIES AND SANITATION (PSWS) PROJECT, SRI LANKA

A Project implemented by the National Water
Supply and Drainage Board of the Ministry of Local
Government Housing & Construction.
and supported by the International Reference
Centre for Community Water Supply and Sanitation,
Netherlands

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FOREWORD

In the process of implementing the National Plan for the International Drinking Water Supply and Sanitation Decade of Sri Lanka there was a need to develop appropriate strategies, methods and techniques for the planning, implementation and management of community water supply schemes which include a considerable number of public standposts.

In association with the International Reference Centre for Community Water Supply and Sanitation, and utilizing supplementary funds provided by the Netherlands Government, the National Water Supply and Drainage Board implemented four demonstration projects namely Padaviya, Haldummulla, Wijayabahukande and Seelatenne in Sri Lanka in order to implement the objectives stated.

Many strategies, methods and techniques were adopted and studied on these four schemes in which public standposts play a key role. It was a very successful approach and resulted in the development of innovative and revolutionary aspects in the implementation and management of water supply schemes throughout Sri Lanka.

The most beneficial aspect of this project has been that the experiences gained in the Public Standpost Water Supply projects are now being used on a much wider scale by other Agencies implementing projects in Sri Lanka and by the National Water Supply and Drainage Board. The Asian Development Bank, the United States Agency for International Development, the Finnish International Development Agency and the Danish International Development Agency are a few of the Organisations that are now supporting projects in Sri Lanka using the software developed by the Public Standpost Water Supply project.

Most of the techniques, strategies and methods of the construction phase have now been tested and proved satisfactory in several circumstances. The National Water Supply and Drainage Board, with the help of the International Reference Centre is still continuing its work on operation and maintenance aspects of these water supply schemes in order to further develop techniques of maintenance of water supply schemes with community support. There is no doubt that all developments from these activities will bring numerous benefits in the operation and maintenance of rural water supply schemes.

An important aspect of the project was the multi country approach adopted. Due to this the participating countries namely Zambia, Malawi, Indonesia and Sri Lanka were able to share experiences gained, and this resulted in further development of the projects in the participating countries. Three workshops were held in Indonesia, Thailand and Sri Lanka with all four countries participating, in order to share experiences of the participating countries.

Many benefits have accrued during the course of this project and it is hoped that further benefits will be generated during the operation and maintenance phase of the water supply schemes developed under the Public Standpost Water Supply project. Furthermore it is hoped that many countries and organisations will continue to benefit by the experiences gained by the participating countries from this project.



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Chairman, N.W.S.D.B. & Chairman Project Management Committee.

1. INTRODUCTION

This report is written to cover the major areas of the National Water Supply and Drainage Board's PSWS Project which was supported by the International Reference Centre for Community Water Supply and Sanitation, The Netherlands. The two areas are the Overview of the PSWS Project in Sri Lanka and Final Report of the Project. Both these aspects are combined together as this report is compiled at the end of the project.

The report embraces 16 chapters which comprehensively illustrate the planning and implementation of the project with community participation and health education as key supporting factors for the success of the project.

The Public Standpost Water Supply and Sanitation project, implemented by the National Water Supply and Drainage Board of the Ministry of Local Government, Housing and Construction, is the first of its kind implemented by the NWSDB. With this project the NWSDB added another landmark in introducing community participation and health education as essential prerequisites for the implementation of the rural water supply system.

Right from the beginning to the end the project was managed by a Project Management Committee, headed by the Chairman, National Water Supply and Drainage Board. Apart from the NWSDB, other institutions represented on the committee included the parent Ministry of Local Government, Housing and Construction; Ministry of Health; and the World Health Organisation. The untiring efforts of the committee members who monitored the progress without interruption could be considered a strong factor.

The inputs provided by the International Reference Centre proved to be extremely useful. A significant contribution was made by Mr. Michael Seager, Project Manager for the International Reference Centre in achieving the Project objectives by helping promote this novel approach and guiding the project during its duration. It is also noteworthy to mention the continued support that was given by Mr. Percy Lao of the World Health Organisation and also the support received from the Ministry of Health, Sri Lanka. Finally in this context it is also appropriate to mention the contributions made to the Project by different NWSDB Project Managers who handled the project during its various stages and the staff of the National Water Supply and Drainage Board who have given us whole hearted co-operation during the course of the Project.

The project has come out with several publications particularly to highlight the methodology adopted in utilising community participation in Water Supply and Sanitation, and guidelines to demonstrate operation and maintenance of rural water supply systems. The contribution the project made in national and international workshops was tremendous. These sharings of experiences widened the Board's vision in future planning and implementation of the water supply systems. Readers are kindly requested to contact the NWSDB if they desire any further information. The manuals mentioned in Appendix I will be made available to mnternational, bilateral and other donor agencies together with other interested agencies when printed.

Note: 1 SLR = US\$ 0.04 (1985)
1 SLR = US\$ 0.035 (1986)

2. BACKGROUND

The history of Sri Lanka is replete with references where community participation has been effectively utilised by the rulers for centuries in the construction of extensive irrigation systems with reservoirs of gigantic scale. Community participation is one of the major key factors of the concept of Gam Udawa (the village awakening and developing) of the Hon. Prime Minister of Sri Lanka. The Government of the Social Republic of Sri Lanka has been encouraging community participation as a major component in all rural development programmes. It is a tradition in Sri Lankan rural social structure where villagers get together to share their skills and expenses for the purposes of setting up communal activities. This community cohesiveness was reinforced by the organisation of Gramodaya Mandalaya by the Government, in bringing together all registered voluntary associations.

The National Decade Plan (1980) envisaged the provision of safe-drinking water supplies to 50 percent of the rural sector by 1990 and full coverage for urban, rural and estate sectors by 1995. Adequate sanitary disposal facilities are expected to reach full coverage for the total population of Sri Lanka in 1990. As part of its effort to stimulate and reinforce community participation in the provision of safe and clean water, the Sri Lankan Government signed an agreement with the International Reference Centre for Community Water Supply and Sanitation (IRC) in January 1983 in which IRC would support Sri Lanka to undertake a demonstration project in Public Standpost Water Supplies (PSWS). This was an important part of a larger multi-country project also carried out in Indonesia, Malawi and Zambia. Funding was by the DGIS of the Netherlands' Government.



3. OBJECTIVES AND OVERALL ACHIEVEMENTS

3.1 Objectives

It was the consensus that the project should serve particularly the poorer sections of the population. The methodology of the project allowed for active participation by the local population in all stages of planning, implementation and management and was directed to repetitive application of the generated knowledge.

In consonance with the general objectives as enumerated in the multi-country project proposal and having recognised the specific needs in Sri Lanka, the objectives were further expanded.

The general objectives of the project in Sri Lanka were thus as follows:

- To develop appropriate strategies, methods and techniques for the planning, implementation and management of Public Standpost Water Supply Systems and Sanitation in the rural sector of Sri Lanka;
- To evolve processes which are socially and technically feasible to rehabilitate public standpost water supply systems that have failed in the rural sectors in Sri Lanka;
- To develop low-cost sanitation, models technically and socially feasible and within easy manufacturing potentials of rural communities on the basis of self-help and self-reliance and promote sanitation programmes in the rural sector of Sri Lanka.

The specific objectives were:

- To select and develop a reasonable number of demonstration projects involving different types of systems in varying geographic locations on the application of public standposts in community water supply;
- To conduct a series of studies and to prepare guidelines, in particular for organisational, economic, technological and socio-cultural aspects of public standposts water supply systems;
- To share and to contribute to the international exchange and transfer of information on various aspects of public standpost water supply systems and sanitation;
- To generalise and promote application on a large scale of the strategies, methods and techniques developed and to allocate funds for this, as a follow-up project.

The project plan was of a highly flexible nature and it was considered important that additional specific objectives be added as the project developed. The following are the additional specific objectives which were added during the process:

- Rehabilitation of one of the earlier failing schemes, using the community participation methodology developed in the demonstration projects;
- Development of appropriate low cost sanitation technology which would be within easy manufacturing potential of rural communities;
- Promotion of a rural sanitation programme in collaboration with the Ministry of Health on the basis of self-help and self-reliance;
- Development of a health and hygiene education programme to promote desirable human behaviour for the effective utilisation of the provision of adequate water supply and appropriate sanitation;
- Dissemination of knowlege gained from the project on community participation as well as technical aspects including:
 - * Organising and attending national and international workshops;
 - * Publishing manuals and pamphlets in the local language as well as in English;
 - * Developing audio visual materials, e.g. a slide show, video films, flash cards, flannel graph materials, etc.

3.2 Overall Achievements

On the final completion of the PSWS project in Sri Lanka, the following output and achievements are evident:

- A number of completed, operational demonstration schemes, initiated, prepared, constructed and sustained with full participation of (a) communities, (b) supporting institutions (NWSDB, Gramodayas, DDC's, NGO's - officials, teachers, etc.);
- "Information packages" of detailed project output;
- Manual on maintenance (a model overall manual);
- Manual on the community-based approach (an overall detailed discussion of the approach developed);
- Two video tapes (1. preparing and constructing; 2. monitoring and sustaining);
- A slide/tape set outlining the project approach;
- Enhanced skills and commitment to community-based approaches on behalf of agencies and individuals participating, and others with whom project findings have been shared.

4. REVIEW OF LITERATURE

To start the project off and to provide a good information base, a review of existing literature on water supply and sanitation was carried out by the Project Staff, with emphasis on water use and sanitation habits in Sri Lanka.

The literature available in Sri Lanka was limited, particularly in respect of community participation and health education applied to public standpost water supply systems in rural areas. As regards literature on sanitation behaviour some information existed. A previous study done by the Project Officer of the project facilitated in the development of low cost sanitation options through participatory planning.

The literature provided by IRC and the World Health Organization was a rich resource and provided valuable guidance in planning, design and implementation stages of the project.

The Project Staff also reviewed the socio-economic surveys conducted by the donor agencies, particularly the DANIDA and Plan Center supported activities. These projects which were at their early stages of implementation were visited by the Project Staff to study their experiences in planning and implementation of the water supply and sanitation sector projects.



5. SELECTION OF DEMONSTRATION SCHEMES

Initially the Project Management Committee decided that semi-urban, urban and rural areas should be included in the project. Other criteria for the selection of demonstration sites were:

- A population ranging between 2000 to 5000;
- Variation in types of water sources;
- Variation in types of geographical and climatic regions;
- Variation in socio-economic states of the community;
- Variation in ethnic/religious composition of communities;
- Availability of funds for construction in estimates of the NWSDB;
- Availability of subsidy from the Ministry of Health for the sanitation programme;

On the basis of above criteria the following sites were selected:

- Haldummulla in NWSDB Manager area of Bandarawela in Badulla District;
- Padaviya in NWSDB, Regional Manager area of Anuradhapura in Anuradhapura District;
- Wijeyabahukanda in NWSDB Regional Manager area of Kandy in the Nuwara Eliya District;
- Seelatenna in NWSDB, Regional Manager area of Bandarawela in Badulla District.

At the time when project selections were made the following factors were taken into consideration in addition to the above criteria:

- As the life of the project was initially confined to a period of 2 years, it was considered that all the work of the demonstration project should be planned so as to complete the work within the stipulated period;
- Since this is the first time that the NWSDB has undertaken a project where community participation was to be utilised as the key approach, a certain degree of flexibility was allowed in planning the project. This decision was taken because the NWS&DB has never experienced the extensive use of community participation in the construction of rural water supply systems.

Taking into account all other criteria, particularly time constraints, no suitable urban or semi-urban area was found for inclusion in the project. All four demonstration areas were thus located in the rural areas.

Sources of water for drinking, previous to the project varied widely according to geographical locations. Padaviya demonstration area for example, was in the dry zone and the entire population had to depend on wells and ancient tanks (large reservoirs of water).

Table 1: Particulars of Project Sites

Name of Scheme	Type	Province	District	NWSDB Area	Distance from Colombo	No. of families	Population
Haldummulla	New	Uva	Badulla	Regional Manager Bandara-wela	180 km Balangoda Haputale Road	470	3100
Padaviya	New	North Central	Anuradh-pura	Regional Support Centre Anuradha-pura	292 km Anuradha-pura Siri-Pura Road	510	3650
Wijeyabahukanda	New	Central	Kandy	Regional Support Centre Kandy	192 km	490	3350
Seelatenna	Rehabi-litiation	Uva	Badulla	Regional Manager Bandara-wela	184 km	370	2100

The following table gives the distribution of sources of drinking water according to types:

Table 2: The Sources of Drinking Water

Type of source Name of Area	Piped	Unprotected Wells	Springs	Tanks	Irrigation Canal	River
Haldummulla	49 *	17	34	Nil	Nil	Nil
Padaviya	Nil	43	Nil	53	4	Nil
Wijeyabahukanda	03 *	9	80	Nil	Nil	08
Seelatenna	78 **	04	18			

* PVC pipes connected to small springs. Haldummulla village is full of small springs during rainy seasons which dry off during the dry season.

** Although water was available from a pipe-borne water supply it was confined to two hours a day.

An important point to make is that whilst Haldummulla, Padaviya and Wijeyabahukanda were all new schemes, Seelatenna served as an opportunity to demonstrate the PSWS methodologies in the re-habilitation of an old, failed piped scheme.



6. PRELIMINARY STUDIES

The Project Management Committee decided that a comprehensive understanding of the socio-economic and cultural background of the communities in the selected project areas would be necessary to involve the communities in the process of participatory planning. It was also felt that some deeper understanding of sanitation behaviour, beliefs and attitudes of the communities would be useful in the development of health education and sanitation programmes.

The methodology of collecting these data included the following:

- A socio-economic survey;
- An in depth study of water and sanitation related behaviour;
- Case studies and interviews and observation of activities of voluntary organisations including Gramodaya Mandalaya;
- Determination of local leadership.

