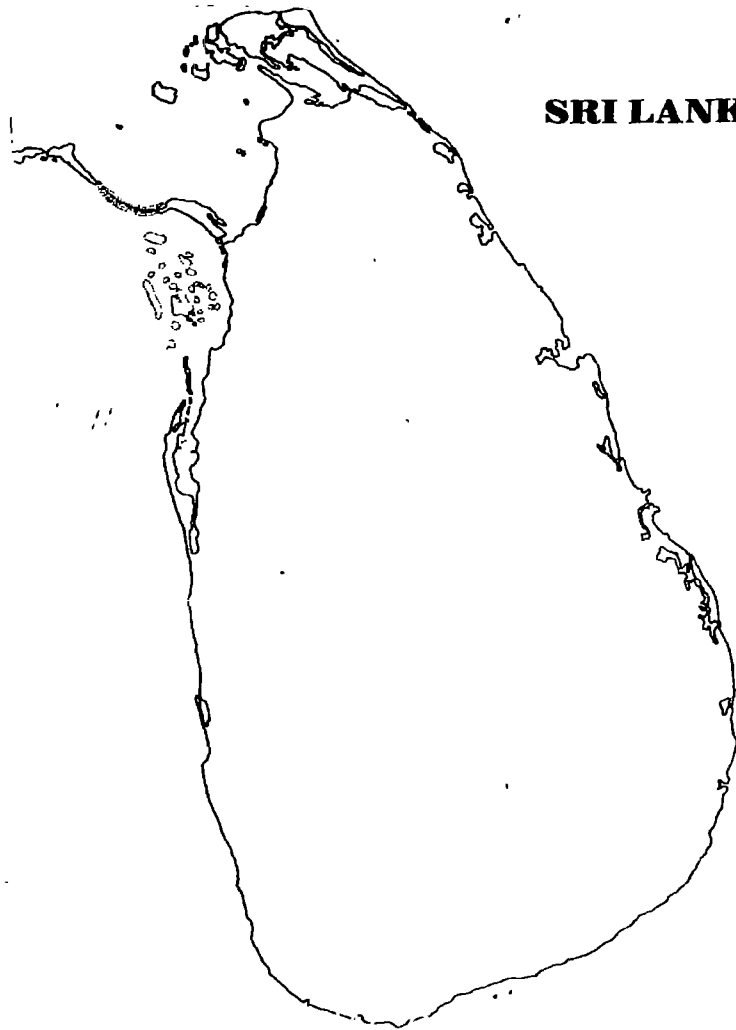


NATIONAL SECTOR CO-ORDINATION PROGRAMME



SRI LANKA

FIRST NATIONAL CONFERENCE OF THE WATER SUPPLY & SANITATION SECTOR

B M I C H 20th December 1995

Ministry of Housing, Construction & Public Utilities

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ISBN 13226
822 LK95

INGEKOMEN 12 JAN. 1995

National Sector Coordination Programme for Water Supply and Sanitation

The Government of Sri Lanka, through the Ministry of Housing, Construction and Public Utilities, and with support of the United Nations Development Programme has embarked on a National Sector Coordination Programme for Water Supply and Sanitation. The Programme was started in 1995 and will be concluded in early 1997.

Rationale

To meet the needs of all citizens of Sri Lanka in rural, urban and peri-urban areas in a sustained way, concerted action through sector coordination is urgently needed. The diversity of actors in the sector and the lack of coordinated policies and programmes means that full government sponsored and community financed projects are being built next to each other. In addition, the use of water resources for drinking, agriculture and other economic purposes requires sharing of water and increasingly also monitoring of water quality. The multiplicity of agencies involved in basin management makes coordination and agreement on resources sharing a complex matter. Plans for priority investment in rural and peri-urban water supply and sanitation are further urgently required to offer the economic and health opportunities of improved water supply and sanitation to the under-served. Application of low-cost and affordable water supply and sanitation for which consumers can and will pay is necessary to ensure that operation and maintenance is effected and services continue to accrue.

Purpose

The Sector Coordination Programme initiated in the beginning of 1995 carries the promise of better understanding of national water and sanitation issues leading to improved coordination among sector agencies, prioritization of sector investment, and agreement on sector policies. A National Sector Coordination Committee has been established representing all government agencies, institutions and NGOs that have a task in or a bearing on the water supply and sanitation sector. By instruction of the cabinet the National Sector Coordination Committee has been mandated to effect:

- * **Policy Review and Co-ordination**
- * **Liaison and Inter-Agency Coordination**
- * **Advice and Guidance on Sector Issues**

and develop Recommendations pertaining to

- * **Finance**
- * **Policy and**
- * **Strategy**

All this work should culminate in the formulation of a **Comprehensive Sector Development Plan including a Framework for Sector Investment.**

**First National Conference of the
National Sector Development Programme on Water Supply and Sanitation**

A start has been made with the sector development planning process by convening a series of National Sector Coordination Committee (NSCC) meetings and setting up a secretariat. The NSCC confirmed 4 sub-sector committees for : Metropolitan Colombo; Other Towns; Rural, Peri-Urban Areas and Rural Towns; and Plantation Areas.

The four sub-sector committees will present their position papers in the First National Sector Coordination Conference scheduled of today.

The formulation of a comprehensive sector development plan covering all resource considerations and needs of the citizens of Sri Lanka is essential. The National Sector Coordination Programme is a well timed effort to do just that by mobilizing the capacities of all governmental, semi-governmental, NGO and private sector agencies for a concerted drive towards a sustainable, consumer-led development plan for water supply and sanitation. In such a plan, the needs in water and sanitation of the rural and urban poor can be also spelled out as a powerful instrument in battling poverty and offering these segments of society a better quality of life through better health and greater economic opportunities.

The National Conference is an important moment for sector professionals and invited colleagues from interested national and international agencies to discuss the crucial issues at hand and come to some preliminary action plan. However, water and sanitation involves every man, woman and child in Sri Lanka and it is therefore important to bring the debate on water supply and sanitation to the nation.


K.A.S. Gunasekara
Secretary Ministry of Housing, Construction and Public Utilities



undp



NATIONAL SECTOR CO-ORDINATION PROGRAMME

SUB-SECTOR COMMITTEE ON GREATER COLOMBO

Position Paper No. 1

submitted to the
**FIRST NATIONAL CONFERENCE OF
THE WATER SUPPLY & SANITATION SECTOR**

B M I C H 20th December 1995

Ministry of Housing, Construction & Public Utilities

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ABBREVIATIONS

ADB	Asian Development Bank
CBO	Community Based Organization
CEA	Central Environmental Authority
MC	Municipal Council
IDA	International Development Agency
NSCC	National Sector Coordination Committee
NWSDB	National Water Supply & Drainage Board
O&M	Operation and Maintenance
PO	Partner Organization
SLLRDC	Sri Lanka Land Reclamation & Development Corporation
UC	Urban Council
UDA	Urban Housing Development Authority
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WB	World Bank
WHO	World Health Organization

1. INTRODUCTION

The report is aimed at identifying the key issues which need further studies & recommendations in the water supply and sanitation sector in the Greater Colombo area. The report identifies the problems in water supply and sanitation separately. Since the problems in the sector for the low income group are of special type, they are also analysed separately. As such the report is mainly divided into four sections namely, Introduction, Water Supply, Sanitation and Water Supply & Sanitation for low income group.

The term "Greater Colombo" generally means the area covering the Colombo Municipal Council and adjacent local authorities to the north, east and south of Colombo.

In order to clearly define the area, the NWSDB held a number of workshops and discussions with relevant National Planning & Development Agencies during the period in which the Greater Colombo Water Supply System Master Plan was updated (90/91). This process was adopted to ensure that all development scenarios would be taken into account and that a continuing liaison mechanism would be established between the NWSDB and key agencies.

On the basis of these agency consultation and field surveys, the area to be provided with piped water service by the year 2020 has been identified as indicated in the Fig. 1. The population estimated in this area is about 2,900,000 in 1994.

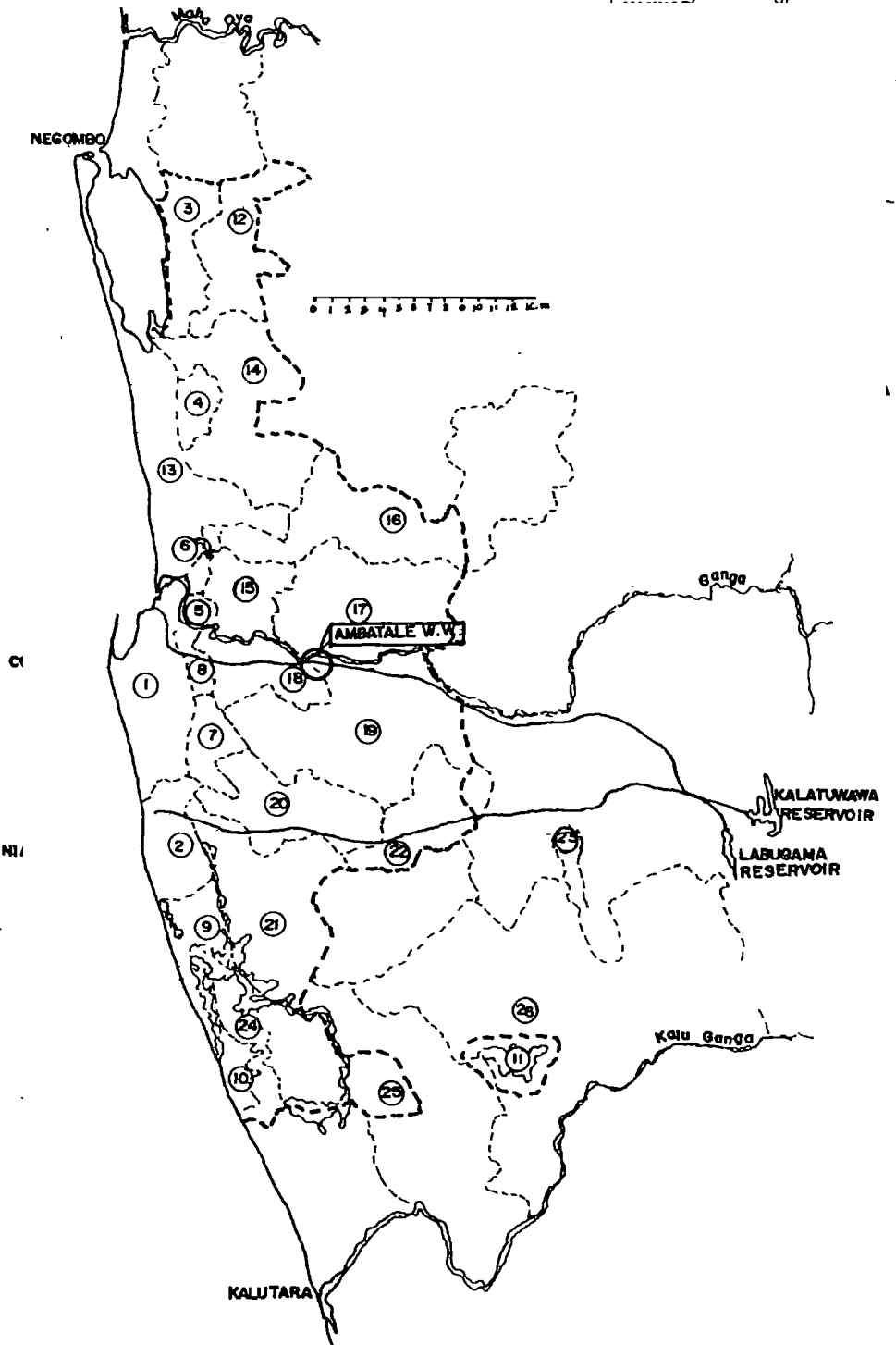
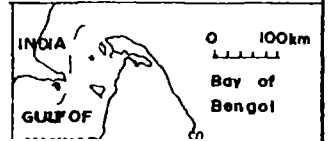
However it is found that various other agencies later developed different maps of Greater Colombo with different boundaries. The Board of Investment of Sri Lanka and the Urban Development Authority and other similar agencies have different maps.

As such, it becomes necessary to define the boundaries of the Greater Colombo area. A map depicting the Greater Colombo area should be prepared with the participation of all the agencies.

2. WATER SUPPLY

2.1 EXISTING WATER SUPPLY FACILITIES

Major part of the Greater Colombo area is supplied with water by the Greater Colombo integrated water supply system as shown in the Fig. 2. About 1.6 million population is covered by pipe borne water in the Greater Colombo area.



ADMINISTRATIVE AREAS

MUNICIPAL COUNCIL

- ① - COLOMBO
- ② - DEHIWALA - MOUNT LAVINI

URBAN COUNCIL

- ③ - SEEDUWA - KATUNAYAKA.
- ④ - JA - ELA
- ⑤ - PELIYAGODA
- ⑥ - WAT TALA - MABOLE
- ⑦ - KOTTE
- ⑧ - KOLONNAWA
- ⑨ - MORATUWA
- ⑩ - PANADURA
- ⑪ - HORANA

PRADESHIYA SABHA

- ⑫ - KATANA
- ⑬ - WATTALA
- ⑭ - JA - ELA
- ⑮ - KELANIYA
- ⑯ - MAHARA
- ⑰ - BIYAGAMA
- ⑱ - KOTTIKAWATTA - MULLERIYAWA
- ⑲ - KADUWELA
- ⑳ - MAHARAGAMA
- ㉑ - KESBEWA
- ㉒ - HOMAGAMA
- ㉓ - SITHAWAKA (PADUKKA TOWN)
- ㉔ - PANADURA
- ㉕ - BANDARAGAMA
- ㉖ - HORANA

PROPOSED GREATER COLOMBO WATER SERVICE AREA

FIG-1

The existing water sources for the Greater Colombo water supply system are Kalatuwawa and Labugama impounding reservoirs and Kelani ganga. The transmission mains of the Greater Colombo water supply system are :

- gravity supply main from the treatment plants at Kalatuwawa and Labugama which mainly serves CMC and also Towns South of Colombo
- pumped supply main from Ambatale treatment plant on the Kelani river which serves CMC, Towns North and Towns South of Colombo.

The production capacity of the treatment plants at present, is as follows.

Ambatale (Old treatment plant)	63mgd	(286,700 m ³ /d)
Ambatale (New treatment plant)	40mgd	(182,000 m ³ /d)
Kalatuwawa	20mgd	(91,000 m ³ /d)
Labugama	13mgd	(59,000 m ³ /d)

Water supply to Panadura is also supplemented by a pumped supply from the Kalutara integrated WSS. It is estimated that about 0.7 mgd is pumped to the Greater Colombo Water Supply System from the Kalutara integrated WSS.


Horana WSS which covers Horana UC area also exists in the Greater Colombo area. In addition number of minor schemes are also in operation to cover small communities. Some of such schemes are, Bandaragama WSS, Jayakodikanthe WSS, Thalagolla WSS, Thewatte WSS, Jayasamarugama WSS, Piliyandala WSS and Padukka WSS.

It is estimated tentatively from the available data that the pipe borne water supply coverage of Greater Colombo is about 56 percent. It is also estimated that the water consumption recorded in the existing service area in the Greater Colombo is about 265,000 m³/d in 1995 though the production is much higher, (about 495,000 m³/d). The difference in production and consumption is accounted for losses, leakage, illegal consumption etc.