6.1 Findings of the Socio-Economic Study

This current report does not intend to provide a comprehensive coverage of the socio-economic study. For details of the survey readers are kindly requested to refer to the Interim Report of Progress of Demonstration Project on Public Standpost Water Supply Systems and Sanitation, 1984, NWSDB. The socio-economic survey was conducted in all demonstration areas. Some of the most important findings are given here to provide a basic understanding of the situation in the project areas.

Sampling

A twenty percent randomly selected sample was administered in all areas. Lists of householders were taken from the Grama Sewa Niladari's working in demonstration areas which were serially numbered to draw out the sample from the random table.

The interviewers included the Health Education Officers of the Ministry of Health and the Sociologists attached to NWSDB. The support of local health staff was obtained in locating the households indicated in the sample. The questionnaire was first discussed with the members of the Project Management Committee and pretested before adoption. Analysis was based on computerised data.

Some general results

In all villages, some families had water available in their yards from shallow wells or through pipes connected to a nearby spring. This water was mainly used for drinking, cooking and for washing cooking utensils.

Almost everybody used the public bathing and washing places, which were situated at a considerable distance from most households. A majority of the housewives had to walk on average more than one hour to get their daily supply of water. It is not surprising then, that in selecting water sources, nearness was mentioned as the most important factor. About 50% of the people in the village thought that the water was safe for drinking, and the others might know some of the risks but used those sources because they were near, and no good alternatives were available.

Average incomes in three of the four villages were rather low: Rs 750.- a month on average (approx. US \$ 30.-). In Haldummulla the average monthly income was around Rs 900.- (approx. US \$ 36.-). A more comprehensive overview of research findings is presented in Appendix V.

6.2 In depth Study of Behaviour

This study was particularly important from the point of view of developing health education. The specific behaviour related to defaecation habits is important, since it is this behaviour that could be changed in order to ensure the use of latrines and prevention of water pollution at the source.

The proposed water sources for Haldummulla was from a spring known as Kadiresan fall. The spring originates from high hills about 6 kilometers from the proposed intake. Although no housing was noted above the intake point, clusters of estate lines and sporadic distribution of village housing were noted right along the spring, from and around the intake point.

The general thirty seven percent coverage of latrines in the area was mostly in and around the bazaar area of Haldummulla and houses along the spring had hardly any latrines. They lived through generations without latrines and it was a traditional habit and accepted behaviour to defaecate at a point close to the spring. There were few defaecation points with social sanctions and values attached to them, so that both males and females could use the spots without conflicts. The water source was utilised for ablution.

The in depth study revealed some of the prevailing beliefs that supported this behaviour. These beliefs were carefully studied and were incorporated in the health education plan for intensive health education interventions.

The villages down stream were endemic to infective hepatitis and diarrhoea. Some of these villages were not within the project area. However, the project area villages were also victims of this scourge.

The water associated behaviour was highly conducive to the spread of diarrhoea and hepatitis. The major source of drinking water for about 95 percent of the population is through springs which are full of water during the rainy season and reduced to a failing trickle during the dry season. Every domestic need of water including bathing, washing, traditional ritual and religious water cutting takes place at a point in the spring. The use of water is closely

related to the life pattern of the people. This behaviour coming down for generations remained unchanged for a long time, resulting in the endemicity which also finally settled down as an inevitable social curse in the villages. The video film and the photographs indicate this pathetic picture to some extent.

The in-depth study gave a good insight into these issues and thus facilitated the identification of specific areas for specific intensive health education interventions.

6.3 Case studies, interviews and observation of activities of voluntary organisations, including Gramodaya Mandalaya

A study of structure, objectives, activities and frequency of meetings of voluntary organisations reflect the interests and priorities of communities. The Gramodaya Council consists of all Chairmen of voluntary organisations. A study of its activities reflected how far and to what extent they were involved in development programmes in their own villages. Observation of their meetings indicated how each member felt about the programme and in what priorities they were interested. It was observed that the members adopted a dependent attitude towards projects, which at the time of observation were ongoing. They lacked understanding of their own resources and skills, and continued a heavily dependent attitude on officers visiting the village for development activities. It was evident that they underestimated themselves and never expressed willingness to meaningfully share in the planning and implementation of a water supply system with community support. They were found to be smart in criticising projects and in pointing out deficiencies to their knowledge. On many occasions they expressed that their role is to detect weaknesses of programming and to bring those to the notice of higher officers.

Case studies conducted revealed that the project would be felt to work in favour of influential and wealthier community members. This was expressed mostly by poor members in the community. An analysis of community reaction on past programmes confirmed that more benefits had gone to the privileged group and that the proposed new project was felt to be another in the series which would be directed to the privileged lot in the community.

It was found that officer-based projects had always provided more benefits to the influential members and had a heavy bias towards the privileged class. Further investigations revealed that the superficial appearance of homogeneity and social cohesiveness of the communities is misleading. There might be deep-rooted differences based in class, ethnicity and caste which have to be taken into account. The Gramodaya Council is unable to sufficiently overcome these differences. It was for these reasons that a special study on local leadership was undertaken to ensure equal representation and solidify social cohesiveness in the PSWS project.

6.4 The determination of local leadership

A sociometric study was conducted to identify the local leadership. This was conducted after the socio-economic survey, since it was found that earlier information received from the villagers did not reflect true and correct leadership of the community. What was prominently seen was not the leadership endorsed by the community. The leadership was found to be in conflicts due to political pressure, and some leaders though active were not prominently recognised as such. In conducting this survey each respondent was requested to name three persons whom they believed could be trusted and capable of taking decisions on behalf of them. These names of persons were ordered in accordance with the number of preferences. This survey revealed that there was a leadership but that did not come forward due to personal reasons.

For the PSWS project the selection of leaders was made by the community, and this leadership was finally utilised to serve in standpost committees and to represent at the two day consultation session conducted to involve the community for participatory planning.

7. COMMUNITY PARTICIPATION: THE APPROACH

7.1 Familiarisation of area and community

The first entry point to the community was through the health infrastructure, the Assistant Government Agent and the Sub-Office of the District Development Council.

These discussions facilitated the PSWS Project Staff in getting to know the geography of the area, the development programmes already in operation, and the voluntary leadership particularly, the Gramodaya Council, and the voluntary associations. The subsequent discussions with the leadership, the Gramodaya and Government officers working in the area paved the way to have discussions with the members of the community. Thereafter series of home visits selected at random were made within the framework of a survey to determine the socio-economic status of the area and an in-depth study to obtain a preliminary understanding of water and sanitation related behaviour.

Series of discussions with the representative groups including Gramodaya were conducted to study the extent to which the gap between planners and community exist as regards priorities, knowledge, attitudes and interests. The factors that divide the community into different camps and nature of conflicts with their contributing factors were also explored.

(For an extensive discussion of findings of these studies, see sections 6 and 8)

7.2 Developing the health education plan and the strategy for community participation

Broadly there were two major dimensions of the health education programme. One was the **short term health education intervention**, incorporating orientation of different groups, and the other, the long term intervention involving training programmes, seminars, discussions and field demonstrations mostly by the community themselves. On the basis of findings, a health education programme (which was supported with slides taken on the existing undesirable behaviour of the community), flash cards and flannel graphs illustrating the disease transmission, was first developed, for orientation of representative groups, Gramodaya Council members, leaders and interested persons.

The main objective of this intervention was to create awareness and enthusiasm over the health requirement of their own community and bridge the gap that existed between them in the interest of their own welfare and development. It was intended to generate discussions between the villagers and government employees (from NWSDB and Health) on the issues which the project was trying to achieve. In one sense it was to prepare them for a participatory approach wherein they themselves could be involved for the development of their own health education, sanitation and water supply programme (utilising community participation and the decision making process by the community-based approach).

Tremendous enthusiasm was observed during the implementation phase of this programme. After the implementation, the awakened

leadership, representatives of community and members of the Gramodaya Councils were involved in the development of the long term plan of health education.

The main objective of the long term intervention was to make the community accept as a way of life the drinking of safe water in most hygienic ways and the disposal of excreta by using sanitary latrines and getting them to voluntarily adjust their behaviour with full knowledge by their own actions.

As regards the water supply the health education programme aimed to bring about a change in making people realise that it is theirs and they have a responsibility in sustaining the system, which they have built in a manner desired by them by being partners, voluntarily accepting to pay for the operation and maintenance of the system. (For a more comprehensive overview of the health education programme see section 9).

Haldummulla - Planning
the water supply
programme with
villagers



The content for this programme did not confine itself only to water and sanitation. As far as possible the seventeen subject content areas accepted by the Health Ministry for its Primary Health Care Programme were integrated into this programme. Demonstration of the construction of latrine plate and the syphon was incorporated.

The volunteer health workers who were nominated by clusters of families (a cluster includes about 10 to 15 families) were assigned to the same cluster after training, which included field practice and demonstration of low cost sanitation technology. The members of Gramodaya Councils, leaders and cluster representatives (mostly women) were trained along with volunteers.

The training of caretakers was separately done after completion of the water supply system.

The impact of health education is separately dealt with within this report (see section 9).

7.3 Community Orientation and Preparation for Community Participation

All key social organisations including Gramodaya Council members, leaders, community representatives including women, heads of school, Health and NWSDB staff were involved after orientation in a series of discussions to prepare them for a two day community consultation programme. In one selection, priority was given to those who would be involved directly with the project work.

7.4 Community Consultation, Education and Planning

The consultation programme was planned and discussed with the Project Management Committee and their views were taken into consideration in readjusting the programme.

The essential components and objectives of each session of the Consultation Programme were as follows:

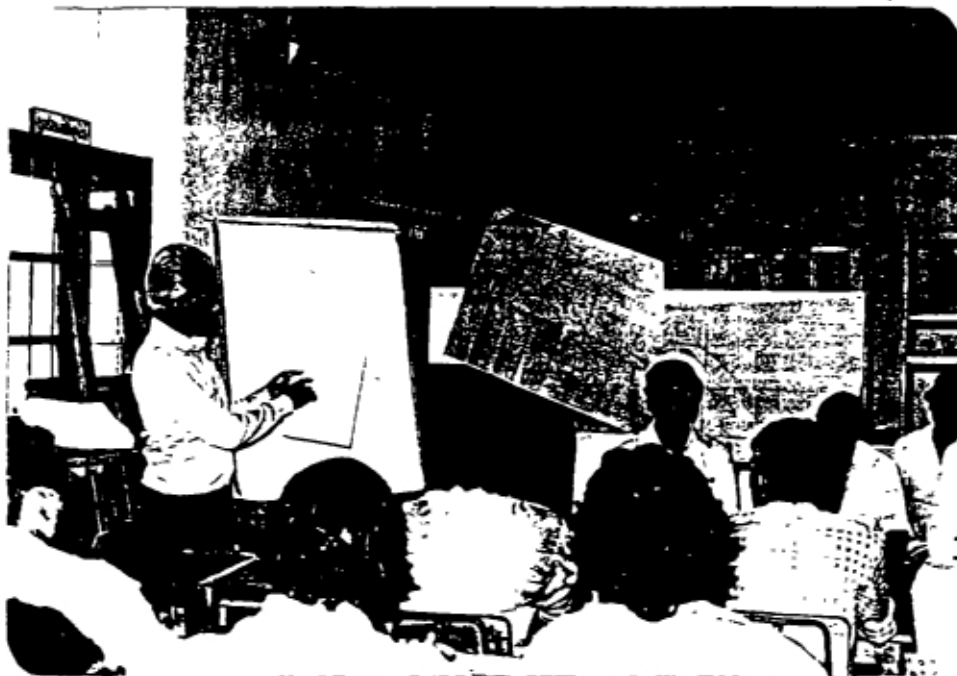
<u>Activity</u>	<u>Objectives</u>
Appraisal of the Project once again in brief	To make the people further understand the objectives of the project
Socio-cultural-economic and technical feasibility study findings supported by visual aids	To inform them about the prevailing conditions of their community and motivate them to undertake a programme
The technical design of the water supply and sanitation programme, with costs	To make them understand the technical nature of the water supply system with costs, and the proposed sanitation programme
Presentation of the technical design with alternatives for the community to choose from	To prepare the distribution network and possible community share in the water supply system proposed, and prepare the necessary preliminaries to involve them in planning

<u>Activity</u>	<u>Objectives</u>
Sanitation options and demonstration of the construction of low cost syphons and other accessories	To demonstrate low cost sanitation options including the syphon to masons in the community and train other community members in turning out syphons and squatting plates
Group discussion sessions to plan the water supply with revenue generation for operation and maintenance which suits the community	To involve them in planning their own programme and make them realise the cost needed for operation and maintenance
Group discussion session to plan the sanitation programme and their role in construction	To involve them in planning their own sanitation programme and get them to commit their own role in the programme
Group discussion session to discuss the health education plan and their role in conducting the programme	To involve them with health staff to discuss the suitability of the draft health education plan and ensure their participation and identify their role in the plan
Planning sessions to finalise the draft plans for water supply sanitation and health education	Discussion with the whole group on the plans developed, to adopt them for implementation with the modification suggested and approved by the whole group
Selection of an Action Committee to carry out the decisions of the consultation programme	To get the whole group to select a committee to carry out the decisions made by the community

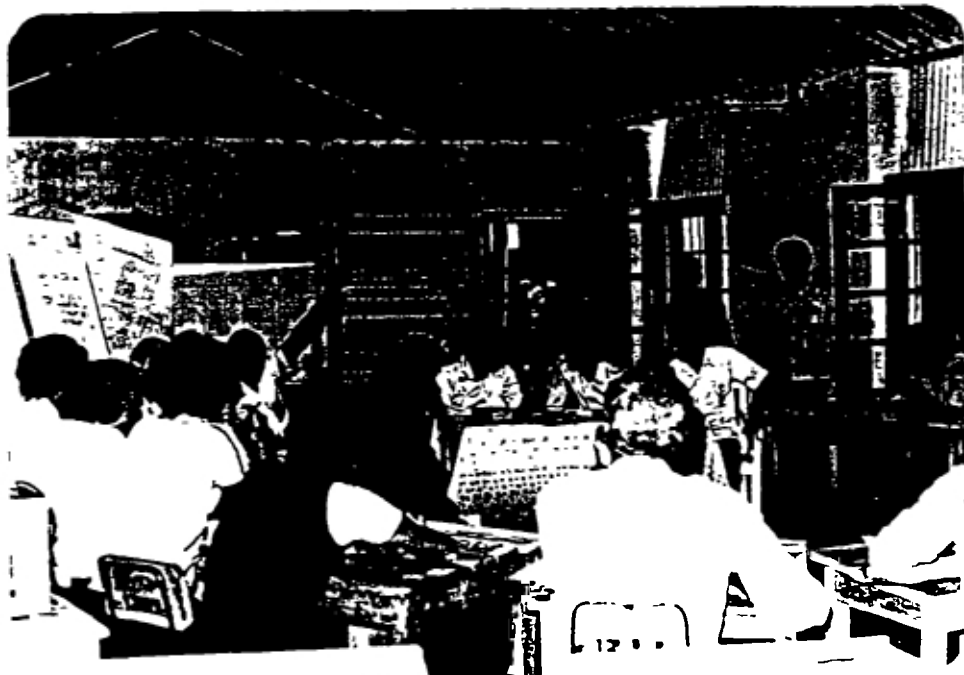
7.5 Planning the Water Supply and Sanitation Programme with the Action Committee to Incorporate the Community Share

The Action Committee reviewed the plans and taking into consideration the available community resources readjusted the plan. The community share was further discussed with representative groups, voluntary organisations and Gramodaya Mandalaya so that the community would be involved without any dissensions. Special care was taken to ensure that full community representation was present before decisions were made.

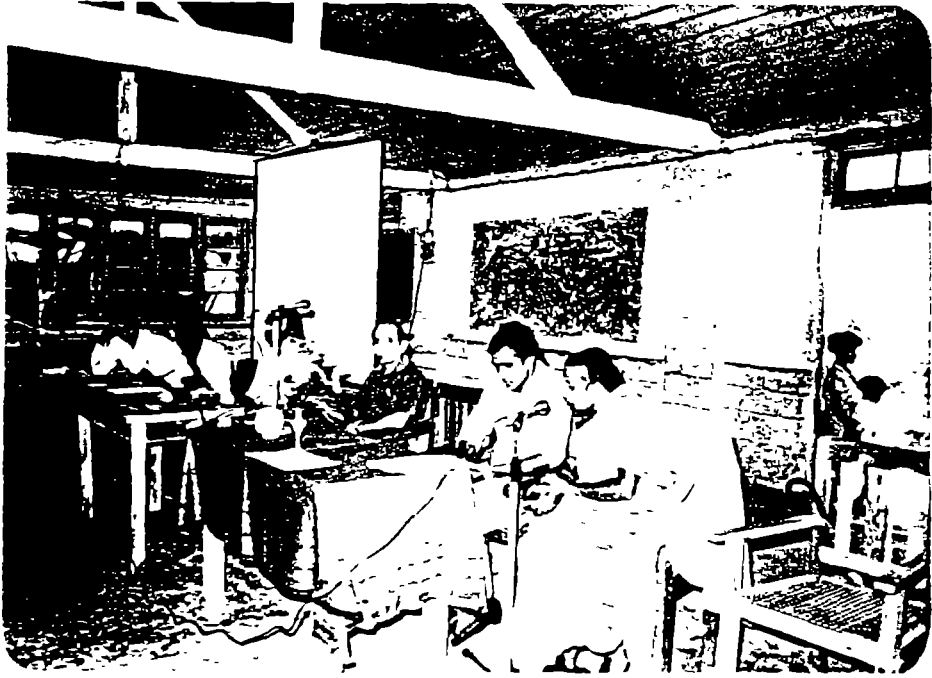
Community representation was readjusted twice before the consultation programme. Although there were leaders representing the area, some underprivileged groups were not satisfied. Their concern was that they were neglected during political group meetings and they acted negatively. They were met individually and after discussions the committee was reinforced with their representation.



Haldummulla - Planning the Community role of the water supply programme



Haldummulla - A planning meeting with the leaders



Wijeyabahukanda - Progress Review Meeting



Wijeyabahukanda - Community Consultation Programme

The lesson learned was that in spite of known leadership, and the leadership discovered after sociometric tests, still there are possibilities for non inclusion of some leadership due to strong political influence, which prevents openly accepting their true leadership by the community. If community participation is essentially a decision making process, these aspects require active attention by the project implementors.

7.6 Reinforcement of social and education basis

The awareness already created in the community had to be further strengthened by education and social interventions so that the social and educational bases were reinforced to facilitate community participation.

The following action units were formed to carry out health education and community organisation activities:

- i. The Action Committee;
- ii. Volunteer Health Workers;
- iii. School Health Committee in each school;
- iv. Standpost Committees;
- v. Womens Groups;
- vi. Care-takers.

All the above 6 groups were orientated and trained. The Action Committee was orientated and was further exposed during Action Committee sessions. Volunteer health workers were given a comprehensive training including field practice. They were selected from community group nominations and each group of volunteers was assigned a group of households to visit and discuss health and hygiene matters.

The School Health Committee were set up in each school and school children were trained by the project staff. The school children were assigned their own houses.

The Standpost Committee consists of members of families benefitting from a particular standpost. They were orientated through field group discussion sessions.

The womens groups were parallel to standpost committees wherein each woman leader selected by each standpost committee carried out discussions with others after orientation and training. Some of these leaders were volunteer health workers.

The caretakers were specially trained, with emphasis on health education, to undertake minor repairs of standposts and educate the users on domestic use of water and sanitation.

In raising community contributions by way of "Shramadana" (donation of labour) all the above groups were involved in organising community groups. The voluntary association assumed the major role.

7.7 Implementation of the Latrine Construction Programme

The first step of training of local masons in turning out syphons and squatting plates was extended to youth groups, including young women, through already trained masons. The W.H.O. Sanitary Engineer provided the necessary technical expertise while the Local Public

Health Inspectors assumed responsibility in extending the technology to the neighbouring villages. The Family Health Workers, Volunteers and PHI used flash cards, flannel board materials and slides in motivating the local community.

The National Water Supply and Drainage Board provided steel reinforcement and a bag of cement to each beneficiary to enable him to construct a latrine of his choice and later recovered the cost from the subsidy payment of Rs. 250.- (approx. US \$ 10.-) from the Health Ministry.

The local materials were used to the greatest extent possible in constructing latrines. The health education activities continued with demonstrations of proper use, flushing, ablution (particularly hand washing with soap and water), storage of water and personal hygiene. Special care was taken in polishing the syphons to obtain a smooth surface (see for a more comprehensive overview of the sanitation programme section 10).

Wijeyabahukanda - lighting the traditional oil lamp at the start of the Community Consultation Programme



8. COMMUNITY PARTICIPATION: SOME PROBLEMS AND SOLUTIONS

The following are the problems identified so far through this project:

External dependence

A high degree of external dependence was seen in both Haldummulla and Padaviya. This was noted during their meetings, in proceedings of voluntary organisations and during the two days consultation and discussion programme.

The colonial administrators did not put much emphasis on community participation for the implementation of village based development programmes. People were in the habit of treating every village programme as something of external nature and centrally owned and did not wish to come forward for meaningful participation. The state subsidy schemes have also been misunderstood by the rural folk. The external programmes which did not seek community participation have worsened the situation and made them to consider any programme coming into the village as some outside assistance rather than something in which they have a role to play.

When these dependent characteristics were noted, a study was made to determine existing types of organisations and leaders. Individual and group discussions with them made them understand the objectives of the whole project. The leaders and youths who considered self-reliance and the programme to be one of their's were utilised in the interaction of group and individual communication.

Once the core groups had been given an understanding of the nature of projects and how they are to be built up for their own good, the strong feelings of dependence were changing and the confidence of the people in their participation started to grow.

Internal dependence

The internal dependence had created a sense of frustration in the poor sector of the community. The assumption was that those who are powerful and hold positions in the programme would benefit and others would not get anything. This has created a problem in not getting the participation from the most important groups of the community.

It is true that in any programme those who come forward voluntarily are the leaders of voluntary organisations and other leaders. They are very much close to external agents and programme implementors. During investigations it was reported that benefits of previous programmes have gone to the privileged group and not to the poor people. It was also reported that a few privileged people have got social benefits but nothing has gone to those who worked hard, simply because they were not in the privileged group.

Although these feelings are still prevailing, health education and general discussions conducted in highlighting the common benefits of the programme have modified the tendency to some extent. The educational campaign was continued, stressing the co-operation of every member in the community, as benefits are commonly shared by everyone in the community.

Social conflicts on location of standposts

There was no doubt that the location of standposts would be decided in favour of the privileged lot and the poorer sections of the community would not be taken into consideration in locating the standposts of the water supply. This has been a common accusation levelled against every public standpost water supply scheme, where of course, no community participation was sought. In a case study conducted in another standpost project it was noted that location of standposts was not done according to the needs and accessibility of the community but strictly in accordance with the design. This project was not found operating successfully.

In the PSWS demonstration project, in order to avoid community disappointments, the whole community was given the opportunity of developing a set of criteria in consultation with the Project Staff. This measure has prevented favouritism and promoted community participation.

Lack of cohesiveness

Class, social status, ethnicity, caste , etc., have divided the community into different groups lacking in community cohesiveness. During investigations it was found that the people have attempted to identify themselves within their own groups. At a first glance the community appears to be without any such differences. One may get misled if these aspects are not considered at the beginning of any project.

Superficially these differences would not seem to be operating openly. The people themselves may say to forget these differences although these differences were deeply rooted within them. Once the groups are identified it is easy to plan involving every one and strategically placing them in a manner acceptable to every one in the community.

Political inequality

Although it was not prominently seen, there were political factions believing different political ideas. There was a tendency that these oppositional political leaders in the village may act as blockers and may even damage the programme later on.

It was reported that a neighbouring standpost scheme was damaged by members of different political faith. Although the Gramodaya concept was developed to prevent political differences within villages, these differences still persist. Some villages are sharply divided into two political groups while some are divided but not have any intention to come forward to declare their political identification.

It is important that these leaders are identified, and to meet them individually and brief them about the project. A social visit to them is a mark of recognition and respect. Further they should be given responsibility for the project and to develop feelings and spirits within them that they are a part and parcel of the project. This approach has paid us very rich dividends and so far no opposition was noticed from any quarters.

Economic inequality

There was some fear that only the privileged people would be getting the water supply by way of private connections and others would not benefit from this project.

Intensive educational efforts were planned to help the people to understand the economic and health benefits that they will enjoy as a result of private connections for those who can afford to pay.

Lack of knowledge of communities' own potentials

The communities did not seem to know their own potential and, as a result, their own resources are not best utilised.

The potentials of the community were made known during the consultation discussion meetings. The local people were given the opportunity of testing out the construction of squatting plates and syphons which they did extremely well. They were given the opportunity to discuss and give their ideas. By giving the local expertise its due place, they could be made to think that projects of this nature (particularly sanitation programmes) are possible things within their resources.

Community inequality in representation

During the field interviews villagers expressed their view that the Gramodaya was not properly represented. Further investigations revealed that the attendance of the members was also very poor.

Poor attendance of the members was further studied and the members who did not attend recent meetings were met individually for discussions. It was found during discussions that these members did not attend meetings because they themselves have not seen any substantial progress in Gramodaya work.

Discussions with them on the basic issues of the proposed water supply and sanitation and the expected community involvement have convinced them. They became aware that they have to do some work for the community and have to become partners of the total process of community participation.

The accusation that the Gramodaya is not truly representative is a feeling that some members of the community held, since their leaders of voluntary organisations were not represented in Gramodaya. Arrangements were made to enrol them as members of the Gramodaya.

Feelings of an economic burden

Although they agreed at the community consultation meeting to pay a monthly rate in order to ensure the operation and maintenance of the water supply by the Gramodaya, fear has been expressed by the villagers about the possibility of collection of such funds and the continuation of the system of payment.

The modus operandi has to be developed and educational activities will have to be intensified.

This is now being planned.

The Gramodaya has not got the expertise to support a project of this nature on their own

This problem was studied and action was taken with the Assistant Government Agent to find ways and means of improving the required manpower to support the operation and maintenance of the water supply system and the sanitation programme.

Political elements attempting to interpret projects as a place for job opportunities

As far as the community is concerned, employment in any project is considered a big achievement. The community has come to know that there are few job opportunities available in the PSWS project.

9. HEALTH AND HYGIENE EDUCATION

The health education plan had the following major components:

- (a) Preliminary preparation for the development of the health education programme in all demonstration areas;
- (b) The development of the objectives of the health education programme;
- (c) The health education intervention
 - i. short term interventions
 - ii. long term interventions;
- (d) The implementation of the Health Education Programme;
- (e) The evaluation of the Health Education Programme.

9.1 Preliminary preparation for the development of the Health Education programme

The factors associated with undesirable behaviour related to water and sanitation, the knowledge and attitudes, norms and beliefs of communities need be known in order to base health education. The social structure and how it operates, the media and how communication works and, the leadership and how social organisations function should also be made known.

The studies mentioned in section 6, particularly the in-depth study of behaviour related to water and sanitation, and the review of existing literature (section 4), provided useful data for the preparation of the health education programme.