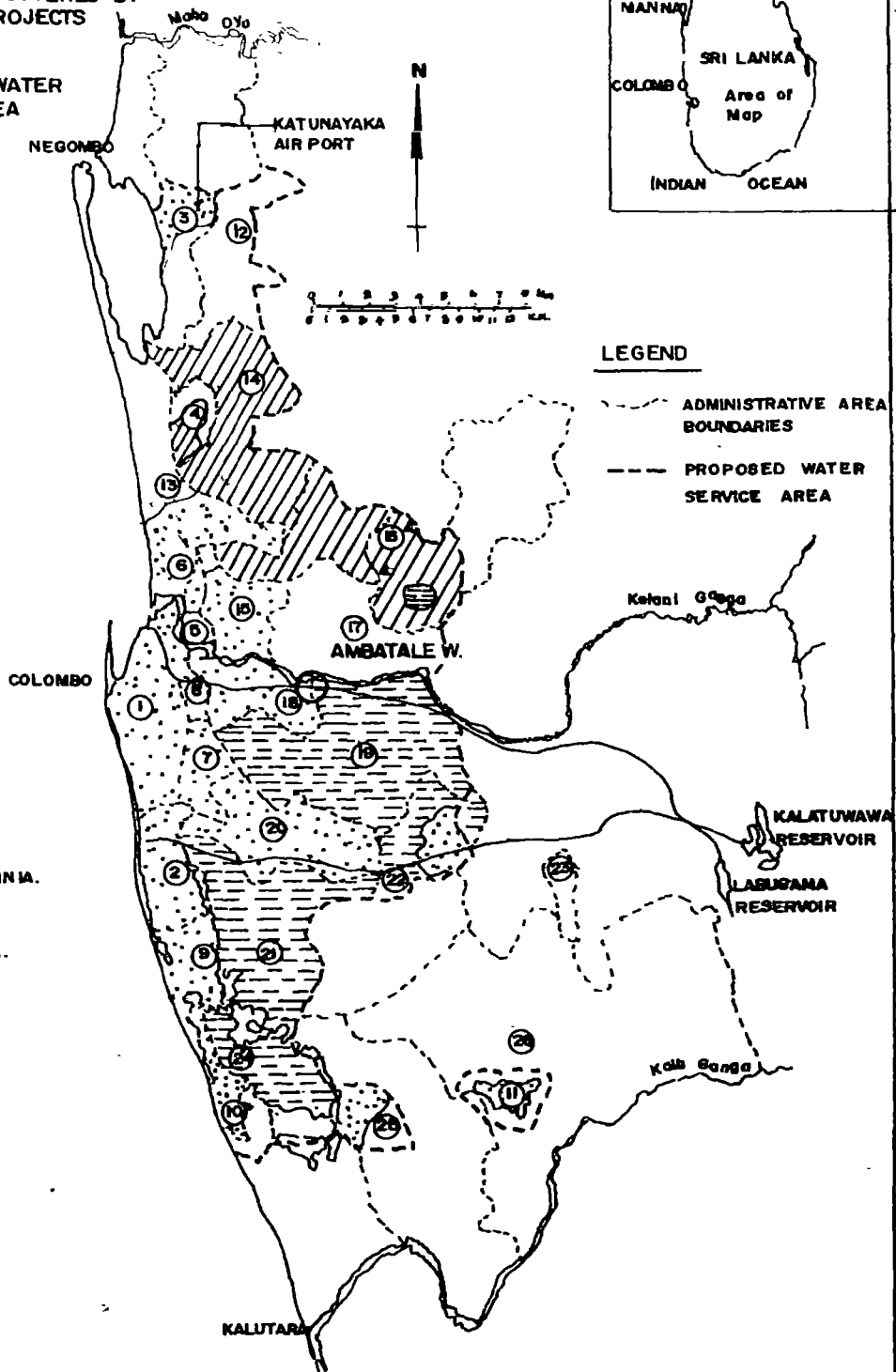
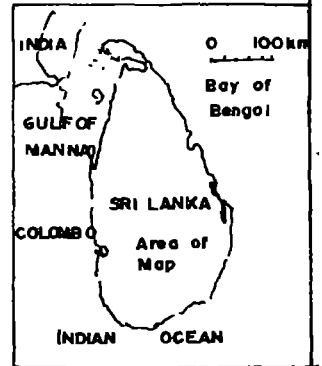
Though the pipe borne water supply coverage is only 56%, coverage by acceptable water supply facilities in the area is fairly high. Acceptable water supply facilities includes pipe borne water, protected dug wells and tube wells which yield good quality water. However, dug wells and tube wells are not suitable for the built up areas like CMC as these wells are prone to contamination from nearby sewers, septic tanks and soakage pits. Similarly these wells are not suitable for coastal areas and areas where wells go dry during drought. Though the total coverage is not available for the Greater Colombo area, it is 86% for the Colombo District.

The NWSDB is responsible for operation and maintenance of all the water schemes in the Greater Colombo area. However, the CMC is rendering services to maintain the CMC distribution system on contract basis. Expenses incurred on operation and maintenance and loan repayment are met by the revenue collection through water sale.



 - EXISTING WATER SERVICE AREA

 - AREA TO BE COVERED BY ON GOING PROJECTS

 - PROPOSED WATER SERVICE AREA



LEGEND

-  ADMINISTRATIVE AREA BOUNDARIES
-  PROPOSED WATER SERVICE AREA

ADMINISTRATIVE AREAS

MUNICIPAL COUNCIL

- ① - COLOMBO
- ② - DEHIWALA- MOUNT LAVINIA.

URBAN COUNCIL

- ③ - SEEDUWA - KATUNAYAKA.
- ④ - JA - ELA
- ⑤ - PELIYAGODA
- ⑥ - WATTALA- MABOLE
- ⑦ - KOT TE
- ⑧ - KOLONNARA
- ⑨ - MORATUWA
- ⑩ - PANADURA
- ⑪ - HORANA

PRADESHIYA SABHA

- ⑫ - KADINA
- ⑬ - WATTALA
- ⑭ - JA - ELA
- ⑮ - KELANIYA
- ⑯ - MAHARA
- ⑰ - BAYBAMA
- ⑱ - KOT TELAWATTA - MULLEWYAWA.
- ⑲ - KADUWELA
- ⑳ - MAHARAGAMA
- ㉑ - KESBEWA
- ㉒ - HONAGAMA
- ㉓ - SITAMPAKA (PADUKKA TOWN)
- ㉔ - PANADURA
- ㉕ - BANDARASAMA
- ㉖ - HORANA

EXISTING WATER SERVICE AREAS AND AREAS TO BE COVERED BY ON GOING & PROPOSED PROJECTS

The NWSDB has to pay back the government (Treasury) 50% of the capital cost in a period of 24 years with a 2 year grace period at an interest rate of 12%.

2.2 PROPOSALS FOR EXPANSION, REHABILITATION AND IMPROVEMENT

2.2.1 PROJECTED WATER DEMAND AND PROPOSED SOURCES

The projected water demand estimated on a full development basis in 2020 is about 840,000 m³/d in the Greater Colombo area. The NWSDB has a long term development plan to obtain the above quantity from the existing sources and also from the Kalu ganga.

However, the long term development plan should be reviewed and the demand projected should be verified or corrected. Any change brought in the development plan of other infrastructure facilities and the success in the reduction of unaccounted for water programme will drastically change the future demand.

2.2.2 ONGOING WATER SUPPLY PROJECTS

At present, the following projects are implemented by NWSDB in the Greater Colombo area.

a) JICA Project

Ambatale Water Treatment Plant Rehabilitation Project.

b) OECF Projects

Towns East of Colombo Water Supply Project covering Battaramulla, Talangama, Sri Jayewardenepura Kotte, Kaduwela and Pannipitiya. The total population benefitted in 2010 will be about 350,000.

Towns South of Colombo Water Supply Project covering Keselwatte, Kesbewa, Piliyandala and Homagama. The total population benefitted in 2010 will be about 200,000.

c) World Bank (IDA) Projects (Project III)

Maharagama Water Supply Project. Benefitted population in 2010 will be about 150,000.

Scraping and cement mortar lining of Greater Colombo area Transmission mains and Distribution System.

Reinforcement to the Greater Colombo distribution system mainly in the CMC and Ratmalana areas.

d) **ADB Projects**

Reduction of unaccounted for water in Greater Colombo

2.2.3 PROPOSED WATER SUPPLY PROJECTS

a) **World Bank (IDA) Projects (Project IV)**

Distribution improvement in Greater Colombo.

Extension of the distribution system to Kotikawatte - Mulleriyawa.

Estimated cost of the above components is Rs. 2,000 million.

b) **OECD Project**

Towns North of Colombo Water Supply Project covering Welisara, Kandana, Ragama, Ja-Ela, Mahara and Ekala. The total population to be covered in 2010 will be about 300,000. Estimated cost of the project is Rs. 3,500 million.

2.2.4 LONG TERM DEVELOPMENT PLAN

Considering the population growth, development of residential and commercial areas and expansion of the water supply service area, the Greater Colombo area cannot be supplied with water from the existing sources after the year 2000. Thus development of new water source including necessary production and transmission facilities is required.

As such, a long term development plan (Kalu Ganga Project) has been formulated proposing the Kalu Ganga as the new source. Feasibility Studies carried out revealed that the project is feasible and the project could be carried out in phases as per the water requirement. The plan already formulated consists of two phases and the completion of second phase ensures meeting the year 2020 demand. OECD is considering to finance the Kalu Ganga Project - Phase I - Project cost of the Phase I is estimated at Rs. 14,000 million.

The existing service area and the areas to be covered by the ongoing and proposed projects are shown in the Fig. 2.

2.3 AREAS IN NEED OF ATTENTION

2.3.1 CONSUMER COMPLAINTS

Though the Greater Colombo area is the largest and the best serviced area and investments have been made at regular intervals to improve the service level, the number of issues pertaining to consumer dissatisfaction keeps on increasing and the average daily complaints exceed one hundred.

The complaints are multi - faceted. Some of the common complaints are on high water bills, turbid (muddy), low pressure, delays in connection in certain areas.

According to a records, the high water bills are mainly attributed to internal leaks (both visible and invisible leaks within the house or the compound) in most of the cases.

Muddy water and low pressure are attributed to the old distribution system. This problem could be solved by rehabilitating the existing system.

2.3.2 PROBLEMS EXPERIENCED IN SOURCE PROTECTION

Though the water produced is sufficient to meet the water demand in the existing distribution area of the Greater Colombo water supply system, the following problems are experienced by the NWSDB in producing the above mentioned quantities.

- a) Since there is no co-ordinated effort to protect the catchment of the impounding reservoirs, water becomes poor in quality and quantity of water collected into the reservoirs decreases.
- b) Salinity intrusion into the Kelani river which was aggravated further by sand mining prevented the NWSDB from obtaining the above said quantity during low flow and high tide periods in 1992. This problem may occur in the future.
- c) Effluent emanating from the factories upstream are discharged into the Kelani river. If discharge of such effluents into the river is not controlled, water may get contaminated with undesirable substances which cannot be purified by conventional treatment process. Though CEA and Local Authorities are empowered to take actions against the factories which discharge effluent into public water bodies without any treatment, these agencies are lacking other necessary facilities to take action against the violators of the law.
- d) There is no authority/council to control water abstraction from public water bodies. Arbitrary water abstraction by various agencies affect the quantity of water which could be extracted for water supply.

2.3.3 UNACCOUNTED FOR WATER

Unaccounted for water is assessed to be between 45% and 55% in the Greater Colombo water supply system. As we noted earlier, this is mainly due to leakage, losses and illegal consumption. This percentage could be reduced to as low as 30%, if an effective project is implemented. It is suggested

- a) to implement an appropriate programme to identify and reduce leaks
- b) to take policy decisions in respect of standpost supply, internal plumbing in housing schemes and illegal connections.

However, it has to be noted that the Greater Colombo distribution system is very old and almost all the old GI pipes and some CI pipes in the system are badly corroded. As such the suggested programme will incur high cost and require much resources.

2.3.4 SECONDARY PUMPING IN HOUSING SCHEME

The responsibility of maintaining the secondary pumping arrangements in the housing schemes is not entrusted to any agency.

2.3.5 CO-ORDINATION MECHANISM

Lack of co-ordinated plan for development of infrastructure facilities is a serious problem. No proper co-ordination among the agencies exists during planning & implementation stages and as such optimum benefits are not obtained from many projects.

2.4 SUMMARY OF ISSUES

- a) Greater Colombo area should be defined
- b) Appropriate actions should be taken to reduce the consumer complaints.
- c) Water Sources should be protected
 - Catchment area should be protected from pollution and deforestation
 - Salinity intrusion should be prevented by taking appropriate actions
 - Effluents from factories should be treated prior to discharge into rivers. A monitoring system should be introduced and CEA and LA's should be geared to impose the by laws.

- An authority consisting of one or number of agencies should be formed to look into the water abstraction (both surface water and ground water) and other related issues
 - The cabinet decision on the recommended procedures to be adopted in approving new industries in the Kelani river basin should be extended to Kalu river basin as well.
- d) Percentage of unaccounted for water should be reduced by implementing an appropriate programme and by formulating appropriate policies on community taps, internal plumbing and illegal connections.
 - e) Responsibility of maintaining the internal water supply arrangement in the housing schemes should be entrusted to an agency.
 - f) A co-ordination mechanism and co-ordinated development plan should be recommended in respect of all infrastructure development.
 - g) Criteria should be developed to priorities the projects. All available funds should be identified and investment plans be prepared.

3. SANITATION

3.1 EXISTING SANITATION FACILITIES

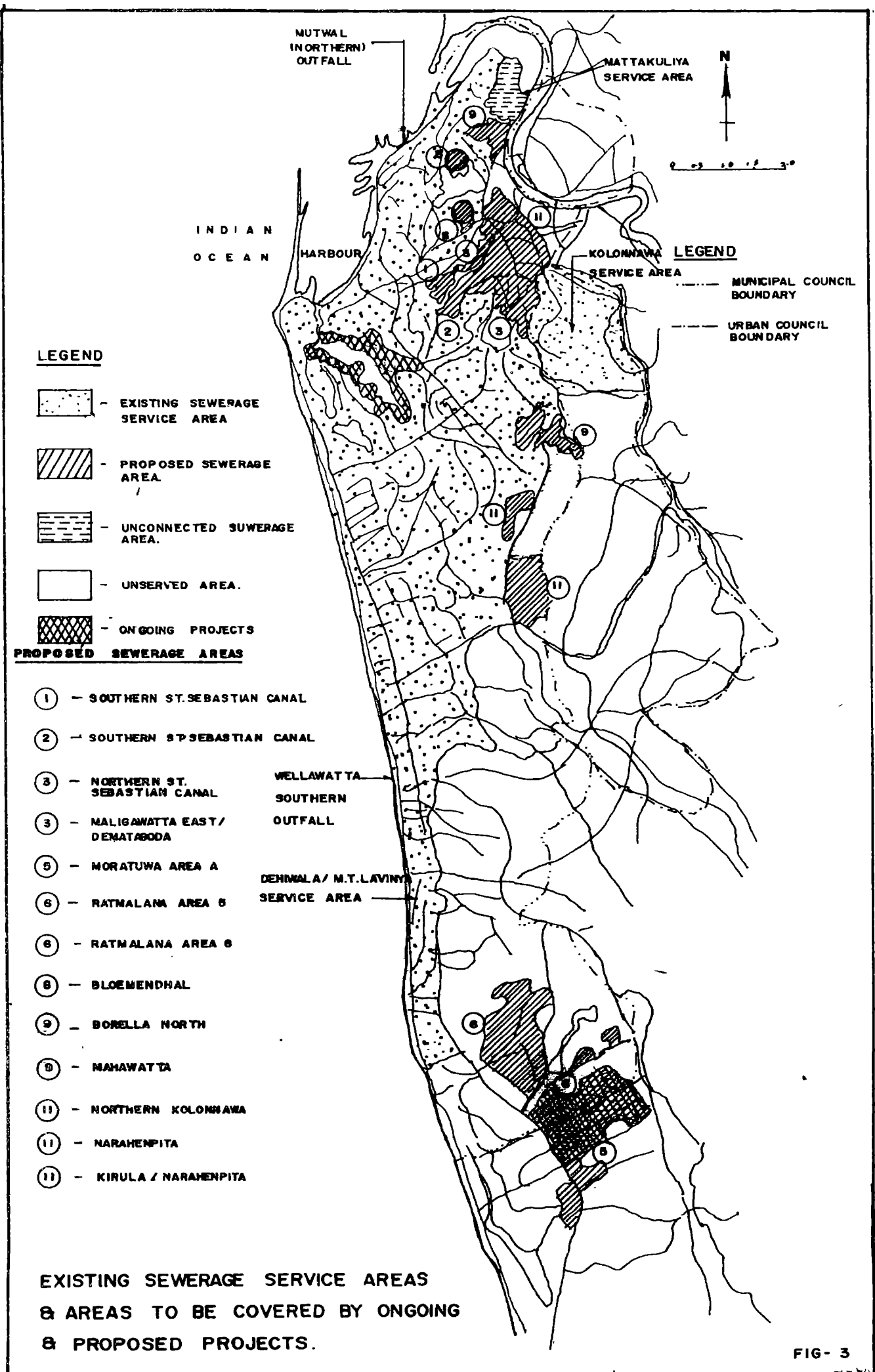
3.1.1 EXTENT OF COVERAGE

Piped sewerage schemes and on-site sanitation facilities are the acceptable sanitation facilities. On-site systems are basically self contained and include various types of pit latrines (dry and water seal types) cesspits and septic tanks. However, the dry pit latrines are not considered as acceptable types.