9.2 The Development of Objectives

In developing the objectives the findings of the socio-economic survey, in-depth study of the behaviour related to water and sanitation and findings of the discussions with specific groups were taken into consideration. Specific problems which were outlined in the report were considered as constraints.

The Health Education Interventions

The health education interventions were categorised into two major groups as

1. Short term interventions
2. Long term interventions

Short term health education interventions were designed to make the community and leadership aware of the project programme, its objectives and benefits to community and the necessity of their involvement in the implementation and sustenance of the project. The activities included orientation programmes to specific groups, lecture discussions to large groups like schools and religious institutions, and discussions with officials and community leaders and voluntary organisations.

The long term health education interventions were designed to effectively involve the local community for participating in planning and carrying forward the project plan in future. The activities included consultations, sessions to leadership, establishment of Action Committees, long term training programmes to health volunteers, school committees and children and health education activities planned and conducted by the project staff and field health staff.

Health education materials such as flash cards, flannel graph materials, folders and leaflets were utilised to support the health education activities implemented in the project areas. There were nearly 200 trained volunteers who were involved in health education activities with the project and health staff in project areas.

In the long term interventions four categories were proposed to be involved.

- (i) Orientation of teachers and School Health Committees;
- (ii) Training of school children from Grade 8 and above;
- (iii) Training of volunteers;
- (iv) Action Committees - consisting of leaders, Gramodaya Chairman and Village representatives.

9.3 Orientation of teachers and School Health Committees

The teachers in all project area schools (except Padaviya and Wijeyabahukanda which were not taken up due to terrorist attacks) were given a two day training in health education with major emphasis on water and sanitation. The teachers who were responsible for health education were finally selected and a School Health Committee was formed in each school. The committee was responsible for all health education activities in the school and coordinating students committees for extension of health education activities in the community. The committees meet once a month and monitor progress.

9.4 Training of school children from Grade VIII and above

School children from all Maha Vidyalayas having children from Grade VIII and above were taken by batches of 40 to 50 and were given a comprehensive training in health education. Children were formed into groups of 10 to 15 on the basis of residential areas from which they attended the college and a teacher residing in the area was selected to work as the team leader and to conduct health education activities. In the absence of a teacher residing in the project area or a responsible Government Officer or Gramodaya Chairman, a leader accepted by the group was selected to function as the team leader. These groups worked hand in hand with the volunteers and conducted health education activities with housewives. Twenty one groups were involved and each house in the project area was visited a minimum of three times in a month in 1984 and subsequently two visits per month were made. The involvement of school children was mostly for the primary health care activities with major emphasis on latrine construction programmes.

9.5 Training of Volunteers

The volunteer was the backbone of the close link and cordial relation between the families in the village and the project staff. They were selected by a team (consisting of Gramodaya Chairman, and an Action Committee member representing the area), in consultation with the families to which volunteers services would have to be made available after their training.

These volunteers were given a theory and field based health education training by local health education and public health staff. In giving this training a comprehensive curriculum was followed. These skills were further strengthened in giving them chances to work with the members of the health staff in their clinic and routine house visits.

The health education activities done by these volunteers were recorded in a format and monthly reports were obtained by the health staff to assess the work done. These reports and their observation were reviewed in review meetings which were held with them monthly.

A numerical overview of Health Education activities is presented in Appendix VI.



Halduwulla - Health Education volunteers making a field visit

9.6 Action Committee

The Action Committees were the nucleus of all activities undertaken by the project. They monitored the health education activities done by the School Health Committees and the volunteers.

They met once a month and in these meetings problems brought to their notice were taken up for discussions and decisions taken for solution of such problems. It was noticed that problems which came up from the community were successfully solved by the intervention of the Action Committee. The Action Committee members addressed all voluntary organisations in their monthly meeting, stressing the objectives of the programme and the strong need of community support for the successful implementation of the project.

Action Committee members were actively involved in all health education training and orientation programmes.

9.7 Evaluation

The final behavioural outcome of the project may be taken as showing the impact of health and hygiene. Evaluation findings are discussed in section 12.

10. SANITATION

Sanitation was an added component to the Public Standpost Water Supply Project. The Project Management Committee decided that in a demonstration project of this nature sanitation is an inevitable feature and that it should have high priority since mere provision of a water supply system would not accrue any tangible results particularly from the point of view of the community, the beneficiaries of the project.

It was also decided that low cost technology should be utilised to the maximum extent possible since no funds were available to be paid to the members of the community and maintain high quality consistence.

The W.H.O. Sanitary Engineer, who was also a member of the Project Management Committee, was closely associated in developing low cost technology options appropriate to local situations.

10.1 Coordinating Agencies

The Health Ministry was closely involved since it is responsible for the latrine construction programme. Special arrangements were made with the Health Ministry to extend the benefits of subsidy to the PSWS project areas. Provision of subsidy for a completed latrine provided by the Health Ministry amounted to Rs. 250.- (about US\$ 10 - 1986 value). These facilities were made available to all the beneficiaries of the programme.

10.2 Development of a squatting pan

The WHO Sanitary Engineer in collaboration with the project staff turned out several moulds which were field tested for their suitability. In developing this pan several factors were taken into consideration.

- (i) Quantity of water required for flushing;
- (ii) Cost of the pan once it is completed;
- (iii) The mould should be simple so that villagers could be trained to turn out syphons by themselves;
- (iv) The efficiency of the pan so that it could be made without problems;
- (v) The durability and replacement possibilities.

10.3 The training of local staff and masons

The manufacture of the squatting pan, with the squatting plate, was first demonstrated to the local health staffs of all PSWS demonstration areas.

The training of local masons of all demonstration areas was taken up with the two day community consultation programmes. This training was handled by the WHO Sanitary Engineer.

During these training programmes local communities were exposed to the art of manufacture and their skills were also given a trial. The idea behind this is to ensure whether village people other than the masons could develop skills and produce squatting pans on their own provided the necessary technical guidance was given.

10.4 The extension of training of villagers

The manufacture of squatting pans was first demonstrated at a few village centres. The trained masons were used in these demonstrations. The local householders who were not masons by profession and were keen in the manufacture of these syphons were given training. It was surprising that in a matter of few weeks all the youths and volunteers could produce a pan of high quality.

10.5 The production of squatting pans

The total quantity of syphons required by the community was produced by the community themselves. The village houses who specialised in the art produced pans and sold them at the rate of Rs. 12.- (half a dollar). If a kilo of cement and required quantity of sand are given a pan could be obtained by paying Rs. 5.- (about 1/5 of a dollar).

10.6 Implementation of the Sanitation Programmes

In concurrence with the Health Ministry an arrangement was made by the NWSDB to issue a bag of cement and 4.5 m of steel to all the beneficiaries. The local Public Health Inspectors supervised this arrangement and with the assistance of the Action Committee these materials were distributed to beneficiaries.

All the site selections, guidance and supervision during construction and payment of subsidy to those beneficiaries who have completed latrines were handled by the local Public Health Inspectors.

The sanitation programme at Padaviya demonstration area was abandoned due to constant terrorist attacks. The programme at Wijeyabahukanda was undertaken by the Integrated Rural Development Project, after some ethnic disturbances in the area in 1985 and 1986.

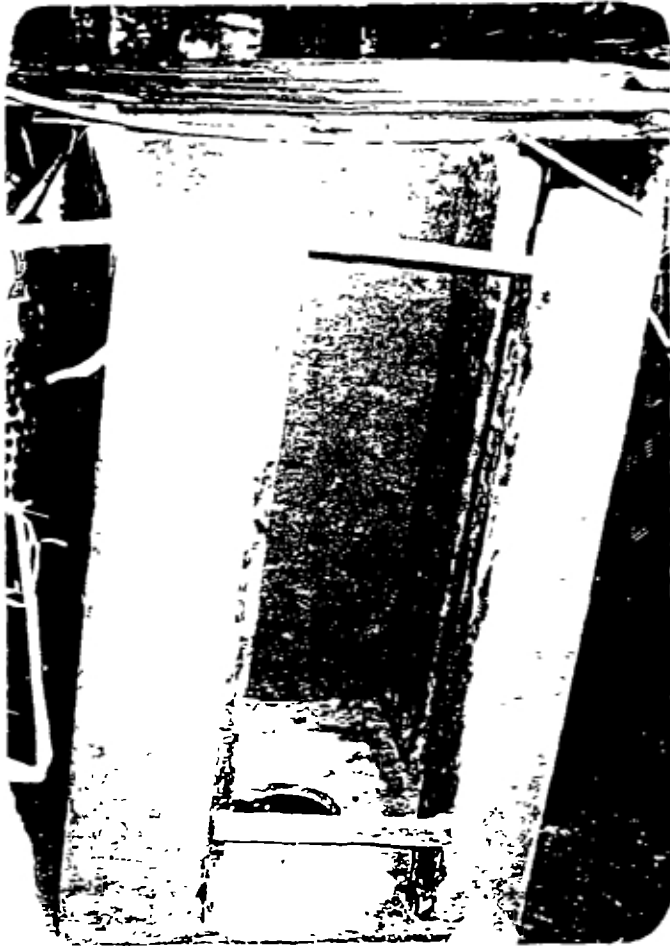
The sanitation programme has been very successful:

- In Haldummulla the existing coverage of 63% of latrines was raised to 86%;
- In Seelatenna the 9% coverage of latrines was raised to 98%.



Haldu-mulla - the local mason is turning out a squatting plate and syphon for the sanitation programme





Seelatenna - A latrine under construction



Seelatenna -
A completed latrine.

11 ENSURING SUSTAINABILITY

11.1 Operation and maintenance

In 1986, the Project Management Committee decided to hand over the responsibility for operation and maintenance of the schemes to the District Development Councils. Discussions were held with Council members and local leaders at the project areas to establish an appropriate division of operation and maintenance responsibilities of the communities on the one hand and the local government agencies on the other hand.

Individual standpost-user committees are now formed with use and maintenance responsibilities for each standpost. 40 caretakers have been selected and trained and issued with an adjustable spanner.

Communities have also been involved in improving the drainage at standpost sites, caused by leaking taps.

District Councils arranged that automatic taps (which swiftly broke) are being replaced with standard and more robust bib-taps.

A "Manual on Operation and Maintenance for Community Water Supply Systems" has been produced through the PSWS Project, to be used by operators of the system and by community Action Committees.

11.2 Financial management

Unfortunately it has not been possible to plan at an early stage of the project with the communities for proper funding of maintenance.

Due to the fact that community water is completely free in the rural areas of Sri Lanka, it was considered difficult to get the communities to pay for an improved water supply. However, discussions are being held with the District Development Councils in the PSWS demonstration areas to assess possibilities for setting up appropriate financial systems which will be acceptable to the people and which will at least finance the maintenance of the standposts. Besides, in all villages some private connections have been installed. These are being metered and the users will pay an appropriate water charge. This will help in financing maintenance of the system.

11.3 Health and hygiene education

The community health education volunteers are continuing their educational role. Over 90% of them are women. Public Health staff of the Ministry of Health will continue health and hygiene education support in the project areas.

11.4 Future extensions

An increasing number of private connections are being built onto the PSWS schemes (e.g. 20 in Seelatenna). They will be metered and appropriate charges for water use will be established.

12. EVALUATION

12.1 The interim evaluation

An interim evaluation of the project in Sri Lanka took place in 1985 within the framework of a general evaluation of the project in the participating PSWS project countries: Sri Lanka, Indonesia, Zambia and Malawi, and of the inter-cuntry project as a whole (see the Evaluation Report, September 1985).

The approach consisted of self-evaluation by national project staff of the participating countries, assisted by an independent consultant from a non-participating developing country as Team Leader and in some countries an adviser from the Netherlands Government as funder.

Specific recommendations for the Sri Lanka project included:

- development of guidelines for community participation, health education and sanitation programmes, to be made available to interested institutions and agencies in Sri Lanka as well as elsewhere;
- procedures for operation and maintenance with specific attention to financial aspects, to be set up with participation of the communities;
- training of local personnel (operation, caretakers) to be set up.

12.2 The final internal evaluation

After the implementation of the project objectives at demonstration area level an internal evaluation has been conducted. The findings of this evaluation have been compared with some findings of the preliminary research. The results of this comparison are given in the following table:

Table 3: Pre and post status project findings

<u>INDICATOR</u>	<u>PRE-STATUS</u>	<u>POST-STATUS</u>
<u>Use of latrines</u>		
i. Haldummulla	63% used latrines	Increased to 86% (see text section 10)
ii. Seelatenna	9% used latrines	Increased to 98%
<u>Use of safe water for drinking</u>	<u>Not a single family had safe water for drinking.</u>	<u>All the families obtained safe water</u>
i. Haldummulla	Nearly 100% had polluted sources.	All families in project area (100%) obtained safe water for 24 hrs. a day without any interruptions.
ii. Seelatenna	74% had pipe borne gravity supply limited to 2 hrs. a day.	
<u>Water and sanitation related diseases</u>	Community had very little knowledge of diseases related to water and sanitation behaviour.	Knowledge in the communities of water and sanitation related diseases has increased due to the health education programme.
<u>Ability in planning their own work</u>	Community had potential but did not know how to do it.	Community realised the importance and gained experience in planning their own programme.
<u>Self-reliance</u>	Community had the potential for development but did not have devices to come up, especially as regards latrine construction. They did not feel that a programme was theirs.	Community developed their own potentials, utilising their own resources, without heavily depending on others to construct their latrines. They felt that the programme is theirs.
<u>Decision making</u>	They were divided into different camps and did not come together to make decisions earlier.	They realised the importance of getting together in making community decision.