It was estimated in 1992 that about 19% of the population in the Greater Colombo area was covered by the piped sewers and 59% by on site facilities. The balance 22% has either no or inadequate service.

3.1.2 PIPED SEWERAGE SCHEMES

The only large conventional sewerage system in the Greater Colombo area is the CMC system which extends throughout most of the CMC area, serves a population of about 550,000 and collects sewage from a large number of residential commercial and industrial properties. This system is very old as major part of the system was built between 1906 and 1916. Under the second IDA project, the sea outfalls at Mutuwal and Wellawatte were constructed. These outfalls were commissioned in 1987.



LEGEND

-  - EXISTING SEWERAGE SERVICE AREA
-  - PROPOSED SEWERAGE AREA
-  - UNCONNECTED SUWERAGE AREA.
-  - UNSERVED AREA.
-  - ONGOING PROJECTS

PROPOSED SEWERAGE AREAS

- ① - SOUTHERN ST. SEBASTIAN CANAL
- ② - SOUTHERN ST. SEBASTIAN CANAL
- ③ - NORTHERN ST. SEBASTIAN CANAL
- ③ - MALIGAWATTA EAST / DENATAGODA
- ⑤ - MORATUWA AREA A
- ⑥ - RATMALANA AREA 6
- ⑥ - RATMALANA AREA 6
- ⑧ - BLOEMENDHAL
- ⑨ - BORELLA NORTH
- ⑨ - MAHAWATTA
- ⑪ - NORTHERN KOLONNAWA
- ⑪ - NARAHENPITA
- ⑪ - KIRULA / NARAHENPITA

EXISTING SEWERAGE SERVICE AREAS & AREAS TO BE COVERED BY ONGOING & PROPOSED PROJECTS.

Sewers were laid under the above IDA project and connected to the system in part of Kolonnawa, part of Dehiwala/Mt. Lavinia; however the sewers in part of Mattakkuliya are not yet connected to the system.

There are small independent systems serving the industrial estates at Katunayake, Biyagama and Ekala and institutions and housing schemes scattered in the area. Some of such schemes are the sewerage schemes for Soysapura housing scheme and Mattegoda housing scheme.

Present institutional arrangements for management of sewerage schemes are as shown below.

Sewerage Scheme	Owner	Managed by
1. CMC Sewerage Scheme	CMC	CMC
2. Kolonnawa Sewerage Scheme	NWSDB	NWSDB
3. Dehiwela - Mt. Lavinia Sewerage Scheme	NWSDB	NWSDB
4. Katunayake EPZ	BOI	NWSDB
5. Biyagama IPZ	BOI	NWSDB
6. NHDA Housing Schemes	NHDA	NWSDB

The CMC sewerage scheme will be taken over by the NWSDB in January 1996. However, the CMC will continue to manage the system for an interim period on a service contract with the NWSDB.

Financial arrangements for the operation and maintenance of the sewerage scheme are as follows.

- | | | |
|---------------------------------------|---|-----------------------------|
| 1. CMC | - | Assessment tax revenues |
| 2. Kolonnawa and Dehiwela-Mt. Lavinia | - | Government Grant |
| 3. BOI schemes | - | Revenues from sale of water |
| 4. NHDA Housing Schemes | - | Billed to NHDA |

Though the sewerage schemes in the NHDA housing schemes are maintained by the NWSDB at present, it is suggested that the NHDA or an appointed agency should carry out internal maintenance in the future.

All capital cost of the sewerage projects in the past were borne by the government. The lending terms for the future projects are not yet decided.

3.2 PROPOSALS FOR EXPANSION, REHABILITATION AND IMPROVEMENT

3.2.1 ONGOING SEWERAGE PROJECTS

a) Colombo Environmental Improvement Project

Major sewerage components of this project which are implemented by the NWSDB are :

- Rehabilitation and expansion sewer network for Beira Lake catchment area.
- Laying sewer network for Ratmalana/Moratuwa and Ja-Ela/Ekala area.
- Construction of sewage treatment plants for Ratmalana/Moratuwa & Ja-Ela/Ekala area.

In addition to the above sewerage components, the project consists of

- Solid waste disposal arrangement implemented by CMC
- Restoration of Beira Lake and development of Beira Lake catchment area implemented by UDA

3.2.2 FUTURE PROGRAMME

Greater Colombo Wastewater and Sanitation Master Plan carried out in 1993 has proposed a programme consisting of

- a) Rehabilitation of the existing facilities
- b) Expansion of the system into adjacent priority areas
- c) Feasibility study for identifying and removal of overflows and stormwater drainage connections
- d) Institutional arrangement for sewerage management

Estimated cost of the above programme is about Rs. 4,000 million.

The Fig. 3 shows the existing service area and also the area to be covered by proposed projects.

3.3 AREAS IN NEED OF ATTENTION

3.3.1 PRESENT PROBLEMS IN SEWERAGE SCHEMES

- a) Appropriate policies are not formulated with respect to cost recovery and maintenance.
 - Users of the piped sewerage schemes are not directly charged at present. Users are not encouraged to bear the O&M cost for effective operation of the system.
 - Though the NWSDB maintains the sewerage schemes in some of the NHDA housing schemes, the NWSDB does not get the O&M expenses. Responsibility for internal maintenance of these sewerage schemes has not been entrusted to an agency.
- b) Technical problems continue to exist in the existing system.
 - Sewer overflows and stormwater inflow into the sewerage system are major problems.
 - Most of the sewers are dilapidated and debris & sands get deposited in these sewers. Some items of plant and machinery in the system are either out of order or malfunctioning.
 - Capacity of sewers is insufficient even to cope with the present flow in some areas.
- c) The existing system is to be expanded to adjacent areas while the system capacity is not sufficient to cater for the present service area.
- d) Necessary equipment and maintenance infrastructure are not available.

3.3.2 PRESENT PROBLEMS IN ON-SITE DISPOSAL

- a) Facilities do not operate properly due to poor design, construction, incompatible soil condition, high water table and overloading. This is very critical in reclaimed land.
- b) Facilities are not maintained properly and porosity of the soils is reduced.
- c) When the above problems are experienced soakage systems are by passed and the partially treated/untreated effluent is piped directly to adjacent water courses or drains.

3.4 SUMMARY OF ISSUES

- a) Policies
 - A tariff policy should be formulated
 - The agency responsible for internal maintenance of sewerage schemes in the housing schemes should be decided
 - By laws should be introduced to approve the design, construction and maintenance of on-site disposal when any property is developed.
- b) Existing system should be rehabilitated on priority basis.
- c) Existing system should be expanded to priority areas.
- d) More attention should be paid to institutional strengthening for management operation & maintenance of sewerage schemes
- e) The following environmental issues should also be given much attention
 - performance of the sea outfalls
 - pollution in sub urban built up areas
 - facilities required for pretreatment of industrial waste water
- f) Proper solid waste disposal and storm water drainage system should be introduced in the areas where sewerage system exists
- g) A co-ordination mechanism and co-ordinated development plan should be recommended.
- h) All available funds should be identified and investment plans be prepared for rehabilitation and expansion of sewerage schemes. Criteria should be developed to priorities the projects

4. WATER SUPPLY & SANITATION FOR LOW INCOME GROUPS IN GREATER COLOMBO AREA

4.1 EXISTING WATER SUPPLY & SANITATION FACILITIES

4.1.1 TYPES OF LOW INCOME SETTLEMENT

The issues related to water supply and sanitation in the low income group settlements such as squatter settlements, overcrowded tenements and illegal subdivisions in the Greater Colombo area are much different from that of other settlements. As such, it is necessary to study the issues in these settlements separately and not with the other areas.

The low income group settlements in Colombo and its immediate vicinity could be basically divided as follows :

- Slums
- Shanties
- Unserviced semi urban neighbourhoods
- Local authority labour quarters
- Relocated new settlements

It is estimated that about 550,000 people live in such settlements in the Colombo Metropolitan area.

4.1.2 PRESENT SITUATION

a) In Slums, Shanties and Relocated new Settlements

Mostly, common water taps (standposts) are provided. They are very badly maintained. Water is wasted while the tap is not in use and consumption is not metered.

With respect to sanitation, common and individual toilets are provided. However, the number of toilets are inadequate and maintenance of the toilets is very poor.

No proper drainage system exists in the area. Service of garbage collection and disposal system is also very poor.

b) In Unserviced semi Urban Neighbourhoods

Well water is used for drinking and bathing

Individual pit latrines are available but are very unhygienic

No garbage collection system exists. But the necessity does not arise in most cases as there is sufficient land for disposal.

c) **Local Authority Labour Quarters**

All infrastructure had been provided when the houses were given to residents, but they decayed over the time due to poor maintenance. Water supply and toilet facilities are common.

4.1.3 COVERAGE

Uniform system for defining the level of service coverage is not in existence. Greater Colombo Wastewater & Sanitation Master Plan (April 1993) arbitrarily defines the following service levels.

Water Supply

Service Level	No. of people per piped water service
ADEQUATE	50 or fewer
MARGINAL	51 to 100
INADEQUATE	101 to 200
GROSSLY INADEQUATE	more than 200

Sanitation Facilities

Service Level	No. of people per toilet
ADEQUATE	25 or less
MARGINAL	26 to 50
INADEQUATE	51 to 100
GROSSLY INADEQUATE	more than 100

Based on the above definitions the adequacy of water supply and sanitation facilities for the low income groups within Municipal Council areas is estimated. The details are shown below.

Water Supply

Municipal Council					
	Adequate	Marginal	Inadequate	Gross Inadequate	No data
Colombo	88,244 (33.5%)	63,979 (24.3%)	38,745 (14.70%)	30,374 (11.5%)	40,592 (15.4%)
Dehiwela/ Mt.Lavinia	843 (3.7%)	2,177 (9.5%)	3,191 (14.0%)	15,635 (68.5%)	958 (4.2%)
Total	89,107 (31.3%)	66,156 (23.2%)	41,936 (14.7%)	46,009 (16.15%)	41,550 (14.6%)

Sanitation Facilities

Municipal Council					
	Adequate	Marginal	Inadequate	Gross Inadequate	No data
Colombo	26,753 (10.2%)	67,012 (25.6%)	69,294 (26.4%)	56,602 (21.6%)	42,273 (16.1%)
Dehiwela/ Mt.Lavinia	6,002 (26.3%)	4,535 (19.9%)	4,640 (20.3%)	7,647 (33.5%)	-
Total	32,755 (11.5%)	71,547 (25.1%)	73,934 (26.0%)	64,249 (22.5%)	42,273 (14.8%)

4.2 ONGOING PROJECTS FOR IMPROVEMENT OF THE FACILITIES

a) UNICEF assisted Urban Basic Services Programme

This programme has a target of assisting 28,000 low income facilities in low income group settlement areas in 14 Municipalities to improve sanitation conditions during the period 1997 - 2001.

b) Coastal Line Relocation Programme

NHDA expects to relocate 1100 families presently squatting on the sea shore spending Rs. 475 million during the period 1995 - 2000.

c) Public Utilities Crash Programme

This is a programme started in late 1994 to attend urgent infrastructure needs of neglected low income group settlement areas in Colombo and surroundings. Annual allocation is Rs. 15.0 million. So far 110 low income group settlements have been served through the programme.

d) CAB Programme

Under the UNICEF assisted Urban Basic Services Programme CAB has built common toilets in the low income settlements and the existing ones repaired. Water standposts were provided. This has later transferred local authorities and now continuous in a reduced scale.

e) Resettlement of low income families under SLLRDC Environment Improvement Programme

Under this SLLRDC is in the process of resettling 6750 families and providing infrastructure as follows;

	Planned	Built
Toilets	1123	428
Standposts	674	203
Garbage bins	225	69

f) Clean Settlement Project (Western Province)

Objective of the clean settlement project is to develop the planning management and investment capacities of low income settlers through implementing Community Based Infrastructure Projects.

Total estimated cost is US \$ 15.0 million and the project preparation is still in progress.

This will address 200 low income settlements in the Western Provincial Council area, covering 20,000 families.

g) Low Cost Sanitation Project (Greater Colombo area)

This is a component of 3rd water supply project of NWSDB. Objective of the project is to provide safe sanitation facilities to nearly 15,000 families (low income) IDA contributes 1/3 rd of the construction cost.

4.3 AREAS IN NEED OF ATTENTION

- a) Tenure and legal ownership problem reduces the investment on water supply and sanitation facilities by the households.
- b) Most of the programmes implemented by the government in the past to solve the water supply and sanitation problems in these areas were supply driven and not demand driven. The aspects of cost recovery and cost sharing were not taken into consideration in the past.
- c) Many agencies are working in this area; However, no proper co-ordination exists. On certain issues records and data are not available.
- d) The rate collection on water consumption is very poor according to NWSDB.
- e) Beneficiaries are not educated/trained on O&M aspects of the water supply and sanitation systems provided. Therefore they depend on Government Agencies/Local Authorities on O&M matters.
- f) Capacity of local authorities is inadequate for assisting low income families.
- g) No proper health/hygiene education programmes and community mobilization activities on promoting community participation/contribution towards water supply and sanitation improvements in low income areas are organized.

4.4 SUMMARY OF ISSUES

- a) Uniform Policy should be formulated in respect of the low income group settlement programme, land ownership and cost recovery.
- b) Proper co-ordination mechanism should be recommended in respect of infrastructure development.
- c) Community participation should be encouraged during the entire project cycle.
- d) Health education should be included in water supply & sanitation programme.
- e) Role of local authorities should be defined.



NATIONAL SECTOR CO-ORDINATION PROGRAMME

SUB-SECTOR COMMITTEE ON OTHER URBAN AREAS

Position Paper No. 2

submitted to the
**FIRST NATIONAL CONFERENCE OF
THE WATER SUPPLY & SANITATION SECTOR**

B M I C H 20th December 1995

Ministry of Housing, Construction & Public Utilities

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ABBREVIATIONS

ADB	Asian Development Bank
CBO	Community Based Organization
CEA	Central Environmental Authority
GOSL	Government of Sri Lanka
MC	Municipal Council
ICTAD	Institute for Construction Training and Development
IDA	International Development Agency
NAITA	National Apprentice & Industrial Training Authority
NSCC	National Sector Coordination Committee
NWSDB	National Water Supply & Drainage Board
O&M	Operation and Maintenance
PO	Partner Organization
PS	Pradeshiya Sabha
SLLRDC	Sri Lanka Land Reclamation & Development Corporation
UC	Urban Council
UDA	Urban Housing Development Authority
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WB	World Bank
WHO	World Health Organization

1. INTRODUCTION

The Government of Sri Lanka (GOSL) has adopted generally sound guidelines to develop the water supply and sanitation sector but a number of issues remains to be resolved. Detailed strategies need to be operational to achieve the national goal of full coverage of water and sanitation in the year 2010. This report highlights a number of issues related to the water supply and sanitation sector, in particular limited to the urban areas in the country.

2. CO-ORDINATION AND MANAGEMENT OF THE SECTOR

2.1 STATUTORY FUNCTIONS AND INSTITUTIONAL RESPONSIBILITIES

The sector responsibilities are divided among many sector agencies and different institutions are involved in the sector at various levels with many functions. These functions may be mainly categorized as;

- Need Identification
- Need Assessment
- Investigation
- Implementation
- Scheme Operation & Management
- Billing & Collection
- Human Resources Development
- Rehabilitation/Augmentation

Several institutions are involved at the same service level, have the same functions and often address the same target group in the urban areas. This complexity at all levels indicates the lack of rational sector administration related to the urban sub-sector. Perhaps these may be indications of poor national level coordination, as well.

Specially in the urban sector many specialized organizations such as National Water Supply and Drainage Board, Water Resources Board etc; could utilize their knowledge more appropriately manner with improved coordination.

Divided responsibilities among the many institutions have resulted in variations in the level and quality of service throughout the country in the urban sub-sector. Proper distribution and adequate skills with uniform standards would help ensuring sustainability in the urban sector. Several institutions undertook to enhance institutional capabilities in the urban sector, sometimes with donor assistance. Some other institutions are not concerned at all with this aspect.

2.1.1 RESPECTIVE KEY AGENCIES IN THE URBAN SECTOR ARE AS FOLLOWS

- Ministry of Housing, Construction & Public Utilities
- National Water Supply & Drainage Board
- Ministry of Health
- National Housing Development Authority

- Town & Country Planning Department
- Urban Development Authority
- Mahaweli Authority
- Water Resources Board
- Irrigation Department
- Board of Investment (BOI)
- Central Environmental Authority
- Provincial Councils
- Urban Local Authorities
- Ministry of Education
- NGO Water Supply & Sanitation Decade Service

Ministry of Housing Construction and Public Utilities

The Ministry of Housing Construction and Public Utilities (M/HC&PU) is responsible for the development of human settlements, land reclamation, and the construction industry. This includes the provision of water supply for public, domestic and commercial purposes; and adequate sewerage and drainage systems.

National Water Supply and Drainage Board (NWS&DB)

The National Water Supply and Drainage Board (NWS&DB) has been the key actor, by far the strongest, in water supply for urban areas. Most of the professional expertise in this sub-sector is with the NWSDB.

Ministry of Health

The Ministry of Health (MOH) is responsible for the implementation of sanitation and health education in the urban areas and activities related to public health. MOH further carries the responsibility to inspect water supply, refuse disposal and pollution of the immediate environment. Primary health care has been the main role of the MOH.

National Housing Development Authority

The National Housing Development Authority (NHDA) is developing housing schemes mainly in urban areas. This institution is not directly involved in the sector but plays an important role in generating demand. NHDA obtains the required water supply and sanitation services for their settlements or housing schemes from the NWSDB.

Town and Country Planning Department

This department is today planning new town development schemes. Due to the lack of experience in the local administrations, the department has undertaken an implementing role in certain urban areas.

Urban Development Authority

The Urban Development Authority (UDA) has the mandate to support the local authorities and to promote development plans, develop action plans for Government capital investment programmes, develop land use policy and planning structures, and to provide technical assistance to Government Agents.

Mahaweli Authority

The Mahaweli Authority is responsible for all development activities including water supply and sanitation within irrigation settlements under their purview.

Water Resources Board

The Water Resources Board is next to the NWSDB, the major agency involved in ground water exploration and provides its expertise to several sector agencies.

Irrigation Department

This department plays the role of an important sector actor in terms of claiming water for irrigation purposes. They maintain hydrogeological inventories for all surface water sources in the country.

Board of Investment

Board of Investment (BOI) has a special responsibility for promoting foreign investments and for supporting industrial development within the country in specific locations in the whole island. BOI executes the role of the UDA in selected limited areas where there are particular industrial interests. This institution extends financial support for the provision of water supply and sewerage services to the industrial development areas it helps to establish.

Central Environmental Authority

The Central Environmental Authority (CEA) in particular relates to the urban sub-sector and is responsible for water pollution control, for quality surveillance of water resources and formulation of pollution control policies and standards.

Provincial Councils

The Provincial Councils (PC) are required as per their mandate, to produce and distribute water. Most of the PCs at present have no technical and institutional capacity for such responsibilities.

Urban Local Authorities

The Urban Local Authorities (ULA) are divided into municipal councils (MCs) and urban councils (UCs). Each will be responsible for development and operation of all infrastructure activities in their respective urban areas. Water supply and sanitation schemes under ULAs are planned, designed, implemented and also very often operated by NWSDB.

Ministry of Education

This institution is conducting sanitary, hygiene and health education through the school curriculum and provides sanitary latrines and safe drinking water at the schools.

NGO Water Supply and Sanitation Decade Service

This umbrella NGO represents a range of NGOs working in rural and peri-urban water supply and sanitation. It disseminates information on technical matters and project activities among its members.

2.2 LIMITATIONS OF THE URBAN AREA

Presently the urban areas are restricted to the urban local authority administrative boundaries. However this limitation does not clearly reflect the real urban areas in many instances in Sri Lanka. For example a densely populated urban centre such as Maharagama is still considered as a Pradeshiya Sabha whereas a very small town centre like Haputale is categorized as an urban local authority. Many suggestions brought forward for demarcation of the ULAs and PSs are still without a proper decision.

2.3 INSTITUTIONAL DEVELOPMENT

The major challenge is to develop an institutional framework for the urban sub-sector that would make it possible for a designated agency to take charge of the sector. There would be room for several actors under the auspices of this lead agency to play their role in planning, guidance and information exchange. The urban sector institutional framework is fairly established in the country whereas rural sector is in a transitional stage after the creation of pradeshiya sabhas. However improved coordination and classification of legislative matters will streamline the urban sector coordination and administration. Further, individual institutions need to clearly specify their own operational procedures with investment policies, establish systems to generate management information and share their experience with other actors in the urban sub-sector.

2.4 IMPLICATION OF LAND OWNERSHIP

The Government has a general jurisdiction over the entire land in the country. In administrative terms, however, the ability to execute powers varies with land ownership, and is to some extent also influenced by special programmes. The Government has more powers to regulate activities in lands belonging to the state. The process of land acquisition by the Government, involves a substantial time period with highly complicated procedures. These in-turn affect sector development. Delays and failures in acquisition result has cost implications resulting in lesser benefits specially for the urban sector development programs.

2.5 DATA AND DEVELOPMENT PLANS

Lack of development plans and non-availability of planning tools such as utility maps and survey maps covering the entire island and up-dated population data and statistics are hampering planning activities. Thus, the comprehensiveness and scope of many development projects is affected. This also affects the prioritization of service areas in the entire island. National programmes have not been initiated yet to address this requirements.

Revitalizing present data bases and prioritizing their functions are necessary to ensure proper record keeping and accessibility of the data to the planners in water and sanitation sector. Such database development should cover records on construction, operation and maintenance, etc.

2.6 INTER SECTORAL COORDINATION

The urban sub-sector water supply and sanitation is complex in itself due to the complementarity of the respective interventions. Multiple actors are entrusted often with overlapping and incomplete responsibility demarcations. This is partly recognized by the key actors, but has not resulted in the necessary coordination and cooperation. Even the distinction between policy makers and the implementors is not well-defined.

No proper mechanisms have been developed for the coordination among the actors to achieve the objectives of the sector. The national planning system provides some coordination for certain GOSL actors but not so much on policy matters. Various agencies operate in the urban sector development activities independently. For instance, the recently established Board of Investment allocates financial provision for the water supply and sanitation in selected areas without proper coordination with other sector agencies. The role and investments of the NGOs operating in the urban sector is also unknown in the context of sector development.

In relation to the sector objectives another critical area is to ensure integration at the user level of the respective expertise that remain vested with different actors operative in the urban sub-sector (eg. health education remains with Ministry of Health)

3. WATER RESOURCE MANAGEMENT

3.1 DATA AND INFORMATION

The water sector in Sri Lanka is data-rich but information-poor. Large quantities of data have been and are being collected in the sector, but activities are not well-coordinated and the resulting data may not be readily accessible. With the focus turning from development of projects to operation and maintenance, from large-scale to small-scale schemes, and from water quantity to quality issues, there is a need for a refocussing of data acquisition and their use in sector information products. Existing data collection programmes must be reviewed to ensure that they can meet future information needs. More efforts are certainly required, on a nationwide basis, to monitor quality and quantity of ground water and surface water, water use, and various baseline data. The reviews should be carried out by the water sector agencies themselves, with extensive consultation with users and other providers. To ensure coordination among agencies, the NSCC and the coordination committee for irrigation management should be involved in the exercise. A comprehensive review should be carried out on the existing water related databases. An integrated approach must be made to avoid incompatible choices being made by individual agencies, which will restrict future opportunities for data inter-change.

3.2 COMPETING AND CONFLICTING DEMANDS

There are now a growing number of water resources where competing and conflicting water uses are experienced. The competing demands are not restricted to large scale use by major development authorities. Other factors such as, insufficient yield during the dry season and severe resistance from downstream communities, using water for paddy cultivation, also contributes to similar conflicts.

3.3 WATER RIGHTS AND RELEVANT LEGISLATION

Various acts and ordinances have a bearing on water shed management, but these are of a more indirect nature with regard to actual water use. Specific legislation regulating water abstraction and use for competing purposes, including as a recipient of effluent, has not been adopted. This has resulted in an unclear legal framework with difficulties of enforcement where problems have occurred specially in the heavily industrialized urban areas.

4. COVERAGE AND SERVICE LEVEL

4.1 LEVEL OF SERVICE AND QUALITY

Discrepancies in the coverage for the urban sector statistics have been observed due to various definitions adopted by sector agencies for service levels. No proper mechanisms and improved programmes are available to monitor quality of water in the urban sector.

4.2 PRESENT COVERAGE

4.2.1 WATER SUPPLY

At the commencement of the United Nation's International Drinking Water Supply and Sanitation decade in 1981 an estimated figure of around 67% of the total Sri Lankan population had some access to an acceptable form of potable water supply facilities. In urban areas piped water supply systems are categorized as acceptable water supply facilities. Urban coverage rose up to 75% except of the Northern and Eastern provinces in 1992 and 87% of urban population (except Greater Colombo) was served with acceptable form of a water supply facility. Water supply coverage in urban areas are shown in annexure 1 and 2 graphically.

4.2.2 SANITATION

The coverage details for sanitation, defined as excreta disposal facilities, are less reliable than for water supply. Sewerage facilities exist only in Colombo and Kataragama in addition to a few large scale housing schemes, hospitals in Colombo and suburbs and investment promotion zones under BOI purview. Therefore most of the other urban dwellers make use of on-site sanitation. The sanitation coverage in the urban areas are graphically shown in annexure 3 and 4.

5. SECTOR FINANCE & ECONOMY

5.1 DONOR ASSISTANCE AND INVESTMENT LEVELS

The NWSDB as the most significant actor in the sector is responsible for the major investments with donor assistance for the sector development for the past. The investments levels by the other actors, mainly Mahaweli Authority and Ministry of Health have been observed to a much lesser extent. The sector investment levels including the donor assistance, for 1992 and 1993 are shown in the table for both urban and rural sectors. (The financial data of the NGO's are not available.)

Water Supply and Sanitation Investments in Urban Sector

Description	(Rs. Millions)	
	1992	1993
Water supply	858	882
Sanitation	32	48
TOTAL	890	930

Source : Water and Sanitation Related Information - 1992/1993
UNICEF/NWS&DB (1992-excludes North and East)

5.2 INVESTMENT PRIORITIES

Investment policy, cost recovery and degree of beneficiary participation in the urban sub-sector is not uniform and not well defined. This has resulted in many ambiguities within the urban sub-sector. It is urgently required to ensure uniformity in investments in the urban areas with a view to achieve the desired coverage in the urban sector.

5.3 COST RECOVERY

The present Government financial strategy towards the consumer is that cost recovery is only made from piped supplies through the tariffs. There is no proper cost recovery on many other types of technology except the up-front community contribution, in cash and in kind. The cost recovery is on a unique tariff for the NWSDB-maintained water supply systems and there is no proper tariff systems for the Local Authority- maintained piped schemes. In both systems the total costs including O&M and the investment costs can often not be recovered with the present tariff structures. To pay for the overall running costs the NWSDB provides cross subsidies from Colombo to its other urban piped supply systems.

6. WATER AND SANITATION TECHNOLOGY

6.1 TECHNOLOGY APPROACH

The level of technologies used in water systems determines the reliability with respect to the quality and quantity for a given water source. The number of safe barriers and treatment steps increases the quality of water (full treatment/partial). Safety factors applied in designing transmission mains and storage and criteria used for structural designs determine the degree of reliability of the system in relation to investment and recurrent costs. It is desirable to find the optimum appropriate technology option attuned to the level of service, affordability and willingness to pay of the urban community under consideration. One of the drawbacks seen in the programme is dumping of unmanageable and sophisticated technologies under commercial funding arrangements influenced by vested interests. Therefore, there is an urgent need for inter-agency agreement and coordination mechanisms on using appropriate technologies and sharing new innovations within the country.

Also, with the standardization of the designs used in the system, it may be possible to simplify the implementation process, at least cost. At the same time the capacity within the country to handle implementation on a larger scale would be increased.

Presently in the urban areas (excluding Colombo) individual water-sealed latrines are the only option for excreta disposal. The bucket-type of latrines used in some urban areas has gradually been phased out from the sector. Presently in all the areas water-sealed latrines with septic tanks or pit has become the only technical option.

However, with the rapid growth of the population and the decrease of the minimum land requirement for a building block to 6 perches and the increasing construction of high rise buildings, sewage disposal is becoming increasingly problematic in other urban areas.

Unplanned development has aggravated the sanitation situation in some urban areas. Management of sanitation is becoming extremely expensive (use of gully emptier on frequent basis) or environmentally extremely hazardous (raw sewage discharged to nearby drain, lake or stream).

This situation calls for strict considerations in future developments and inter-agency coordination mechanisms to arrive at least cost solutions with involvement of urban planners, local authorities and other sector agencies.

6.2 STANDARDIZATION OF MATERIAL AND EQUIPMENT

The quality of the material and equipment used in the country within the sector also determines the system reliability in the longer run. The material and equipment required for development activities should be properly checked for performance and durability.

Weak quality control mechanisms has resulted in a flooding of the market with substandard material. There is a need to streamline the testing capacities available within the country and a more strict quality control at the market level by the Institutions of Standards.

Stringent government financial procedures reduce the possibility of equipment standardization which in turn pave the way for poor quality products in the market. The situation is further aggravated by the non-availability of performance records of technologies based on effective maintenance practices. Poor after sales services have been observed very often due to lack of quality brands and authorization of suppliers. Donor-assisted programmes have introduced new technologies to the country which cause operational and after-sale service difficulties.

7. HUMAN RESOURCES

7.1 HUMAN RESOURCES REQUIREMENTS

The skill level of the human resources available to the water and sanitation field is directly affecting the quality of service to the recipients of the facilities. Quality of design, execution and functional service makes it imperative to develop technical, managerial, social and financial skills at different grades in all the agencies engaged in water supply, sanitation and sewerage.

In view of the growing importance of the private entrepreneur in sector development, skills development for the private sector has also become an important factor in ensuring quality services to the end user of the facility. Human resources development for the private sector encompasses the few skill grades operating on a small scale and on an individual basis, as well as the major and medium level contractors and consultants operating in a much more organized manner.