(table continued on next page)

Table 3: Continued

<u>INDICATOR</u>	<u>PRE-STATUS</u>	<u>POST-STATUS</u>
<u>Sharing of responsibilities</u>	Sharing of responsibilities on behalf of the community was absent.	Sharing of responsibilities was stronger and the community is taking care of the water supply scheme.
<u>Revenue generation for operation and maintenance of the water supply system</u>	The community was heavily bent on dependence and never had any experience to pay for water.	The community expressed the willingness to pay for the operation and maintenance of the water supply system.
<u>Income generation activities</u>	No income generation activities were noted.	Post survey to be carried out.
<u>Attendance of school children</u>	It was observed by Principals of schools that attendance of children was very poor due to the time they needed early in the morning for walking to water sources and collecting water for the household. Late attendance was noted as a problem.	It was observed by Principals that attendance was improved after the project and late attendance of school children was reduced.

12.3 Contributory factors for success of the project at demonstration level

The water supply and sanitation project was assessed as a success and the contributory factors attributable for success are many.

Some of the factors are briefly discussed here since they have been already dealt with in detail in other sections.

Priorities and felt need of community

Haldumulla and Seelatenna were full of spring sources during rainy seasons. All these sources dry up during the dry months of the year (July to October). People, during the dry months, walk long distances to bring water home. Water was felt as a vitally felt need. This factor contributed a lot to facilitate community participation.

Involvement of community through participatory planning process

Along with the orientation which provided them the necessary knowledge and objectives of the project they were involved in planning their own water supply and sanitation programme. This made them feel that the programme is theirs. This feeling has created a high sense of dedication and motivation which led them to cohere to realise their own objectives.

Decision making by the Community

Utmost care was taken to endorse the involvement of every important member in the community in making them partners in the decision making process.

Methodology adopted in getting the community participation

As described in section 7 the methodology, which was highly flexible, could be considered one of the dynamic factors for the projects success.

The sustenance of involvement of the community was ensured through Action Committees, Volunteer Health Workers, assessment leadership, School Health Committees, and Standpost Committees including caretakers.

As envisaged under reinforcement of the social and educational bases of the community, the committees and groups formed to undertake activities under the project effectively functioned in making their continuing efforts for project success.

The health education plan and visual aids

The health education plan developed at the consultation programme made the people feel that health education is essential and the community worked hard with health infrastructure in carrying out health education. The contribution of PHI Haldummulla in assuming a leadership role in the implementation of the programme was considered an important factor.

Low-cost sanitation technology

This programme is the only known programme in Sri Lanka since the beginning of the Decade, where the low-cost sanitation technology was tried out. The contributions of the Sanitary Engineer who developed the low-cost options and was actively involved in demonstrating the construction of syphons squatting plates and superstructures, created an awakening in the community.

Self reliance

The potentials of the community were fully utilised through low-cost technology which assisted the community to construct their own latrines through their own efforts.

The consultation programme

This programme created a common platform in that health education and a sanitation programme were developed along with the water supply programme by the community-representing groups.

Subsidy in the form of materials rather than money

The practice of the Ministry of Health is to pay the subsidy of Rs. 250.- to the beneficiary once the latrine was completed. This was observed by some as a constraint in that there were other factors noted as discouraging the latrine construction programme. The provision of reinforcement and cement before construction, facilitated the construction of syphons and squatting plates and also the construction of latrines.

Local Manpower development in turning out syphons and squatting/concrete plates

Demonstrations carried out to train local masons paved the way for training of subsequent groups including women. This manpower development enabled the community to produce their own requirements of syphons and latrine plates and encouraged the latrine construction programme.

13. DISSEMINATION OF KNOWLEDGE GAINED FROM THE PROJECT

The IRC supported PSWS and Sanitation Project was the first that the NWSDB had undertaken to implement using community participation as the key approach. The methods and techniques which were tested out in the demonstration Project were made known to other agencies by the project staff through local seminars and workshops. Sufficient television coverage was also given to support the programme, and a video film "Pure water for Haldummulla" was made.

The methodologies developed by the Project were further shared in a Workshop with local agencies implementing water supply and sanitation, international and bilateral agencies, and the other PSWS participating countries of Indonesia, Malawi and Zambia. This "National Workshop to share experiences of PSWS and Sanitation Planned and Implemented with Community Participation" was held in Colombo, 2-6 December 1985. Proceedings and recommendations of the Workshop have been published in a separate report.

The methodologies, experience and achievements of the PSWS and Sanitation Project in Sri Lanka have been further shared through participation of the project staff in international and national workshops e.g.

- Regional Seminar on Public Standpost Water Supplies as Infrastructure in Housing for Low-income Communities, Cirebon (Indonesia), 6-10 March 1984.
- First International Conference on Public Standpost Water Supplies, Bangkok and Khon Kaen, 11-18 November 1984.
- Workshop on Guidelines for community Water Supply and Sanitation Project Planning and Implementation Procedures, Colombo-Sri Lanka, 30-31 May 1986.
WHO/UNDP International Drinking Water Supply and Sanitation Decade Advisory Services Project ICP CWS 003.
- Inter Country Workshop on Acceleration of National Programme on Sanitary Disposal of Human Excreta.
SEARO - New Delhi, 27-31 October 1986.

The methodologies and achievements of the project are also laid down in a series of papers written by the project staff (See List of Publications in Appendix I).

The methodologies adopted in the demonstration projects were further discussed with the participants of the workshops held in Colombo. A comprehensive manual on Community Participation in water supply (PSWS) and Sanitation was developed outlining the methodology in a step by step process and notes for the planners for consideration in the development of water supply systems and sanitation programmes.

The methodology was replicated in larger programmes of water supply and sanitation sponsored by USAID in NWSDB. The review studies undertaken by the project have proved that the methodologies adopted have paid rich dividends.

14. ENCOURAGING WIDER APPLICATION OF THE PSWS PROJECT METHODOLOGY

14.1 Practical Material

Material produced to promote the wider use of the community based approach includes:

- The production of a second video-film illustrating community participation in operation and maintenance and the setting up of a financial system within the community;
- A final version of the manual for community participation which was designed by a media consultant was finalised and is ready for publication;
- To promote wider application of the methodology, a concise illustrated summary of the community-based project approach is to be produced. This publication is aimed at planners and implementers of projects, to familiarize them in a general and practical way with advantages and problems of community participation in water supply, and important steps to be taken;
- A synchronized slide/tape or slide/script set, describing the project approach was produced, using already existing slides and slides taken after the project to highlight the steps. The slide show will be used particularly to support the introduction of the project approach to government officials and employees and, in connection with new water supply projects, to local communities.

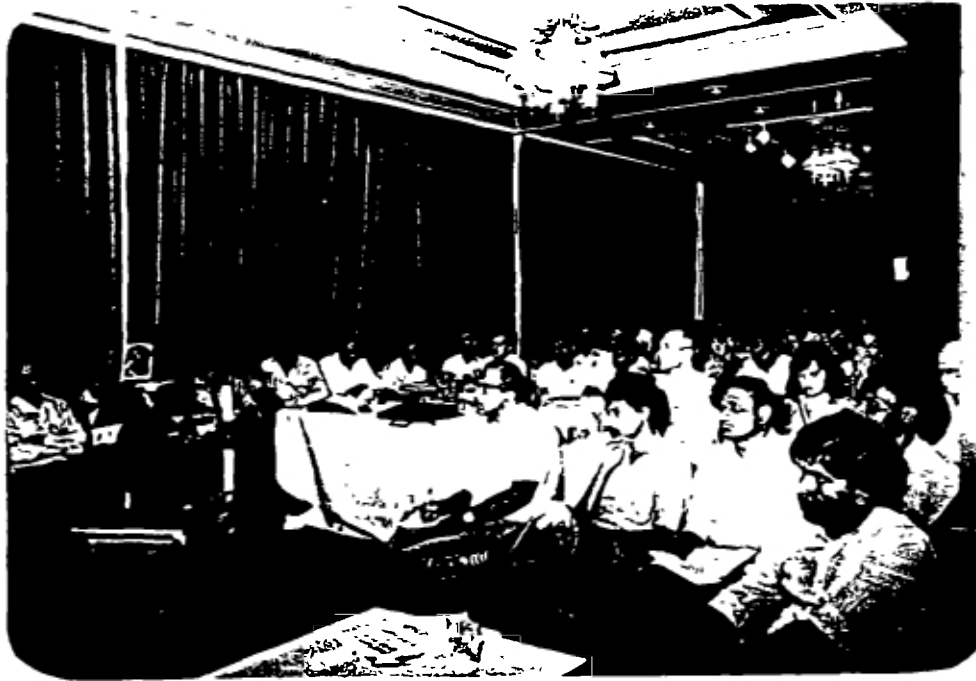
14.2 New Activities

The Project Management Committee and the Project Staff in Sri Lanka have expressed a strong general interest in further promoting, applying and improving the community-oriented approaches, as developed in the PSWS project, in larger scale programmes.

The following activities have been proposed:

1. Application of the project's community participation approach in rural areas of Sri Lanka for the rehabilitation of water supply schemes which have failed because they have been planned and implemented without involvement of the community. Obviously issues of operation, maintenance and financing will be included in the new plans. From an early stage, the communities will be involved in decision-making and implementation of these aspects of public standpost water supplies;
2. Community support and hygiene education services to NWSDB's Groundwater Projects (currently concentrating mainly on construction and technical rehabilitation);
3. Organisation of training workshops/courses to develop skills in using community-oriented approaches on NWSDB staff (Operation and Maintenance Department, as well as Design and Construction) and others, especially local authorities and DDC's;

4. Developing a resource, advice and information-exchange service for those seeking to use community-oriented approaches such as IRDP's, USAID, NHDA, UDA, NGO's and donor-supported projects;
5. Development of a separate section under Deputy General Manager (Planning and Design), to promote community participation and health education;
6. Promotion of the section mentioned above and application of methodologies for further development.



Colombo -A session at the workshop on Guidelines for Community Water Supply and Sanitation Project Planning and Implementation Procedure, May 1986.

15. PROJECT MANAGEMENT

15.1 Organisation

The project was coordinated and implemented by the National Water Supply and Drainage Board of the Ministry of Local Government Housing & Construction. The NWSDB was assisted by a Project Management Committee (PMC) consisting of representatives of the Ministry of Health, World Health Organisation, UNDP and the University of Sri Jayawardenapura. The Chairman of NWSDB functioned as Chairman of the PMC.

A full list of Project Management Committee members is given in Appendix II.

The Chief Engineer was appointed Project Manager and was responsible for the day to day management of the project. The Chief Health Education Officer of the Ministry of Health who served the project on a release basis was responsible for health education and community participation aspects of the project programme. Appendix III gives a full list of Project Staff.

15.2 Project Staff

Initially the Project Staff comprised of the following:

Project Manager (Full Time)
Health Education Officer (Full Time)
Sociologists (6 persons - Full Time)
Secretary (Full Time)

From June 1984 the Project Manager was on a part-time basis, while all other staff continued on a full time basis until the end of 1986.

Since 1986, the Project Manager and Health Education Officer continue on a part-time basis while the other staff have been released of the duties of project work. They still continue to be available as and when necessary.

15.3 Transport

A vehicle was purchased from the project funds and was provided with a driver by the NWSDB. The vehicle and driver were available full time for the project work.

15.4 Budgets

The budgets were prepared annually and reviewed during the year depending on the actual expenditure rate.

The funds from the International Reference Centre were transferred to the General Treasury of the Government of the Democratic Socialist Republic of Sri Lanka through a Commercial Bank.

Especially during the extension time period of the project there were long delays in the funds being transferred to the National Water Supply & Drainage Board. This was due to the reason that a

budget item was not being created in the Board Budget statement which is normally prepared around May each year. Very often the extension of the project was only known during the later stages of the year.

15.5 Bookkeeping and auditing

The bookkeeping and auditing was carried out by the Finance Division of the National Water Supply & Drainage Board. No full-time accountant was appointed for the project. An accountant and an accounts clerk were appointed on a part-time basis and these personnel were paid an allowance for the work.

15.6 Authorisation of payment

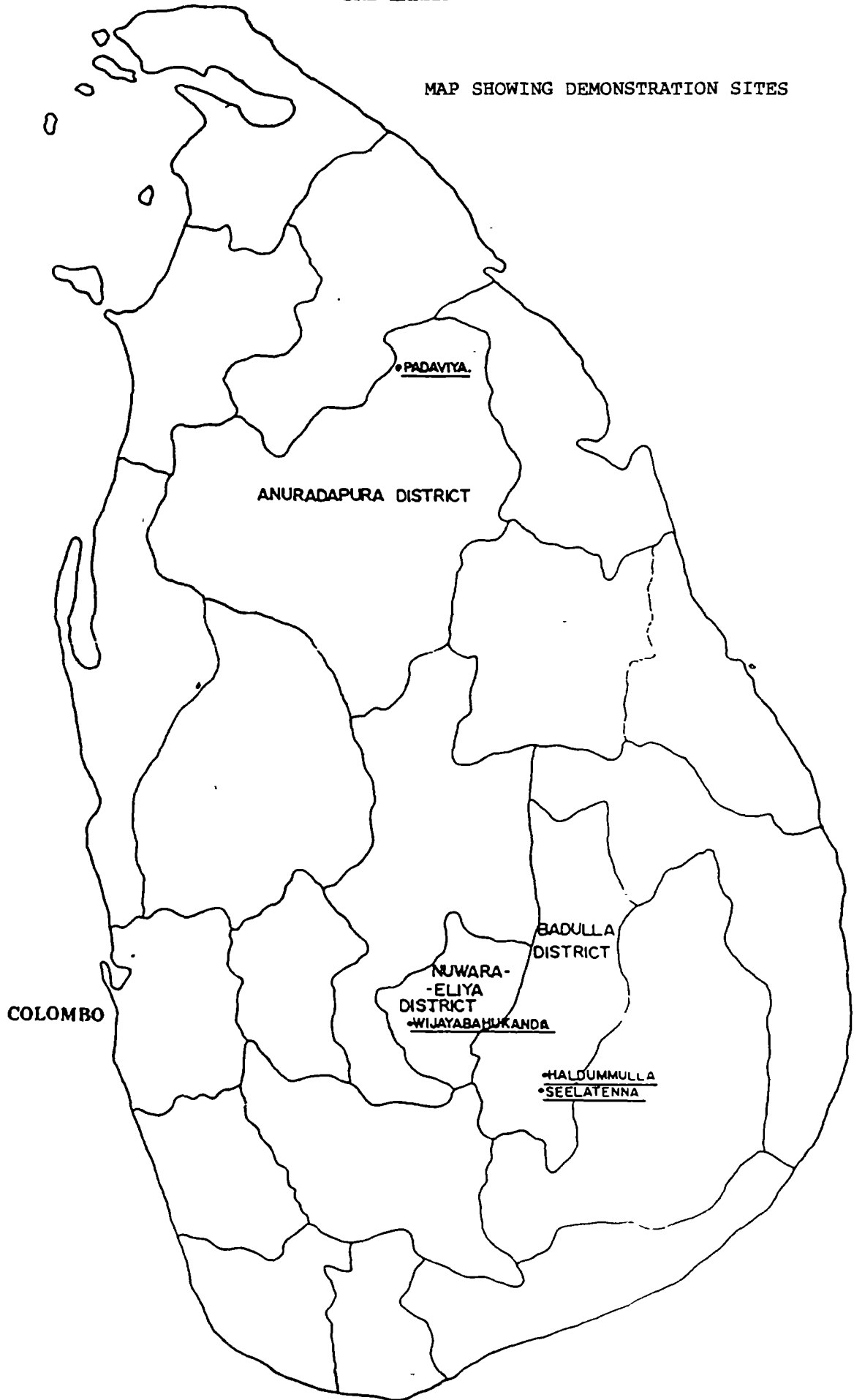
The Project Manager was responsible for administering the funds of the Project on the budget approved by the Project Management Committee.

However, all major items of expenditure were committed only after the approval of the Project Management Committee.

All approvals for field visits had to be obtained from the Project Manager (PSWS), the Assistant General Manager (Designs), the Deputy General Manager (Planning & Designs) or the General Manager.

SRI LANKA

MAP SHOWING DEMONSTRATION SITES



16. DESCRIPTION OF THE WATER SUPPLY SYSTEMS IN THE PSWS DEMONSTRATION AREAS

16.1 Haldummulla Water Supply Scheme

Source and Intake

The source of the Haldummulla water supply scheme is the Kathiresan stream which originates from the hills of Idalgashinna and Ohiya and flows across the Needwood Estate and crosses the Colombo - Badulla main Highway around the 114th mile post.

This stream was chosen in preference to numerous other smaller streams which flow in this area, due to its perennial nature, purity and quantity of flow.

The water quality sampled from the Kathiresan stream showed that the chemical quality of water is satisfactory for human consumption and does not require any form of extensive treatment. During certain rainy periods the turbidity of the water rises marginally and to remedy this aspect, it is proposed to construct a slow sand filter at a later stage.

Bacteriological tests carried out on the water from this source at the intake point also revealed that there is no contamination of the water. However, pollution could take place during the rainy season.

The intake point for the water supply scheme was selected above the human settlement areas so as to avoid any possible human contamination.

The flow of water at the location was measured over a long period of time and the minimum quantity measured, which was 181 cubic metres per day (140,000 gallons per day) was found to meet the requirements of the Haldummulla and Halatutenna area upto the year 2000 except in the very dry periods, where there could be a small shortfall.

An inlet chamber is provided with two screens, coarse and fine, to ward off floating debris. This inlet chamber also contains an inlet pipe fitted with a strainer.

Two valve chambers are also provided, with one valve chamber housing the scour valve of the intake and the other valve chamber, housing the scour valve of the inlet chamber and the control valve of the outlet pipe.

The actual location of the dam was decided taking into account the presence of strong rock abutments on either side to anchor the dam.

Pipe lines

The gravity main comprises mainly of PVC and GI pipes originating from the dam and reaching the reservoir located below.

Two break-pressure tanks are provided between the intake point and the reservoir.

Treatment

There is no conventional treatment plant provided for the scheme at the moment. However, in the future it is proposed that a slow sand filter should be constructed of 120 sq.m. square area.

However, at the present juncture, only chlorination is provided in the form of a Belco solution feed type chlorinator installed in a structure housing the office room, a store room, chlorinator house and a toilet.

This structure is located adjacent to the reservoir and the chlorine solution is fed into the reservoir.

Chlorinator

The chlorinator installed is a four bottle 'Belco' chlorinator. The chlorine solution is fed into the reservoir from the chlorinator situated in the office block. The chlorine solution is fed into the storage reservoir.

Storage Reservoir

A storage reservoir of 13.6 cubic metre (25,000 gallon) capacity is provided just below the office block to serve the storage requirement of the Haldumulla water supply scheme.

The reservoir is so constructed that it is partially below ground.

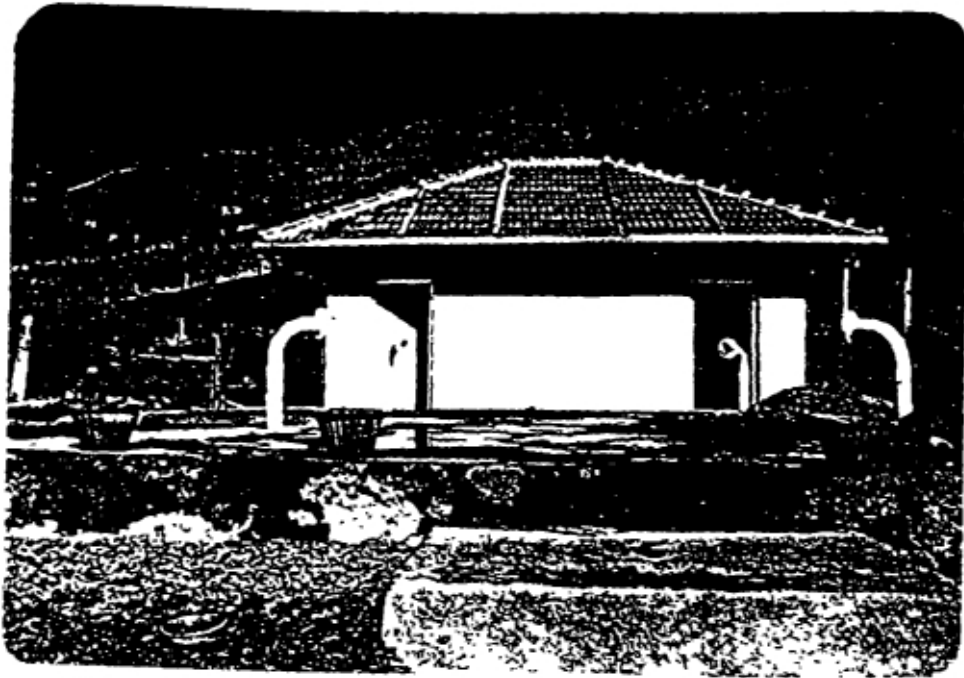
Distribution System

The distribution system consists mainly of PVC pipes ranging from 160 mm (6") to 63 mm (2"). The distribution is mainly on the Colombo - Haputale road, but also extends along a few by-roads.

There is one break pressure tank to take care of the excess pressure on the distribution system.

Standposts

A total of 22 standposts are provided with the maximum distance being 0.4 km (0.25 miles) between the standposts.



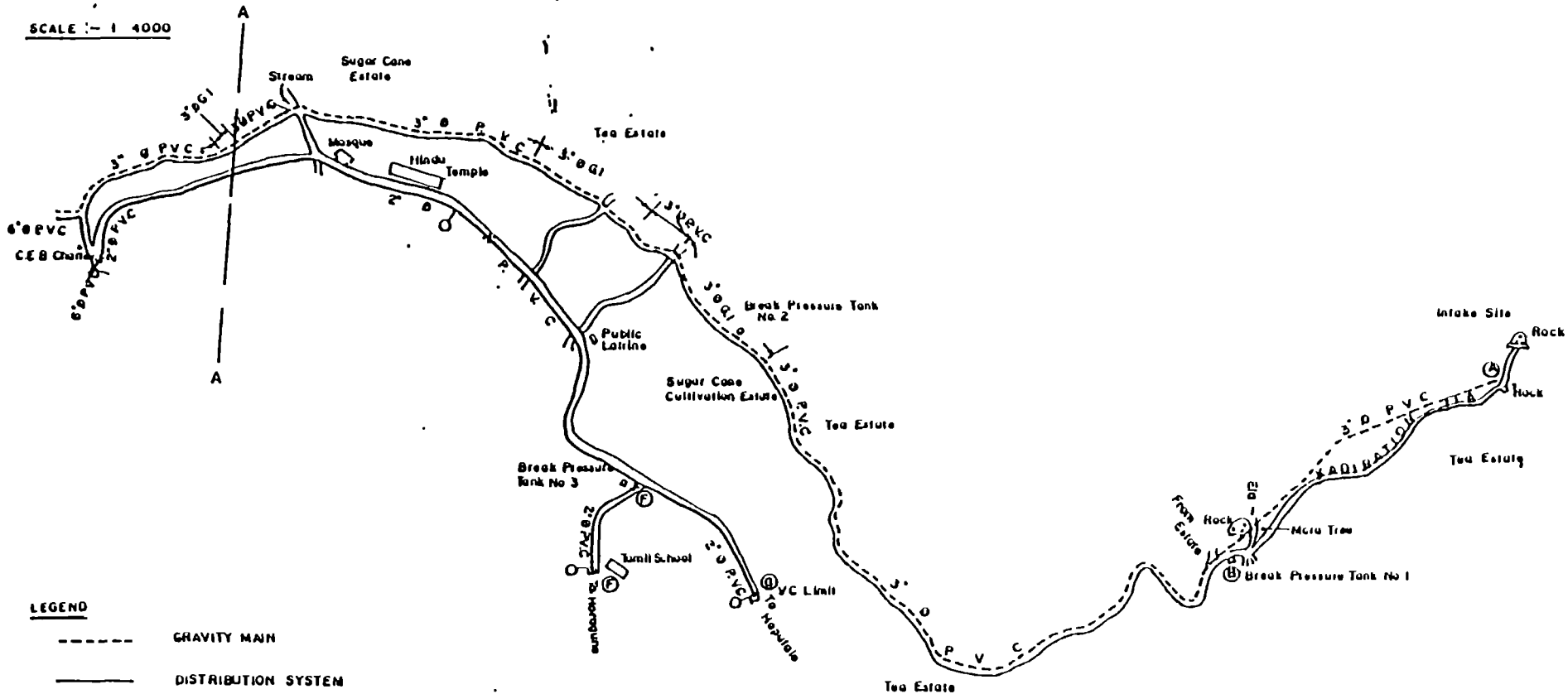
Haldummulla - The site office



Haldummulla - Water collection practices before the programme



SCALE :- 1 : 4000



LEGEND

- GRAVITY MAIN
- DISTRIBUTION SYSTEM
- X— SLUICE VALVE
- Y— SCOUR VALVE
- STAND POST
- └— END CAP

22 NO OF STAND POSTS

90 NO OF HOUSE CONNECTIONS

HALDUMMULLA WATER SUPPLY SCHEME
KEY PLAN OF GRAVITY MAIN AND DISTRIBUTION MAIN

Hours of Supply

This scheme is designed for a continuous 24 hour supply to the consumer.

Water Quality

The quality of water observed in the Kathiresan stream is found to conform to Sri Lanka Standards for potable water.

However, a seasonal variation of water quality is observed with respect to certain physical characteristics such as turbidity and colour.

Year of Construction: 1984/85

16.2 Padaviya Water Supply Scheme

Source and Intake

The source of the Padaviya Water Supply Scheme is from two bore holes located adjacent to the Padaviya Tank. The two boreholes are capable of yielding 23 and 16 cubic metres per hour respectively. The depths of the wells are 60 metres and 70 metres respectively.

Bore holes were selected as the source of the water supply scheme as the naturally occurring water sources were not satisfactory with regard to quality for supply of water with minimum treatment.

Pumps and Power Source

Two diesel engine driven generators provide the power supply to the submersible pump that are provided at the bore holes. The characteristics of the two pumps are 23 cubic metres per hour at a head of 65 metres and 16 cubic metres per hour at a head of 75 metres.

The Generators were selected as the power source due to the absence of a regular electricity supply to the area.