In the sanitation sector where the water-seal latrines is the only option in the urban areas, the required human resources are limited.

7.2 AVAILABLE TRAINING FACILITIES

The National Water Supply and Drainage Board has its own manpower development section which caters to the training requirements within the organization. This section carries out a human resource development programme supported by various donors and with NWSDB's own funding, aiming at skills development of the various segments of NWSDB employees. The unit also covers periodic training programmes for the technical staff of the urban local authorities.

The Department of Health has a well equipped training centre at Kalutara to cater to the training needs at the supervisory level. There are 3 more training centres in various parts of the island to cater to the skills development at the implementation level. With donor funding the department of Health provides periodic in-house and foreign training to different segments of its staff. However, sanitation is only one of the 17 items under the purview of public health which covers a wide spectrum of subject areas.

The other institutions catering to the human resource development in the sector could be categorized as follows:

- a. Universities (for engineers/managers)
- b. Technical Colleges } technicians/craftsman
- c. NAITA } "
- d. Foreman Training Institute of the Labour Ministry (technicians)
- e. ICTAD (engineers/technicians/craftsman/contractors)

The volume of human resources development activities handled by these training centres are not adequate to meet the sector objectives in planning, execution and O&M.

8. OPERATION & MAINTENANCE

8.1 PRESENT STATUS OF MAINTENANCE

Poor and inadequate maintenance becomes quite a serious issue for urban water supply where breakdowns in piped water supply schemes directly affect the consumers. Lack of technical know how and institutional capabilities specially in the urban local authorities, causes premature deterioration of the water supply systems resulting in additional costs for rehabilitation.

Urban water supply schemes are either maintained by NWSDB or by local authorities. The divided responsibilities among the two parties in certain schemes create problems in the operation and maintenance. Constraints on the initial investments often leads to the design of pumped schemes. Considering the operational constraints of such schemes, the consequences of the combination of initial investment and O&M cost should be carefully evaluated, when deciding on technology options.

The community approach for maintenance has successfully been tried recently by NWSDB in urban schemes. The concept has not yet been fully explored within the context of all water supply schemes. Also the criteria and guidelines for delegation of O&M responsibilities and the level of resource requirement have not been developed specially in schemes maintained by the local authorities.

8.2 METERING AND UNACCOUNTED FOR WATER

Most of the schemes maintained by the urban local authorities are not fully metered. Particularly, in urban communities water is provided through the stand pipes and the supplies have not been properly quantified. Unaccounted for water reflects higher figures in many schemes although recent corrective efforts have resulted in considerable reductions in unaccounted for water in certain urban supplies.

9. WASTE DISPOSAL

9.1 SOLID WASTE

Inadequate solid waste disposal and management systems have caused a number of direct problems for urban residents. The environmental problems have also indirectly been caused by poor waste disposal practices. Major issues in solid waste management are (a) promotion of disease transmitting vectors, (b) contamination of surface and ground water sources, (c) air pollution.

9.2 STORM DRAINAGE

Land development in urban areas results in increasing run-off volumes within shorter periods. The storm drains have been developed as a part of other development in the urban areas (roads, housing, industries, etc) and there is no consistent mechanism for upgrading the storm drainage. With the increased land reclamation programmes more attention is required for improved drainage. The key problem has been the lack of clearly identified responsibility for drainage.

10. SOCIAL CONSIDERATIONS

10.1 AFFORDABILITY

Affordability by the recipients is the key factor governing the level of service. The three categories of consumers for the pipe borne water supplies are (a) economically better off house holds, (b) commercial establishments having individual connections and (c) low income level stand-post users. In social terms international research indicates that spending for water and sanitation should not exceed 4% of the monthly income of an individual family.

In the Sri Lankan context this affordability level is within the limits. On the other hand, cross subsidies from the commercial sector have to be minimized, reducing the gap between commercial and household users, in the tariff systems.

The scarcity of water in a particular area plays a major role in establishing how much people would be prepared to pay and so the affordability level of a particular community which depend on the priority it attaches to good water and sanitation among other requirements of daily life.

It appears that some institutions pay very little attention to the affordability of the recipients and so end up with non-viable water systems. The need to establish a proper policy on the affordability and willingness to pay before implementing water and sanitation schemes, is clear.

10.2 COMMUNITY MANAGEMENT

Community involvement in the urban programmes has shown positive results, helping the executing agencies and increasing the sense of belongingness. The formation of consumer societies for the maintenance and prevention of wastage out of the stand posts in the urban water supplies rehabilitated under the Asian Development Bank assisted Sri Lanka Water Supply & Sanitation Programme has achieved great success.

In urban settlements due to the complexity of the society it may perhaps be difficult to ensure the same degree of community participation as in the rural areas. However it is important to involve the recipient community in planning, implementation and maintenance for new investments.

During the operation and maintenance phase the community based organizations (CBO) could effectively be involved for the smooth functioning of the system. In urban water supply the community based organizations could play a vital role in regulating the level of service. Today, there are good examples of how rate payer's associations play the role of a regulator in the system very effectively.

10.3 WOMEN'S PARTICIPATION

Increased women's participation for community involvement has shown effective results in a number of areas in the urban water supply and sanitation sector. As urban women perform prominent roles in water collection, domestic use of water, family hygiene promotion and child care, their inputs in the planning of schemes is important.

The sub-sector lacks adequate strategies for community participation. The total involvement of women has not been evaluated. A high degree of women's participation in the urban areas for development activities has been observed. No particular fields or tasks where women's participation is important, have systematically been identified nor consideration given to positive discrimination. If the latter would be the case, more women would be able to venture into formal positions of influence. Guidelines, planning procedures and training in the development process could easily be formulated so that more involvement of women would be encouraged.

10.4 HEALTH EDUCATION

The Department of Health Services in the Ministry of Health carries out this activity through its public health staff. The public health staff posted at various local authorities in urban areas are linked-up with the Ministry of Health to provide health education to the relevant communities. The Health Education Bureau of the Ministry of Health plays a facilitator role in this respect by ensuring effective health education within the country by developing health education materials and necessary guidelines. The institution also provide services at national level through the media. Teaching of hygiene as a subject in the school further helps the younger generations to learn better hygiene habits and this has become an effective means of health education.

Some water and sanitation programmes run their own hygiene education programmes without utilizing mechanisms and resources already available in the country. The challenge here is to see how best the existing machinery of the Department of Health Services and Department of Education be coordinated and utilized to make hygiene education more meaningful and effective for the community on a continuous basis.

11. SUMMARY OF ISSUES

COORDINATION AND MANAGEMENT OF THE SECTOR

- Lack of clear responsibilities or overlapping of responsibility with multiple actors.
- Lack of proper mechanisms for coordination among actors to achieve the objectives in the sector.
- Lack of clear definition or guidelines to demarcate the urban areas.
- Lack of development of an institutional framework for the urban sub-sector that makes it possible for a designated agency to take charge of the sector with respect to investments and operations.
- Constraints and complex procedures involved in the transfer of land ownership during the development activities.
- Lack of development plans, planning tools and updated data, impede the planning process limiting the services and prioritization criteria.

WATER RESOURCES MANAGEMENT

- Non availability of adequate hydrogeological maps and inventories for optimum utilization of ground water
- High pollution levels in water resources caused by industrial effluent discharges and human settlements without proper treatment.

- Inadequate legislation and the lack of institutional enforcement machinery to resolve conflicts of competing and snow-balling demand for water, in particular its abstraction from natural sources.
- Insufficient planning procedures and enforcement mechanisms for optimum use of the water resources.

COSTS AND FINANCE

- Investment policy and priorities are not well defined.
- No equity in the investments for water supply and sanitation.
- Absence of adequate cost recovery mechanisms leads to poor operation and maintenance and future investments for augmentation/rehabilitation.
- NWSDB maintained urban piped water supply systems are operated with cross subsidies.
- High tariff structure for commercial/institutions to provide cross subsidies to domestic users.
- Impact on costs with high unaccounted for water levels.
- Low priority of investment in the sanitation sector.

WATER & SANITATION TECHNOLOGY

- Lack of standardization and quality assurance impacts negatively on long-term costs and sustainability.
- With improved more water-consuming excreta disposal technologies and increasing population, on-site waste disposal practices become inadequate.
- Lack of procedures for authorization of supplies and government barriers on procuring quality brands of water supply and sanitation equipment.
- After sale services and maintenance problems with equipment imported under some donor conditions.
- Mechanisms have not been developed to identify research requirements and subsequent dissemination of information to sector actors in the urban sub-sector.
- Need to review current practices adopted for solid waste collection and disposal practices.

HUMAN RESOURCES

Due to the complexity of the institutional structures presently many human resources are wasted or not properly used or little skill-development take place. This has duplicated investments and also resulted in waste of available resources.

Secondly the new investments are made haphazardly without proper assessment of the available human resources. This has resulted in competition among different

institutions in the sector with varying perks or low quality achievements at the end.

Therefore, this calls for an integrated natural approach for human resource development addressing the following immediate and future requirements, in the water and sanitation sector in the country.

- Lack of assessment of total human resources requirements at the national level for various segments considering present operations and future investments and developments.
- Lack of a co-ordination mechanism linking different training institutions with the assessment of the present training capacity and future growth in the sector
- Lack of a mechanism to grade and register the private entrepreneur and formerly recognizing their involvement in development.

OPERATION AND MAINTENANCE

- Due to lack of technical know how and institutional capacities urban supplies deteriorate prematurely resulting in additional costs for rehabilitation.
- Lack or clear demarcation of responsibilities without clearly defined maintenance policies.
- Lack of consideration for the operational constraints in the process of selection of technology options.
- Lack of community approaches in urban programs.
- Difficulties in establishing preventive maintenance procedures with high priority.
- Lack of metering systems to quantify the supplied water in urban water services.
- Lack of well developed strategies to improve the high UFW figures.

SOCIAL CONSIDERATIONS

- Lack of priority given to willingness to pay and affordability.
- Low degree of involvement of the community in the urban sector.
- Lack of coordination between various health education programmes in the urban areas.

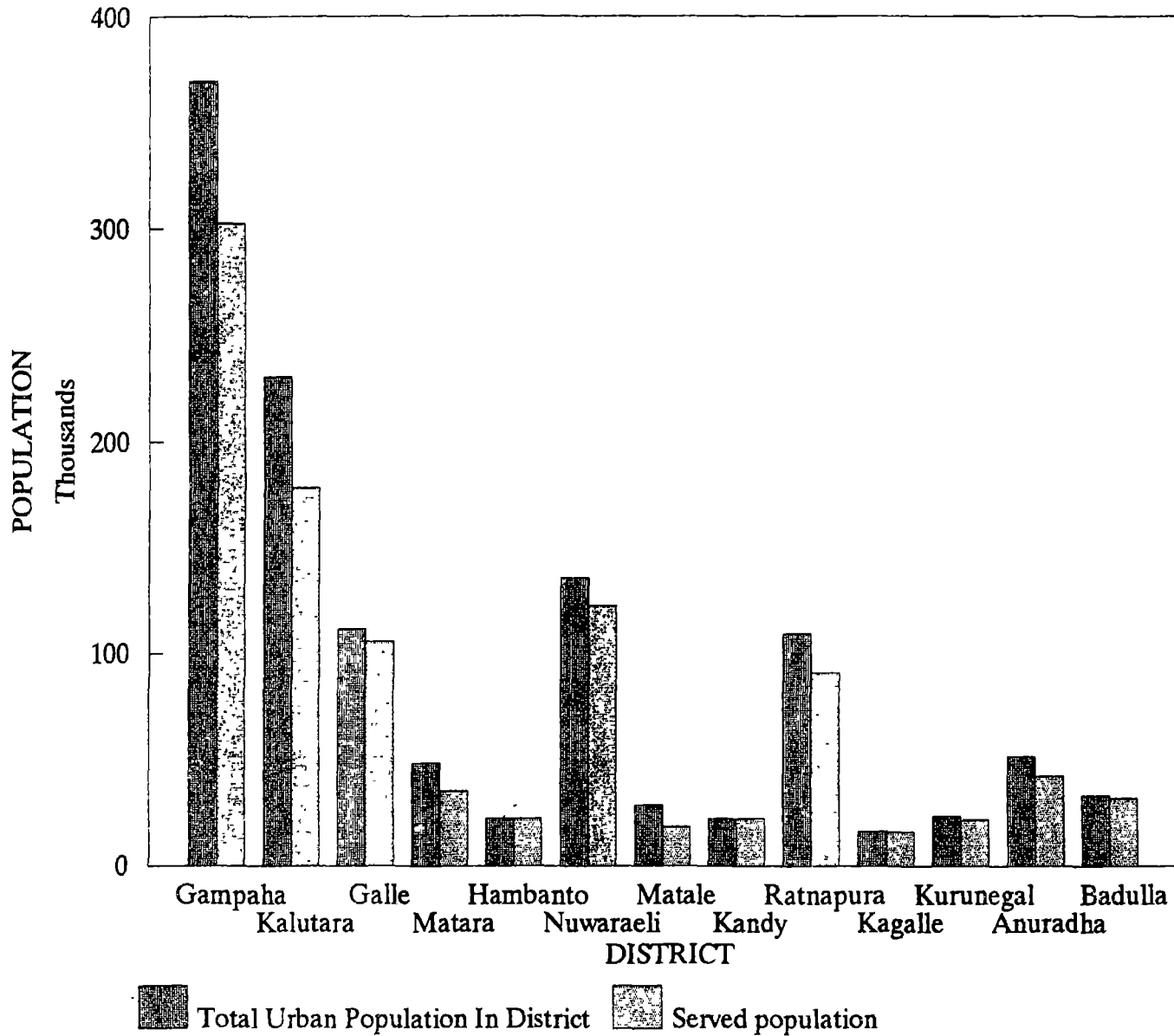
SERVICE PROVISION

- Lack of consistent definitions for service level and quality.
- Most satisfactory urban water supply services with ineffective cost recovery systems.
- Lack of affordable facilities for the low income dwellers in urban areas.
- Lack of appropriate technology to increase the coverage.
- Lack of improved on-site sanitation procedures.

WASTE DISPOSAL

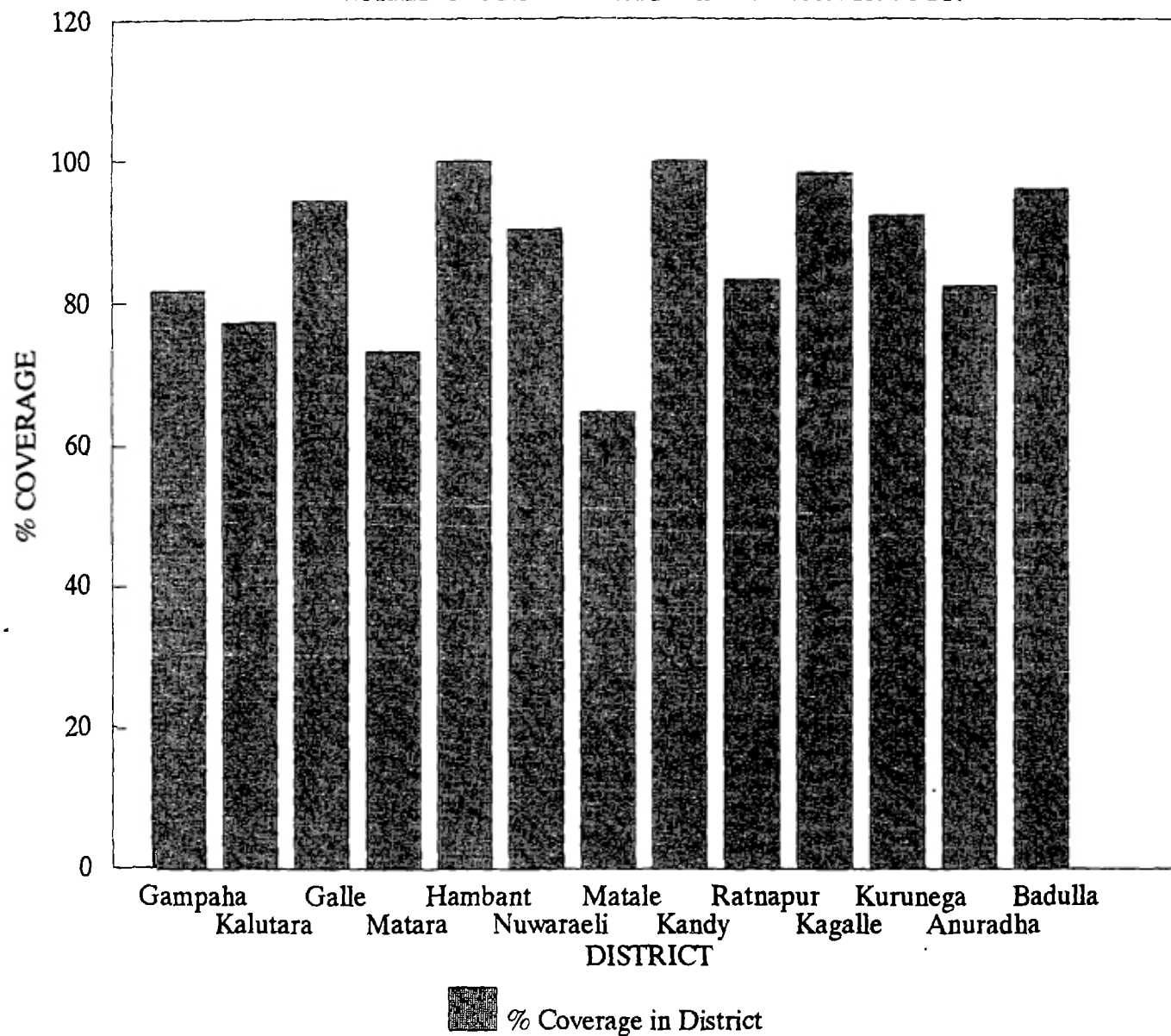
- Particularly, in urban areas the current practices adopted for solid waste collection and disposal practices promotes environmental and health hazards.
- Lack of clearly identified responsibilities of the sector institutions for all aspects of drainage in urban areas.

WATER SUPPLY COVERAGE – URBAN SECTOR



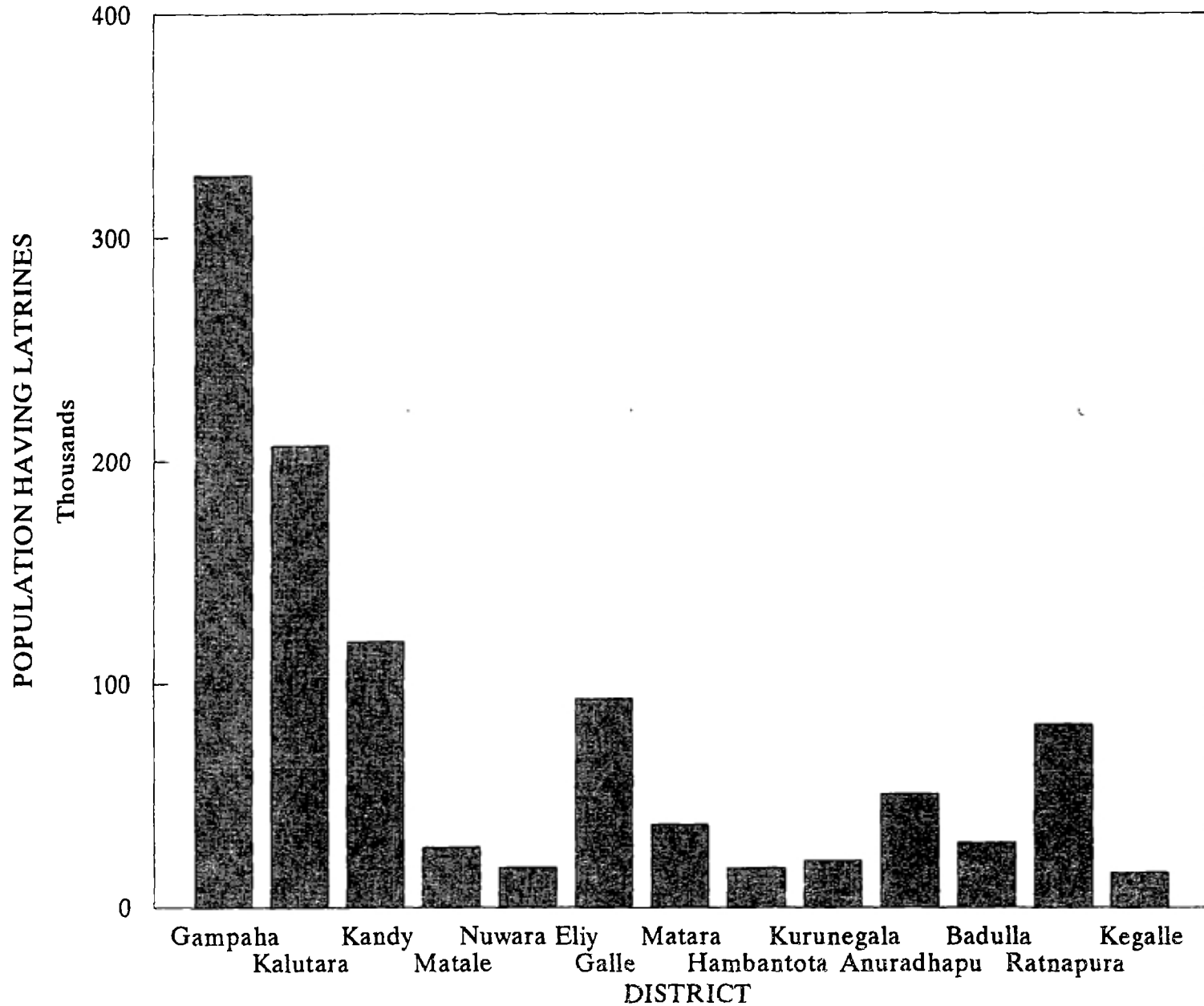
NOTE: *Data for Puttalam, Polonnaruwa & Moneragala Districts are NOT AVAILABLE
 *SOURCE: Water and Sanitation Related Information – 1992 (UNICEF/NWSDB)

WATER SUPPLY COVERAGE – URBAN SECTOR



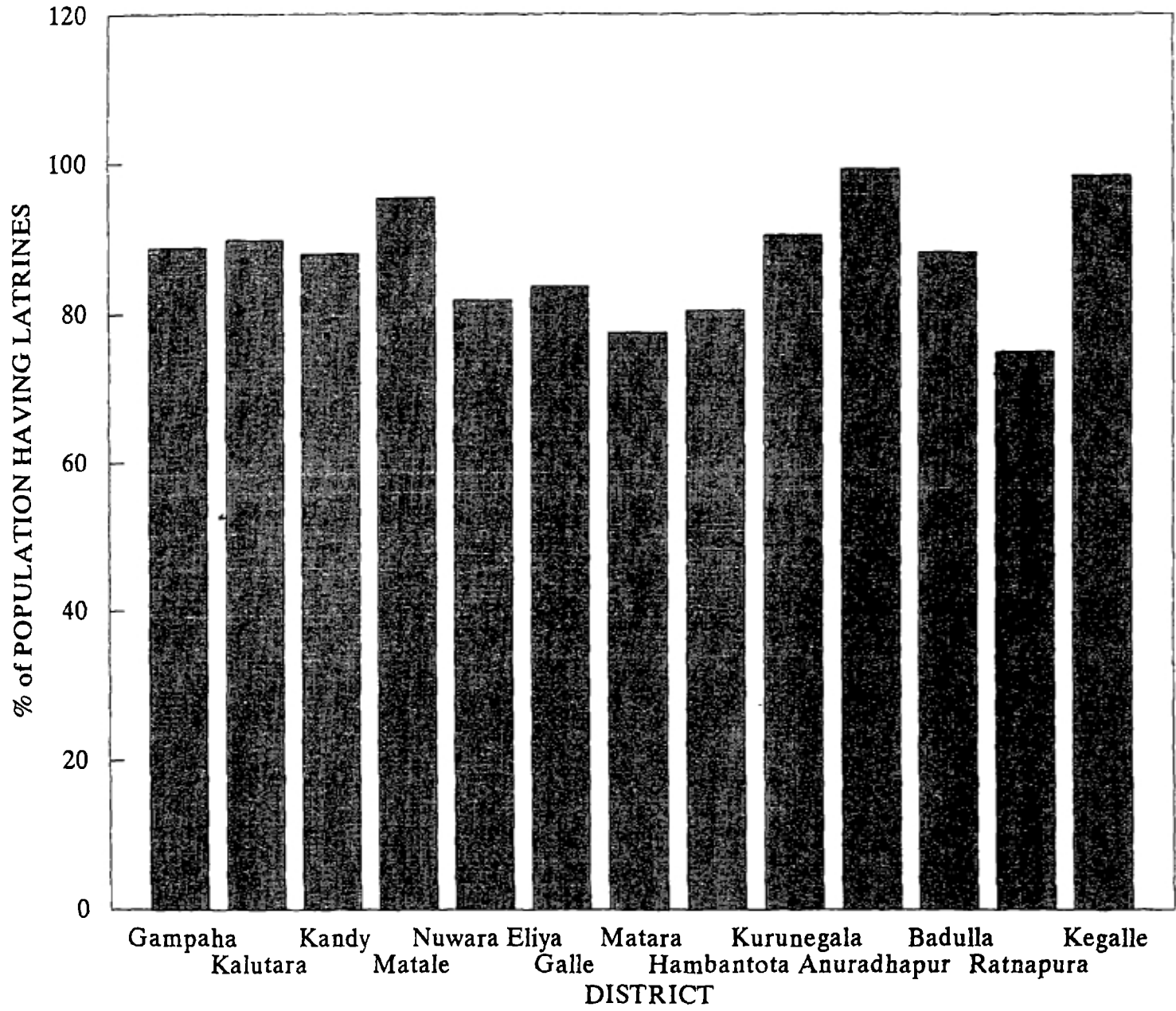
NOTE: *Data for Puttalam, Polonnaruwa & Moneragala Districts are NOT AVAILABLE
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SANITATION COVERAGE – URBAN SECTOR 1992



SOURCE : Water and Sanitation Related Information 1992 (UNICEF/NWSDB)

SANITATION COVERAGE - URBAN SECTOR 1992



SOURCE : Water and Sanitation Related Information 1992 (UNICEF/NWSDB)



NATIONAL SECTOR CO-ORDINATION PROGRAMME

SUB-SECTOR COMMITTEE ON RURAL AND PERI-URBAN AREAS, AND OTHER RURAL TOWNS

**Position Paper No. 3
submitted to the**

**FIRST NATIONAL CONFERENCE OF
THE WATER SUPPLY & SANITATION SECTOR**

B M I C H 20th December 1995

Ministry of Housing, Construction & Public Utilities

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ABBREVIATIONS

ADB	Asian Development Bank
CBO	Community Based Organization
CF	Community Facilitator
CWSPU	Community Water & Sanitation Programme Unit
CWSSP	Community Water Supply & Sanitation Project
DANIDA	Danish International Development Agency
DCC	District Coordinating Committee
FINNIDA	Finnish International Development Agency (Now: Ministry of International Development Cooperation)
GN	Grama Niladhari (Division)
GTZ	German International Agency for Development
IDA	International Development Agency
M&E	Monitoring & Evaluation
NORAD	Norwegian Agency for Development Cooperation
NSCC	National Sector Coordination Committee
NWSDB	National Water Supply & Drainage Board
O&M	Operation and Maintenance
PO	Partner Organization
PH&SWT	Plantation Housing & Social Welfare Trust
PS	Pradeshiya Sabha
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WB	World Bank
WHO	World Health Organization

1. INTRODUCTION

The Government of Sri Lanka (GOSL) has set out an ambitious target of providing "Water for all by year 2010". The National Sector Coordination Programme has been established in 1995 to assist GOSL to achieve this target. It has constituted four sub-sector committees to identify critical issues in the sector.

The rural and peri-urban areas, and rural towns sub sector comprises the following areas;

- * All rural areas outside Greater Colombo Municipal and Urban Council limits,
- * The peri-urban areas which include the following low-income settlement types;
 - shanties and slums
 - relocated new settlements
 - unserved semi-urban neighbourhoods
 - local authority housing units

The systems included in these areas consist of

- * Piped schemes (pumped or gravity).
- * Point sources (springs, hand pump with tube wells, dug wells, rainwater system, etc.)

The actors involved in this sector consists of Ministries, National Agencies, Departments, Local Authorities (Pradeshiya Sabha), NGOs, CBOs and the private sector.

The key issues are described separately for "rural areas and rural towns" and "peri-urban areas". A summary of issues is provided at the end of each section.

2. KEY ISSUES IN RURAL AREAS AND RURAL TOWNS

2.1 POLICIES

Policies have to be formulated for the following areas of rural water supply and sanitation.

(a) Investment Costs

The present trend for rural water supply and sanitation is to obtain a contribution from the users, in cash, material, labour or a mix of these. There is a need to develop a national policy for user contributions that is affordable and equitable. Presently, different donors/agencies demand various contributions and a uniform arrangement is lacking.

The policy should also identify the need for phased development and a demand driven approach. Special attention is required to include the lowest income segment and other disadvantaged groups involved in the development effort.

For sanitation, the recipients even now contribute differently in different programmes. Therefore, a national policy is required for the same. Similar arrangements are needed for common or public toilets.

(b) O&M Cost Recovery

The present arrangements for water supply vary from no recovery from users to 100% recovery in some cases. In pipe schemes maintained by NWSDB, a national tariff prevails while those managed by local authorities have their own scheme specific tariffs. In systems managed by the users, funds are collected for operations and maintenance.

A uniform policy for cost recovery is required. The future vision is to develop scheme specific tariffs to cover total O&M cost and the replacement/ rehabilitation costs. In order to achieve this target, a phased arrangement has to be developed. The need for a cross-subsidy from affluent users to the poor segments of society should be established.

In sanitation, individual systems are used almost everywhere except in public or common toilets for rural towns. An appropriate cost recovery policy should be developed for sanitation as well.

(c) Monitoring and backup support

The sustainability and proper operation and maintenance systems of the improved facilities will depend on many factors. The following aspects have been identified as important issues;

- * monitoring
- * advice on developments
- * backup support to O&M organization
- * regulation and supervision.

In view of the present implementation strategies, the following O&M arrangements could exist;

O&M Organization	Authority for Monitoring/ Development/ Backup/ Support/ Regulation & Supervision.
Community Based Organization(CBO)	Local Authority/National Agency
Local Authority	CBO/National Agency
National Agency	CBO/Local Authority

It is envisaged that different types of mechanisms and relevant agreements are formulated spelling out the duties and responsibilities of all these agencies.

(d) **Selection Criteria**

Since the available funding for rural water supply & sanitation is limited, priority will have to be given to deserving communities and corresponding with social and economic needs. Selection criteria have to be established for the utilization of future funds. Data and details from the District Development Master Plans developed for the fourteen(14) Districts by NWSDB with donor assistance can be used for this purpose after updating.

Selection criteria will have to be developed both for districts and areas within districts. The criteria should take into account;

- * Potential demand (from a demand driven approach)
- * Population density and growth rate
- * Economic development potential
- * Incidence of water related diseases
- * Quality and quantity of water available
- * Socio-economic status of the population
- * % of population with safe water and adequate sanitation
- * Average annual rainfall
- * Ground Water Potential
- * Water supply and sanitation programmes implemented up to now.