Treatment

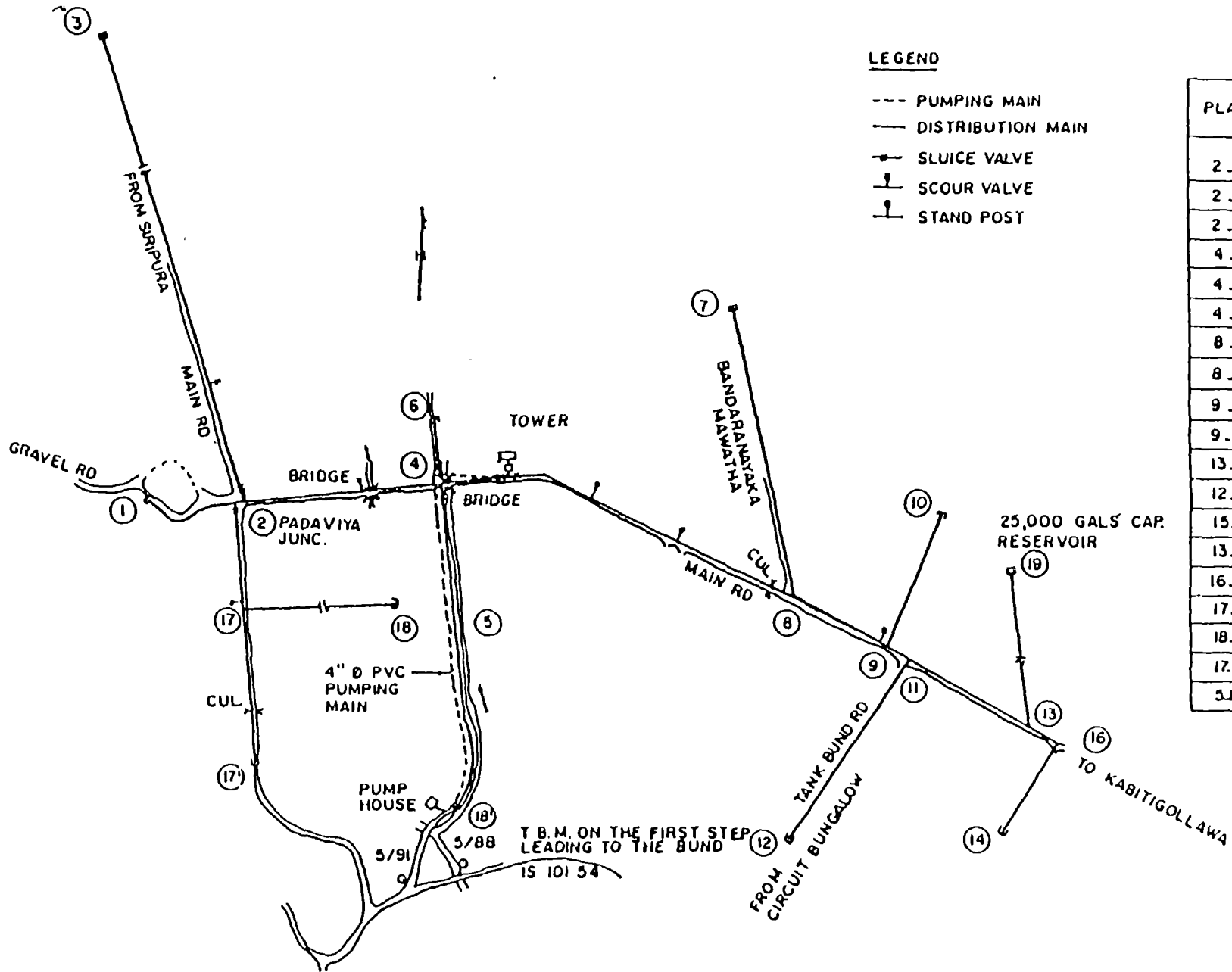
There is no conventional treatment plant provided as the quality of Groundwater obtained from the boreholes conforms to the standards required by the Sri Lanka Standard for potable water.

Chlorination

A solution feed type chlorinator is installed to feed the chlorine solution into the pumping main.

Storage Reservoir

An overhead storage tank of 90 cubic metres in capacity is provided at the centre of Padaviya Town to function as a balancing tank to store the excess water pumped in times of reduced consumption. This excess water stored is released into the distribution system during periods of increased consumption.



LEGEND

- PUMPING MAIN
- DISTRIBUTION MAIN
- SLUICE VALVE
- SCOUR VALVE
- STAND POST

PLACE	DISTANCE IN FEET	DIA. IN m m
2-1	1000	63
2-3	7000	90
2-4	1880	110
4-8	3500	110
4-6	600	63
4-5	1000	110
8-7	2500	63
8-9	980	110
9-10	1300	63
9-11	200	110
13-11	1300	160
12-11	2000	63
15-13	1800	160
13-16	300	90
16-14	1000	90
17-2	1000	90
18-17	2260	90
17-17'	1515	90
5-18'	2361	110

PADAVIYA W.S.
KEYPLAN

NOT TO SCALE

Pipe Network

The pipe network in the Padaviya water supply scheme consist of PVC mains ranging from 160 mm to 63 mm. The 160 mm diameter pipe line serves both as a distribution main and a pumping main feeding the main storage tank.

This water supply scheme functions as a balancing tank system and the pipe lines are fed direct from the pumping main at times of peak demand and during non peak demand times the main feeds the storage reservoir and the water is taken into storage.

Standposts

A total of 18 standposts are provided with the maximum distance being 0.4 km (0.25 miles) between the standposts.

Hours of Supply

This scheme is designed for a 24 hour continuous water supply to the consumer.

Water Quality

The water quality of the source conforms to the Sri Lanka standards for potable water and hence no treatment is found necessary. Only chlorination is carried out as a precautionary measure.

Year of Construction

The work started in 1984.
Due to frequent political unrest in the District the work had to be laid down for a long time.



Wijeyabahukanda - the community digging trenches for their water system



Wijeyabahukanda - women participate in Schramadana for the new water supply by bringing food

16.3 Wijeyabahukanda Water Supply Scheme

Source and Intake

The source of the Wijeyabahukanda Water Supply Scheme is Dehiatta Ela originating from the hills of Kotmale and flowing across Bogahawatte Estate.

The water is obtained from a point about 1220 metres above mean sea level (4000 feet above MSL).

This position has been chosen as it is above all sources of pollution so that the water quality conforms to the Sri Lanka Standards. The Bacteriological tests carried out on the water also indicates that the source at this point is free from pollution.

The flow data over several years reveal that the minimum flow recorded is 120 cubic metres per day (26,400 gallons per day). The average flow of the stream is normally very much more than this value.

The present demand of the Wijeyabahukanda Water Supply Scheme is 118 cubic metres per day (26,000 gallons per day) while the year 2000 demand is 160 cubic metres (35,000 per day).

Therefore it can be seen that except during the very dry periods this source can meet the requirements of the scheme.

An intake dam has been constructed on this stream taking into account the strong rock abutments on each side to anchor the dam. The height of the dam is 1.2 m, and its length across the stream is 5.0 m.

Pipelines

A 100 mm Galvanized Iron pipe originates from the intake dam and reaches the Break Pressure Tank No.1 situated close to the Bogahawatte - Wijeyabahukanda main road. Where the terrain is favourable PVC pipes of equivalent diameter have been used. The distribution diameters varies from 110 mm to 50 mm and are of PVC except on rocky terrain.

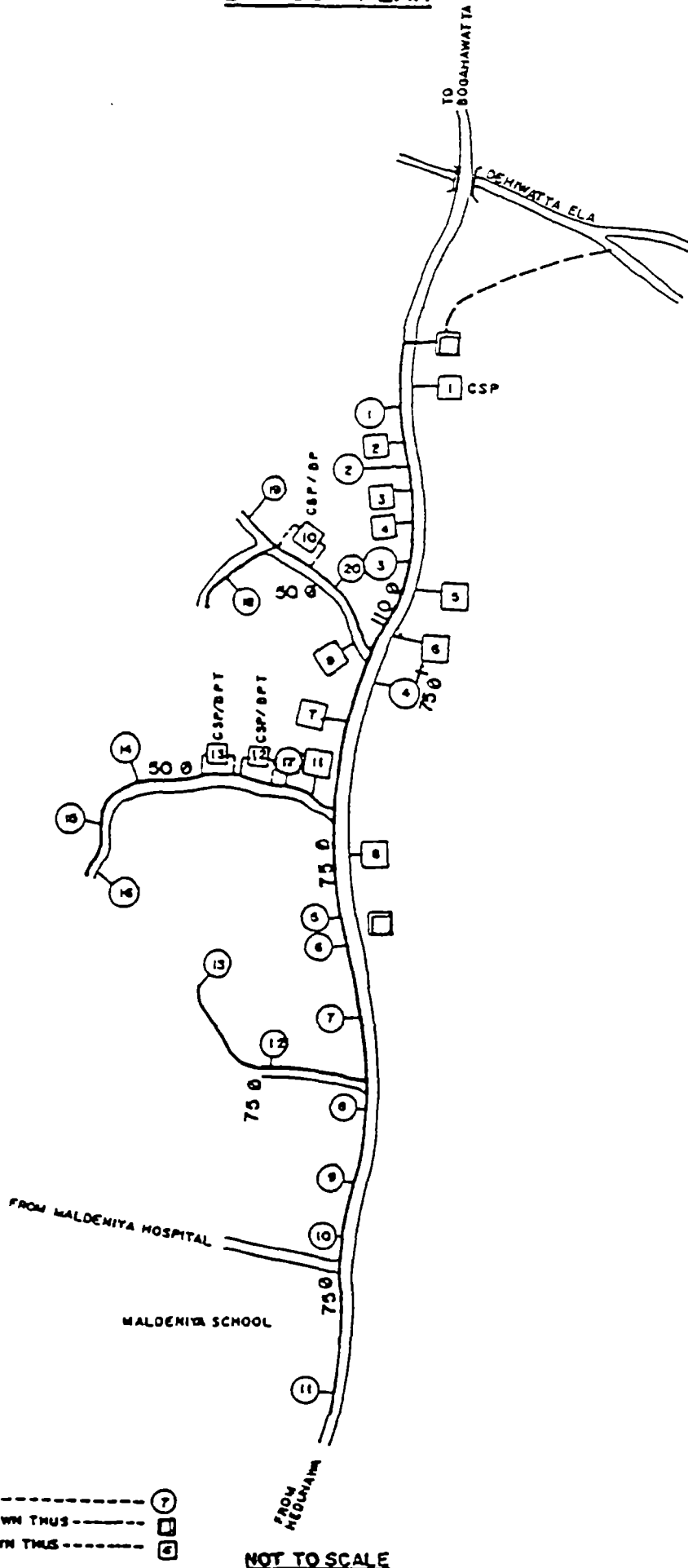
Treatment

There is no conventional treatment provided except for Chlorination as the water quality conforms to the Sri Lanka standards for drinking water.

However a slow sand filter is planned at a later stage in order to cater for fluctuations of turbidity etc. which may occur during high stream flows.

WIJEYABAHUKANDA WATER SUPPLY SCHEME

LAY-OUT PLAN



16.4 Seelatenna Water Supply Scheme

Source and Intake

The source of the Seelatenna Water Supply Scheme is a stream which originates from the hills of Idalgashinna and flows across the Needwood Estate at Haldummulla and crosses the Colombo - Badulla Main Road at the 179th mile post.

The intake point is located about 2 kms from the main road away from human settlements so that there is no possibility of contamination.

The Bacteriological samples obtained indicate no faecal pollution of the water.

The flow of water at the intake point is more than adequate to supply the requirements of potable water for the Seelatenna and Watagamawa areas.

The stream is impounded by a small intake dam. The water impounded is filtered into laterals covered by a gravel pack. This gravel pack removes any turbidity that may be present in the water. The filtered water is then led into the gravity main which feeds the storage reservoir.

Gravity Main

The gravity main consists of galvanized iron pipes and PVC pipes of 100 mm in diameter feeding the storage reservoir.

Treatment

There is no conventional treatment adopted for this scheme as the water conforms to the Sri Lanka standard for potable water.

However, chlorination is carried out as a precautionary measure.

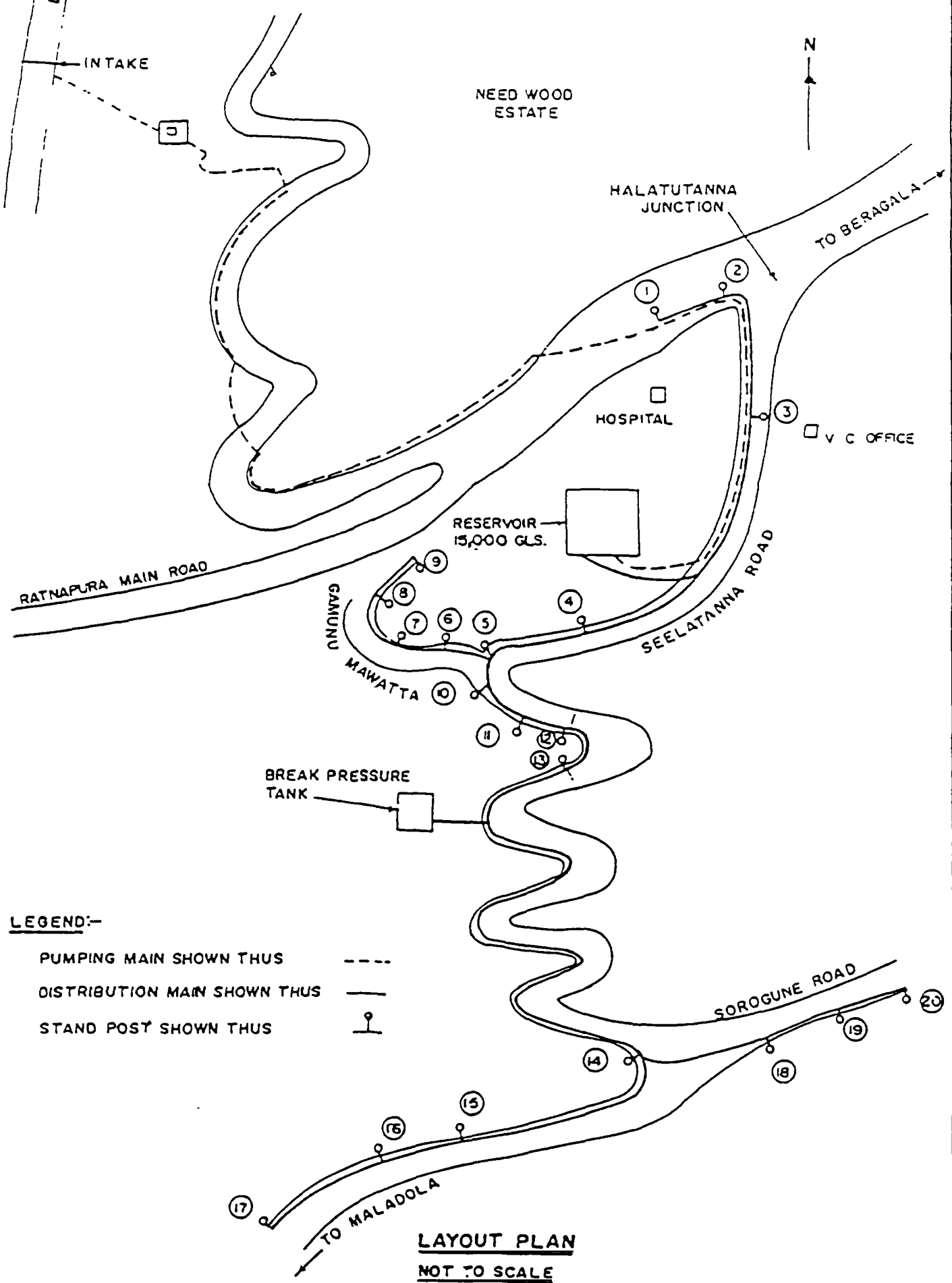
Chlorinator

A 'Belco' four bottle chlorinator is installed at a point just above the reservoir. The chlorine solution is fed into the reservoir from this point.