2.2 COVERAGE

The water supply and sanitation coverage in a rural setting may have a different definition than in urban. The definition of what is "Safe and Adequate Water Supply" and "Adequate Sanitation" has to be resolved. The criteria for "Safe and Adequate Water Supply" have to be developed, based on the following parameters;

- * Applicable standards (WHO/SLS), with suitable modifications
- * Hours of supply
- * Maximum walking distance (one way)
- * Appropriate level of service (pressure, within the premises or public point sources, etc)
- * Only for drinking water or for drinking, washing and bathing

The level of service should be developed on an incremental basis to suit the aspirations of the users, and what they are willing to afford. Therefore, it may be more desirable to agree on a "minimum service level" and to define "coverage" in respect of that basic level. Hence, the coverage data presently available have to be revised and updated in line with the above.

The only comprehensive coverage data base is the "Water Supply and Sanitation Related Information 1992", prepared by National Water Supply and Drainage Board (NWSDB) with UNICEF and WHO assistance in 1994. According to that database the national coverages for rural water supply and sanitation are approximately 50% and 67% respectively.

In arriving at these coverage data the following definitions have been used;

- * Safe water - Drinking water extracted from a protected dug well, tube well or a treated pipe borne system.
- * Adequate sanitation - At least one toilet to each individual household.

These data have been put together for the first time in 1992. Presently data have been updated by NWSDB and publication is planned for January 1996

2.3 COMMUNITY MANAGEMENT

In keeping with the local and global trends, the Government of Sri Lanka has used community management as a strategy to implement Rural Water Supply & Sanitation Programmes. The various donor assisted projects helped the relevant national agencies a long way to gain experience, test approaches, establish procedures and highlight the benefits of this strategy.

Traditionally, rural Sri Lankan communities have been practicing community participation in rural development activities. This practice has evolved over time. There is a need to strengthen the community empowerment process for rural development. Communities should take the initiative and manage the process, with the Government and its agencies to act as facilitators, rather than providers.

As of the 1980's NWSDB collaborated with donors to strengthen the community empowerment process in the implementation of RWS&S programmes in keeping with local and global trends of community management. Recently, the CWSS Programme of the Ministry of Housing, Construction and Public Utilities has furthered the concept of Community Management. In addition NGOs have contributed to RWS&S sector by utilizing community empowerment strategies to implement multi sectorial programmes, including the development of water supply and sanitation facilities.

In community managed schemes, the recipients contribute to the establishment of facilities proposed to enhance the ownership feeling and increase their to maintain these systems in the long run.

The following areas need special attention when developing a uniform policy.

- * What should be the minimum capital contribution, and how does it affect (the right to) ownership?
- * What level of mobilization is needed in view of the different possible management scenarios, and at what cost?
- * Can communities be mobilized specifically for water supply and sanitation sector (when their priority is otherwise)?
- * Will a CBO sustain with RWS&S alone ?
- * How can the development in other sectors be co-ordinated/channelled through the CBO ?
- * What type of technologies and management systems can CBOs handles themselves effectively ? What level of peripheral support is required ?
- * How can the poorest segment of a community and other disadvantaged groups be involved ? How to ensure involvement of women and men, of all religions and castes ?
- * How can already mobilized communities with existing CBO's be utilized for RWS&S ?
- * Up to what extent do the different CBO's targeted for different sectors programmes confuse the rural society.

The experiences from IRDP programmes and NGO activities where mobilization was for total development integrating all sectors needs further analysis. The recent feed back from WHO/NWSDB implemented "Healthy Village" concept where the development in other sectors are channelled/coordinated warrant further study as well. The lessons learned from these programmes have to be incorporated in to the policy.

2.4 INSTITUTIONAL FRAME WORK

The institutional framework in Rural Water Supply and Sanitation has evolved over a time and specially through donor assisted projects undertaken by NWSDB in collaboration with DANIDA, FINNIDA, UNICEF, GTZ, WHO, NORAD etc. The recently started World Bank assisted Community Water Supply and Sanitation Project (CWSSP) has also experimented with new institutional arrangements that warrant further study. The above projects as well as many others executed by NGOs offer invaluable learning for community based water supply and sanitation development.

The lessons learned from these programmes are ;

- * The different actors/institutions have different management and technical capacities for planning, implementing or maintenance.
- * There is a need for constant monitoring and follow up for any institutional framework.
- * Adequate development support and back up services have to be provided.

Past experience shows that the preferred strategy for the future is the "active involvement of all partners" to achieve the national goal, at least cost. The use of partner organizations for implementation of RWS&S programmes have proved to be an effective mechanism, that should be continued with refinements.

In order to achieve an institutional framework, conducive to the effective delivery of WS&S facilities, the following key actors have to work together to achieve a cohesive and mutually reinforcing approach;

- * Line ministries
- * National agencies
- * Local line authorities
- * NGOs
- * CBOs
- * Private sector

It is worthwhile to assess the recommendation of the Donor Co-ordination meeting held with all key actors in the Water Supply and Sanitation Sector in October 1995;

- * The role of the Ministry of Housing, Construction & Public Utilities should be that of a policy maker only, through a neutral focal point.
- * Implementation of programmes should be the responsibility of the NWSDB, Local Authorities, NGOs and other sector agencies.

The authority and recognition of the institutions, mainly CBO's, to undertake Water Supply and Sanitation activities is questionable unless suitable institutional and legal arrangements can be made. A study of existing legal provisions governing the national agencies, local authorities, and those of CBO's is to be initiated.

At the same time the local authorities have to be involved in the planning process for Water Supply and Sanitation and support the provision of the required resources. The Department of Health is a decentralized key institutions which is involved in sanitation improvement in the rural areas. Their support is vital and it is essential to utilize their skills and experience in the field of sanitation and hygiene education.

It is necessary that the present decentralized arrangement of the national Water Supply and Sanitation sector agencies be utilized effectively. Their decentralized skills and resources should be updated and relevant strategies transferred to them to further support decentralized development.

2.5 STANDARDIZATION

To rationalize and speed up implementation, standardization for technology as well as products is needed. Although technology cannot be stereo typed and should be flexible to suit varying situations, there is a need for common guidelines. This is evident from the experiences of the hand pump standardization process, especially to ensure inter- changeability of spare parts. The latrine construction programme may also pursue a similar approach. The types of latrines and the technology used could to be standardized for better efficiency.

The three manuals prepared by Sarvodaya Rural Technical Services (SRTS) on gravity water supplies, well construction and latrine construction, with support from Helvetas, have laid down technical standardization and are examples of useful field guides.

The standardization has to support appropriate, low cost and affordable technologies and also ensure minimum working standards specially for pipe laying, jointing etc. to ensure durability of the improved facilities.

The quality of construction materials also need appropriate control and standardization, specially in view of the influence from the open market. The rural systems need to become more sustainable and quality products at an affordable cost are an essential ingredient for this to come about. Appropriate mechanisms are needed to screen out inferior products. Testing facilities to identify good quality products and an appropriate system of certification need to be applied.

2.6 LEGAL FRAMEWORK

The present trend in Water Supply and Sanitation Sector is to obtain a contribution from the users for the construction of public utilities. The rationale behind the strategy is to ensure a sense of ownership and responsibility of the users. How far this entitles the user to full ownership has to be assessed clearly and within the existing legal framework in the country. If necessary, the legal provisions should be modified and amended to suit alternative ownership options.

Securing the right to abstract water for water supply is very important as many existing reliable water sources are used by multiple users at least during a part of the year. The diversion of water for a multitude of purposes such as irrigation, hydro power, drinking water, bathing etc. needs to be done with consideration for the rights of all users and to while mitigating the consequences to both quality and quantity of water for down stream users.

There are several ordinances and enactments governing the legality of water rights and now the time has come to evaluate them . The formulation of a "National Water Council" is a step in the right direction. The decision making authority for Rural Water Supply and Sanitation should be based at divisional level and all records on water allocation should be maintained there. A series of case studies on water rights should be collected and used to develop guidelines for future.

Monitoring and protection of the quality of water resources might be a task of the Council. Pollution control, control of over-extraction etc. will also be within purview of same agency.

2.7 ENVIRONMENTAL HEALTH IMPACTS

Poor sanitation will lead to health risks and environmental pollution. Effective sanitation in the rural areas and the plantations is still low and thus the risk for pollution of springs and streams is high. The situation is compounded in the rural town areas where the density of households and the lagging infrastructure development is potentially leading to grave health risks.

This expresses itself in the lack of drainage in many settlements. With the supply of water, adequate provision needs to be made to dispose of sullage through proper drainage.

The drainage water from settlements contribute in large measure to pollution and correct engineering measures are to be taken to reduce the impact of waste water. If not, health hazards in the form of mosquito breeding are inevitable, while uncontrolled drainage may cause erosion.

RWS&S sector agencies should develop appropriate standards for drainage water and make these part and parcel of rural and rural town water supply works. It is essential to utilize the capacity of national agencies and local authorities in this respect and implement programmes in consultation with them.

2.8 WATER RESOURCES MANAGEMENT

Assuring a good and reliable supply of water is crucial to the functioning of any water supply scheme. Water of good quality, in adequate quantity and available throughout the year is becoming more and more difficult to secure in many parts of rural Sri Lanka. Competing interests in irrigation, power generation and drinking water supply make it imperative to develop effective administrative mechanisms for socio-economically sharing of water sources. The same mechanisms should also cater for the conservation and upgrading of water resources.

Presently the legal provisions available seem outdated and unclear with respect to the allocation and permission of abstraction. There is a need to review the water resources management tools, consider the diversity of agencies involved in water resources allocation at different levels of public administration and develop unambiguous responsibilities and effective laws. In doing so, it makes sense to ensure a sandwich structure of decision making by allocating the responsibility for water resources level at the lowest appropriate level, while ensuring an increasingly professional decision-making tool through the development of a district and national level water resources management database. The lack of water resources data is presently impeding an effective use of the country's water resources.

Presently the source for a water supply project needs to be selected in consultation with the community on the basis of water availability and technical considerations. In community water supply schemes, the source selected will be within the geographical sphere of influence of the community and it is the community which decides what source is ultimately chosen. In some rural projects and in the rural town projects the source may not be within the administrative boundaries of the project and may need to be acquired from another GN Division. Appropriate administrative arrangements need to be developed to make this cross GN Division water allocation possible.

Downstream pollution is another area of concern especially in hilly areas where communities are receiving water through streams issuing from plantations or upstream villages.

Protection of existing sources and well as probable future sources is important. Identification of catchment areas and protection zones, and their demarkation and definition of land use is equally important. Several line agencies are presently implementing programmes for catchment preservation using a "participatory approach". The experience could be used to extend similar activities to broader areas of protection and conservation.

In rural areas of the wet zone, most of the sources are located within the plantation sector. Involvement of the private sector in the plantation sector should be such that it safeguards the beneficial use of the water resources also of water users outside of the estate. This concerns in particular catchment preservation and legal rights for water abstraction.

2.9 PLANNING TOOLS

Planning plays an important role in any infrastructure development programme. The lack of planning tools to cover the entire island hamper the development in water supply and sanitation sector.

- * Maps (at least 1:10,000)
- * Accurate population data
- * Flow records.
- * Rainfall data etc.
- * Consistent health data
- * Water supply and sanitation coverage data (database).

Proper procedures and early arrangements should be made to collect and assimilate these data on a regular basis. The non-availability of these data causes delays in approval for investment and implementation of water supply and sanitation programmes thus reducing the country's capacity to reach the intended target. The application of GIS in planning should be investigated.

2.10 HUMAN RESOURCES DEVELOPMENT

The process of motivating the CBO and local authorities to engage in the functions identified to implement RWS&S programmes need a detailed human resource development plan. This plan should cover all aspects of HRD and include inter alia,

- * Community management procedures
- * Management (financial and resources)
- * Tariffs and costing
- * Operation & maintenance
- * Public relations
- * Monitoring

The target groups should include CBO's, NGO's, Local Authorities, national sector agencies, representatives from the private sector as appropriate etc. Development of support agencies for monitoring and evaluation, professional advice, development and back up services are important.

The role of professional associations in disseminating information, and developing and certifying skills is important and should be used.

Skilled manpower resources needed for RWS&S sector fall short of requirement when considering the national target and it is thus essential to develop HRD plans that match the proposed rate of implementation and development in the sector.

It is vital to utilize the available skills, talents and experienced resources in the national line agencies for further training and strengthening of skills in specific sectors.

2.11 AWARENESS & EDUCATIONAL ASPECTS

Awareness and education plays a vital role in the WS&S sector. It acts as a catalyst to influence user communities to improve the WS&S condition. It also helps to create awareness in homes through school children. An activity in the right direction is the provision of water supply and sanitation facilities to schools and pre-schools. A major step would be the introduction of water supply and sanitation education to the national school curriculum.

The second type of awareness introduces the demand driven approach where the user communities will organize themselves to obtain the benefits required.

It is also important to increase the awareness of political leadership, policy matter, administrator and other agencies, at national, provincial and divisional levels.

2.12 INSTITUTIONAL WATER SUPPLY AND SANITATION FACILITIES

Water Supply and Sanitation facilities to institutions in the rural sector require special attention. Out of these the following play an important role;

- Schools and pre-schools
- Rural Hospitals
- Religious Institutions

Provision of proper water supply and sanitation facilities to these institutions will encourage good practice and motivate the users to establish similar facilities in the rural households.

In many schools facilities are really below par, and where with the support of the Department of Education construction has been undertaken, the functioning of water supply and sanitation has often been poor and the responsibility for the facilities by the school community limited.

Hygiene education is part and parcel of the school curriculum. It appears however that hygiene education is often given only a limited attention, while -as described above-, the practice of proper hygiene behaviour is near impossible when water supply and sanitation facilities are not functioning. In view of the important role children can play in improving the hygiene behaviour in the home environment, hygiene education should continue to get strong emphasis in teaching and practice.

The situation is unfortunately not much better in the other institutions, with the existing sources in many of these institutional water supplies being polluted, their maintenance neglected and internal plumbing not upto any standard.

In order to avoid public health hazards to vulnerable groups, waste disposal for solid wastes and liquid wastes in institutions and especially in rural hospitals, needs urgent attention.

2.13 NEW SETTLEMENTS

New settlements specially in Irrigation Sector and within the areas of Mahaweli Authority, Irrigation Department and Land Commissioner's Department involve relocating families of different socio economic and cultural backgrounds to planned areas. Generally assistance is provided by these programmes for water supply and sanitation facilities. It is important to identify the role and responsibilities of the different agencies involved. It is unclear whether the approaches now emerging in the implementation of rural water supply and sanitation are followed by these agencies or in how far these would be applicable without change.

2.14 SUMMARY OF ISSUES

- (a) Uniform Policies should be formulated for
 - Investment costs and sharing between actors.
 - O&M cost recovery
 - Monitoring & Backup Support for the completed facilities.
 - Selection criteria for development of Water Supply and Sanitation facilities.
- (b) Appropriate definitions should be developed for "Safe Water", "Level of Service" and "Adequate Sanitation".
- (c) A uniform policy should be formulated to promote community management. The policy should favour the development of flexible and suitable strategies for the different management scenarios.
- (d) The institutional framework and co-ordinating mechanisms have to encompass all actors in order to optimize resources and to incorporate all lessons learned.