Storage Reservoir

An underground storage reservoir having a capacity of 70 cubic metres (15,000 gallons) is provided as storage for this water supply scheme.

SEELATENNA-WATAGAMUWA WATER SUPPLY SCHEME



Distribution System

The distribution system consists of pipelines varying from 100 mm to 50 mm spread over the Seelatenna and Watagamuwa areas.

Standposts

There are 20 standposts provided in this scheme to serve the needs of the community according to their preferences.

Hours of Supply

This scheme is designed for a continuous 24 hours supply to the consumer.

Water Quality

The quality of water obtained from this stream is found to conform to Sri Lanka Standards for potable water.

Year of Original Construction: 1984

Rehabilitated: 1985

APPENDIX I

LIST OF PUBLICATIONS

Questionnaire: Socio-economic survey on water and sanitation National Water Supply and Drainage Board (NWSDB), Colombo, 1983.

PSWS Project Staff, Summary of experiences learned in a community participation project on public standpost water supply and sanitation. An Interim Report. NWSDB, Colombo, January 1984.

Dr. H.I. Karunadasa, Major problems, solutions applied, and experiences learned in the Public Standpost Water Supply Project in Sri Lanka. Paper for a regional seminar in Cirebon, Indonesia. NWSDB, Colombo, March 1984.

Dr. H.I. Karunadasa (ed.), Interim report of progress of demonstration project on Public Standpost Water Supply Systems and Sanitation. NWSDB, Colombo, March 1985.

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PSWS Project Staff, Report on sanitation programme at Haldummulla, a village community in Sri Lanka. NWSDB, Colombo, April 1985.

Notes on the Evaluation of the IRC sponsored Water Supply and Sanitation Project', NWSDB, Colombo, June 1985

"A People's Achievement: Pure Water for Haldumullah". VHS-format Video Film of a PSWS Demonstration Scheme, National Water Supply and Drainage Board, Colombo, October 1985

PSWS Project Staff, Notes on the evaluation of the IRC sponsored Water Supply and Sanitation Project. NWSDB, Colombo, December 1985.

Dr. H.I. Karunadasa, Community participation: how it worked in Haldummulla and Seelatenna. NWSDB, Colombo, December 1985.

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Dr. E. Rajanathan, Dr. H.I. Karunadasa, Community participation and education in community water supply and sanitation programmes. A Sri Lankan Experience. Paper presented at the National Workshop on Guidelines for Community Water Supply Project Planning and Implementation Procedures, Colombo, 30-31 May 1986.

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Dr. H.I. Karunadasa and Dr. S. Tennekone, Country Situation - Sri Lanka, Paper read at Inter-Country Workshop on Acceleration of National Programmes on Sanitary Disposal of Human Excreta -WHO/SEARO, New Delhi, 27 - 31 Oct. 1986

"Community Participation for Water Supply and Sanitation Projects". Sound/Slide set designed and presented by Consortium for Development, Research and Services, Sri Lanka, for PSWS Project, 1988.

Dr. H.I. Karunadasa and S.J.P. Wijegoonewardena, PSWS Project Sri Lanka: Overview and Final Report, NWSDB, Colombo, 1988

Dr. H.I. Karunadasa, Manual for community participation in water supply and sanitation in Sri Lanka. (draft, to be published)

APPENDIX II

List of Members of the PSWS Project Management Committee

Chairmen

- Mr. M.D. Peiris, Chairman, NWS&DB *)
Mr. T.B. Madugalle, Chairman General Manager NWS&DB *)
Mr. A.P. Chandraratne, General Manager NWS&DB *)

Members

- Miss L.S. Amarasinghe, D.D. MLGH&C **)
Mr. S.B. Boyagana, General Manager, NWS&DB *)
Mr. R.H.P. Fernando S/AS, MLGH&C **)
Mr. D.E.F. Jayasuriya, S/DGM, NWS&DB *)
Mr. H.I. Karunadasa, P.O. Social Scientist NWS&DB *)
Mr. D. Konchady, UNDP/WHO Project Manager, NWS&DB *)
Mr. G.E. Kumarage, General Manager NWS&DB *)
Mr. Percy Lao, Sanitary Engineer, World Health Organization
Mr. T.B. Madugalle, Consultant, MLGH&C **)
Dr. T. Munasinghe, Director HE&P ***)
Mr. P.M.R. Pathiraja, Project Manager (PSWS) NWS&DB *)
Dr. S.W.M. Perera, Director (HEPH) Ministry of Health
Dr. E. Rajanathan, Director Ministry of Health
Mr. Michael Seager, Project Manager, IRC, International Water and
Sanitation Centre
Mr. W.A.N. Weerasinghe, Project Manager, (PSWS) NWS&DB *)
Mr. S.J.P. Wijegoonawardene, Project Manager, (PSWS) NWS&DB *)

*) National Water Supply and Drainage Board (NWS&DB)

***) Ministry of Local Government Housing & Construction

***) Health Education and Planning



APPENDIX III

LIST OF PROJECT STAFF PSWS/SRI LANKA

	<u>From</u>	<u>To</u>
- <u>Project Manager:</u>		
Mr. P.M.R. Pathiraja	1983	1985
Mr. W.A.N. Weerasinghe	1985	1987
Mr. S.J.P. Wijegoonewardene	1987	present
- <u>Project Officer:</u>		
Mr. H.I. Karunadasa		
- <u>Project Assistant:</u>		
Ms. Suwanthri Karunaratna		
- <u>Field Assistants:</u>		
Mr. Ariyasena		
Mr. Abekoon		
Mr. Disanayaka		
Mr. A.H. Gunapala		
Mr. K.A. Jayaweera		
Mr. S.I.M. Kaleel		
Mr. Leelaratne Liyanage		
Mr. Pematratne		
Mr. D. Seneviratne		



APPENDIX IV

Overview of research findings of a Socio-Economic Survey and a Study on Water and Sanitation Behaviour in the four demonstration areas.

Table 1: Educational status

Table 2: Occupational status

Table 3: Economic status

Table 4: Time and distance for transport of water

Table 5: Disposal of human excreta - Availability of latrines

Table 6: Pattern of morbidity for water and sanitation related diseases

Table 1: Educational status

	Haldummulla %	Padaviya %	Wijeyabahu- kanda %	Seelatenna %
Illiterate	03	04	04	03
Primary 1 - 5	32	43	36	33
Secondary 6 - 10	40	39	36	42
G.C.E. A/L	23	14	20	19
University	02	Nil	02	02

It is seen that more than 50 percent of the population had received secondary education. This was considered favourable for health education interventions.

Table 2: Occupational status

Haldummulla

16%	Government and Corporation Employees
19%	Cultivators
14%	Labourers
19%	Were engaged in business and trade
23%	Unemployed

Padaviya

25%	Government and Corporation Employees
34%	Labourers
29%	Were engaged in business and trade
13%	Unemployed

Wijeyabahukanda

9%	Government and Corporation Employees
48%	Labourers
22%	Were engaged in business and trade
19%	Unemployed

Seelatenna

14%	Government and Corporation Employees
36%	Cultivators (mostly small holder farming)
18%	Labourers
21%	Were engaged in business and trade
11%	Unemployed

Table 3: Economic Status

Haldummulla - Monthly Income

16%	-	upto Rs. 450/-
31%	-	Rs. 450/- to Rs. 900/-
5%	-	Rs. 900/- to Rs. 1050/-
48%	-	Over Rs. 1050/-

Padaviya - Monthly Income

34%	-	upto Rs. 450/-
38%	-	Rs. 450/- to Rs. 900/-
22%	-	Rs. 900/- to Rs. 1050/-
6%	-	Over Rs. 1050/-

Wijeyebahukanda Monthly Income

24%	-	upto Rs. 450/-
42%	-	Rs. 450/- to Rs. 900/-
31%	-	Rs. 900/- to Rs. 1050/-
3%	-	Over Rs. 1050/-

Seelatenna - Monthly Income

22%	-	upto Rs. 450/-
42%	-	Rs. 450/- to Rs. 900/-
21%	-	Rs. 900/- to Rs. 1050/-
15%	-	Over Rs. 1050/-

(Rs. 100.- is approx. US \$ 40.-, 1986)

Table 4: Time and Distance for Transport of Water

Name of Demonstration Area	Average distance to Water Source Yards	Average time taken for transport of water	Average number of trips per day	Total time taken for transport of water
		minutes		minutes
Haldummulla	384	13.4	8	107
Seelatenna	160	8	9	72
Wijeyabahukanda	700	20	7	140
Padaviya	175	12	8	96

Table 5: Disposal of human excreta - Availability of Latrines

Type	Availability of Latrine		Type of Latrine available	
	Yes P.C.	No. P.C.	W/s P.C.	Pit P.C.
Name of Area				
Haldummulla	63	37	64	36
Padaviya	63	37	48	52
Wijeyabahukanda	46	54	39	61
Seelatenna	9	91	68	32

Sanitation programme Padaviya was abandoned due to terrorist activity in the area.

Sanitation programme Wijeyabahukanda was affected due to ethnic disturbances that prevailed in the area in 1985 and 1986.

Table 6: Pattern of morbidity for water and sanitation related diseases

<u>Haldummulla</u>	1983	1984	1985	1986	1987
Infectious Hepatitis	14	16	11	Nil	Nil
Bacillary Dysentery	32	26	2	Nil	01
Amoebic Dysentery	18	32	2	Nil	Nil
Scabies	28	19	11	2	Nil
<u>Seelatenna</u>	1983	1984	1985	1986	1987
Infectious Hepatitis	10	11	Nil	Nil	Nil
Bacillary Dysentery	17	26	4	Nil	01
Amoebic Dysentery	26	17	3	Nil	Nil
Scabies	28	17	4	Nil	Nil
<u>Wijeyabahukanda</u>	1983	1984	1985	1986	1987
Infectious Hepatitis	9	11	9	N.A.	N.A.
Bacillary Dysentery	18	21	18	N.A.	N.A.
Amoebic Dysentery	22	24	21	N.A.	N.A.
Scabies	18	21	17	N.A.	N.A.

(continue)

(continued)

Padaviya

	1983	1984	1985	1986	1987
Infectious Hepatitis	18	22	N.A.	N.A.	N.A.
Bacillary Dysentery	26	21	N.A.	N.A.	N.A.
Amoebic Dysentery	24	17	N.A.	N.A.	N.A.
Scabies	39	21	N.A.	N.A.	N.A.

N.A. - not available

From 1986 on data are not available due to ethnic disturbances and terrorist action in the areas.

Special arrangements have been made with the Health Authorities in demonstration areas to collect data of all water and sanitation related diseases and morbidity that are reported to a Medical Institution. This arrangement was made with a view to evaluate the project.

The PHI collected data on behalf of the project.

APPENDIX V

Overview of Health Education Activities

	Haldummulla			Wijeyabahukanda			Seelatenna			Padaviya		
	1984	1985	1986	1984	1985	1986	1984	1985	1986	1984	1985	1986
No. of group discussions by -												
a. Volunteers	116	246	126	Nil	160	86	-	82	78	116	NA	
b. School Health Committee	21	86	42	Nil	48	40	-	12	18	39	NA	
Health Staff	84	192	86		84	38	-	36	42	76	NA	
d. Project Staff	126	261	84		78	46	-	42	48	84	NA	
No. of individual counselling - home visiting												
a. Volunteers	671	880	360	-	365	215	-	368	372	280	NA	
b. School Health Committee	261	340	126	-	110	105	-	110	118	112	NA	
c. Health Staff	960	1100	645	-	315	215	-	162	170	180	NA	
d. Project Staff	710	890	435	-	260	180	-	174	182	190	NA	
No. of village and school meetings by all groups combined	60	48	42	Nil	38	26	-	24	28	46	NA	
No. of volunteer training programmes	1	NA	Nil	Nil	1	-	-	1	-	1	NA	
No. of review meetings	6	12	12	Nil	12	8	-	8	14	3	NA	
No. of 2 days consultations	1	-	-	Nil	1	Nil	-	1	Nil	1	NA	
No. of 2 day teach trg. programmes	2	1	Nil	Nil	1	Nil	-	1	Nil	1	NA	
No. of orientation programmes all groups	12	6	1	6	18	6	-	6	4	12	NA	

Padaviya - data not available for 1985 and 1986
Wijebahukanda - data upto August 1986.

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