- (e) Standardization and quality control of technology and products are necessary to ensure sustainability.
- (f) The existing legal framework is to be reviewed with respect to legal ownership of WS&S facilities, land acquisitions and right of passage, and to formalize water extraction rights.
- (g) Proper strategies for the environmentally safe solid waste, liquid waste and drainage have to be developed.
- (h) Water resources management should extend itself to guidelines and measures to protect catchments and prevent pollution in the rural areas and rural towns as well.
- (i) There is in general a lack of (access to) proper tools to plan and implement RSW&S programmes. Suitable arrangements are necessary to incorporate traditional "know how" into this process and to involve user communities in developing the relevant planning tools.
- (j) Skills and experienced staff in sector agencies need to be used for the development of capacity in the rural and rural town sector. Human resource development plans need to be developed to meet the planning, implementation and management challenges of present and future services.
- (k) Increasing awareness on sector policies, water conservation, water usage, environmental sanitation etc. to the all target groups from political authority, to sector professionals, to school children and users is essential.
- (l) Water Supply and Sanitation facilities in schools, rural hospitals and religious institutions are poorly managed and maintained. While improvements to facilities are necessary these can not take place without proper strengthening of management systems. Responsibility for maintenance and repair and at what level needs to be spelled out clearly.
- (m) New settlements associated with development programmes specially in Irrigation and Land development, requires special attention in view of the their diverse socio economic and cultural conditions. The applicability of aspects of community management concepts has to be studied.

3. KEY ISSUES IN PERI-URBAN AREAS

The issues related to water supply and sanitation in the low income group settlements such as squatter settlements, overcrowded tenements and illegal subdivisions in the Greater Colombo area are much different from that of other settlements. As such, it is necessary to study the issues in these settlements separately and not with the other areas.

The low income group settlements in Colombo and its immediate vicinity could be basically divided as follows :

- Slums
- Shanties
- Unserviced semi urban neighbourhoods
- Local authority labour quarters
- Relocated new settlements

It is estimated that about 550,000 people live in such settlements in the Colombo Metropolitan area alone.

3.1 SHANTIES SLUMS AND RELOCATED NEW SETTLEMENTS

- Minimum space allocated
- Mostly common water taps are available. These are not maintained and metered.
- Common toilets are available. However, their number is insufficient and they are not maintained well.
- No proper drainage systems
- Very poor garbage disposal systems
- Improper ventilation and environmental conditions.

3.2 IN UNSERVED SEMI URBAN NEIGHBOURHOODS

- Well water is used for drinking and bathing
- Individual pit latrines are available but are very unhygienic
- No collection systems of garbage. The necessity does not arise in most cases as there is sufficient land.

3.3 IN LOCAL AUTHORITY HOUSING SCHEMES, LABOUR QUARTERS

- Infrastructure has been provided when the houses were given to residents, but decayed over time due to poor maintenance.
- Water Supply and Sanitation facilities are common.

3.4 REFUGEES

Refugees may be housed in selected refugee camps or in other different locations. In view of their predicament and socio-economic conditions water supply and

sanitation facilities have to be provided to them with different strategies.

3.5 ONGOING PROJECTS FOR IMPROVEMENT OF THE FACILITIES

a) UNICEF assisted Urban Basic Services Programme

This programme has a target of assisting 28,000 low income facilities in low income group settlement areas in 14 Municipalities to improve sanitation conditions during the period 1997 - 2001.

b) Public Utilities Crash Programme

This is a programme started in late 1994 to attend urgent infrastructure needs of neglected low income group settlement areas in Colombo and surroundings. Annual allocation is Rs. 15.0 million. So far 110 low income group settlements have been served through the programme.

c) CAB Programme

Under the UNICEF assisted Urban Basic Services Programme CAB has built common toilets in the low income settlements and the existing ones repaired. Water standposts were provided. This has later transferred local authorities and now continuous in a reduced scale.

d) Resettlement of low income families under Sri Lanka Land Reclamation and Development Corporation (SLLRDC) Environment Improvement Programme

The SLLRDC is in the process of resettling 6750 families and providing infrastructure as follows;

	Planned	Built
Toilets	1123	428
Standposts	674	203
Garbage bins	225	69

e) Clean Settlement Project (Western Province)

Objective of the clean settlement project is to develop the planning management and investment capacities of low income settlers through implementing Community Based Infrastructure Projects.

Total estimated cost is US \$ 15.0 million and the project preparation is still in progress. This will address 200 low income settlements in the Western Provincial Council area, covering 20,000 families.

f) Low Cost Sanitation Project (Greater Colombo area)

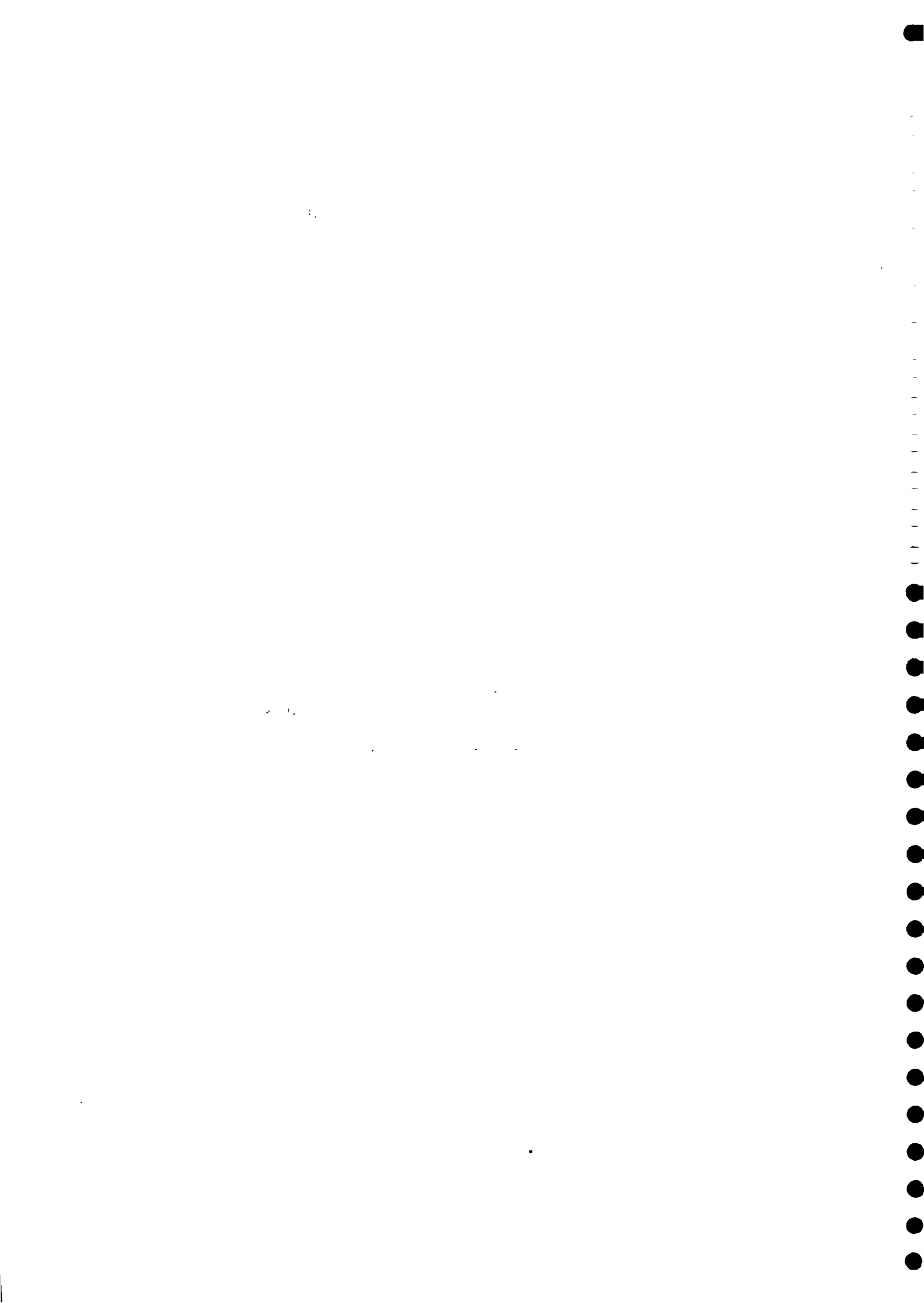
This is a component of 3rd water supply project of NWSDB. Objective of the project is to provide safe sanitation facilities to nearly 15,000 families (low income) IDA contributes 1/3 rd of the construction cost.

3.6 COMMON ISSUES

- Uncertainty about tenure and legal ownership reduces the investment in water supply and sanitation by households.
- Most of the programmes done by the government in the past to solve the water supply and sanitation problems in these areas were supply driven and not demand driven. No cost recovery, no cost sharing.
- Many agencies are working in this area. This is little co-ordination. No records or data on certain issues.
- The rate collection on water consumption is very poor according to NWSDB.
- Beneficiaries are not educated/trained on O&M aspects of the water supply and sanitation systems provided and therefore, they depend on Government Agencies/Local Authorities on O&M matters.
- Inadequate capacity of local authorities in assisting low income families.
- No proper health/hygiene education programmes and community mobilization activities on promoting community participation/ contribution towards water supply and sanitation improvements in low income areas.
- Low lying areas create problems of drainage and flooding.
- High water table create problems for sanitation,

3.7 SUMMARY OF ISSUES

- (a) Uniform Policy decisions are needed to the low income group regarding.
 - Settlement programmes
 - Land tenure
 - Cost recovery
- (b) Proper co-ordination and communication among relevant involved agencies.
- (c) Lack of community involvement during the entire project cycle.
- (d) Hygiene education and awareness should included in water supply and sanitation programmes and specially in schools.
- (e) Role of local authorities regarding unauthorized settlements are not clearly defined.
- (f) Lack of programmes to relocate or legalize the low income unauthorized settlers.
- (g) Refugee camps and refugees in other locations need special attention.





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NATIONAL SECTOR CO-ORDINATION PROGRAMME

SUB-SECTOR COMMITTEE ON PLANTATION SECTOR

**Position Paper No. 4
submitted to the**

**FIRST NATIONAL CONFERENCE OF
THE WATER SUPPLY & SANITATION SECTOR**

B M I C H 20th December 1995

Ministry of Housing, Construction & Public Utilities

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ABBREVIATIONS

ADB	Asian Development Bank
CBO	Community Based Organization
CF	Community Facilitator
CWSPU	Community Water & Sanitation Programme Unit
CWSSP	Community Water Supply & Sanitation Project
DANIDA	Danish International Development Agency
DCC	District Coordinating Committee
FINNIDA	Finnish International Development Agency (Now: Ministry of International Development Cooperation)
GN	Grama Niladhari (Division)
GTZ	German International Agency for Development
IDA	International Development Agency
M&E	Monitoring & Evaluation
NORAD	Norwegian Agency for Development Cooperation
NSCC	National Sector Coordination Committee
NWSDB	National Water Supply & Drainage Board
O&M	Operation and Maintenance
PO	Partner Organization
PH&SWT	Plantation Housing & Social Welfare Trust
PS	Pradeshia Sabha
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WB	World Bank
WHO	World Health Organization

1. INTRODUCTION TO THE PLANTATION SECTOR

When discussing the water and sanitation needs for the plantation sector, it would be necessary to briefly look at the background of the plantation community due to the special nature of this community being integrated with the plantation industry. The plantation community has a history of about 125 years, with the roots extending to South India.

The community has lived in an isolated manner, being fully dependent on the estate management for the provision of basic human needs including shelter, water, sanitation and health. Traditionally, this community has looked up to the management for the provision of these facilities and this practice still remains even though many changes have taken place in the plantation sector over the past decades.

The plantation management structure has undergone three major changes from the Agency House days to nationalisation and now towards privatisation. The resident population in the plantation sector has had a poor record of literacy, health, housing conditions and limited access to water and sanitation facilities.

The health statistics in the plantation sector were far below the national averages, even in the early 1980s. There have been many interventions for the improvement of health, water and sanitation in the plantation sector thereafter. This has resulted in the steady improvement of health statistics in recent years. At present the indicators are more satisfactory even though they remain below the national averages.

It has now been recognised that for further improvements in the quality of life, it will be necessary to address the areas of housing, household environment, water and sanitation needs of the community.

The plantation workers of Indian origin were given citizenship and the process of integration with the rest of the community is steadily taking place. This process should be steered carefully because there are many sensitive issues that must be negotiated in moving towards a satisfactory level of social integration.

Any project dealing with the plantation community has to identify this sector as a special case due to two major reasons. Firstly, because the community is resident in the plantations and is integrated with the industry. Secondly, the district and the provincial administration does not reach out effectively to the plantation community. In view of these two factors, plantation support programmes have to be handled in a different manner than development programmes in the rest of the country and it also becomes important to involve the plantation management in such programmes.

Statistically, the plantation sector consists of a resident population of 850,929 in approximately 200,743 family units.

A further 59,707 workers come to work in the plantations as non-resident workers (refer Annex 1).

There are many privately owned plantations of which little is known with respect to the actual situation of water supply, sanitation and health. Unfortunately these estates are not included in national programmes. There are 161 such privately owned estates registered with the Planters Association. The committee initiated a study to get an insight into the problems that are faced by such communities (details in Annex 3).

1.1 WATER AND SANITATION IN THE PLANTATION SECTOR

The provision of water and sanitation facilities have been addressed with these broad parameters in mind. The plantation community understands that these facilities are an essential community need but participation as a community has been limited. Certain initiatives to work towards community participation have been introduced during the past few years, but progress has been slow. The present project, the Social Welfare Programme II, supported by the Governments of the Netherlands and Norway (1993-97), makes a dynamic effort to identify and work towards community participation for the provision of sustainable water and sanitation facilities.

Whereas much progress has been made in the construction of latrines on a self-help basis, the same cannot be said regarding water supplies, though certain initiatives have been taken towards community based approaches.

The Government has declared its intention to pursue the provision of housing facilities to the plantation community as a priority. The strategy based on 'self-help successes' provides for every worker to opt for new housing. Loans for housing will be facilitated through government with assistance from the wider housing finance sources.

There is a positive trend in the plantation sector in moving towards new housing settlements of individual units. Though finance for housing would be forthcoming from loans on a individual basis, the settlement infrastructure needs will have to be provided by funding through other sources. At present, there is limited funding for the provision of water and sanitation facilities for this new development but the financial needs to achieve coverage would be substantial.

When examining the position of the water and sanitation sector at a national level, the plantation sector assumes a special place due to geographic reasons, because all the waterways that flow through the country originate from plantation areas. If the plantation sector water resources could logically fit into a national strategy, these water sources could be more effectively utilised.

1.2 THE PLANTATION SUB-SECTOR COMMITTEE

The Plantation sub-sector committee met three times to identify the key issues involved in developing strategies for water supply and sanitation for the plantation sector within an overall national framework.

The priority issues identified by the committee are related to areas of concern for the future, issues dealing with developments towards sustainability and issues that are present realities in the sector which needs to be questioned within a national framework.

2. PRIORITY ISSUES

2.1 COVERAGE AND FUTURE NEEDS

It is estimated that 46% of the plantation community does not have access to reliable water supply within 100 metres. In the area of sanitation 62% of the community does not have individual latrines (see Annex 2). Community latrines were provided in the past, which did not prove to be a success and there is no doubt that the sector must cater for sanitation on a family basis. Going by the present norms of investment and the present design standards, an estimated investment of Rs.450 million will be required for total coverage of water in the sector. Similarly the financial requirement for adequate sanitation on a self-help basis for family latrines would be around Rs.440 million.

Present Coverage	WATER SUPPLY	SANITATION	TOTAL
	54%	38%	
Additional Investment Cost Required for Full Coverage	Rs. 450 M	Rs. 440 M	Rs.890 M

Even though there is a present programme in the plantation sector covering water and sanitation, the investments are not aimed at providing total coverage. Therefore, new investments for water and sanitation will have to be directed to the plantation sector. Annex 2 provides detailed coverage data by PHSWT regions.

2.2 SERVICE LEVELS

The service levels provided in the plantations may differ from other sub-sectors, based on the nature of the plantation settlements. Presently, a norm of five families per tap-stand is used for piped water supply facilities. Generally the tap-stand is expected to be in close proximity to the housing, within about 100 m. distance. A quantity of 200 litres per family per day is assumed to be the average daily consumption of water for drinking, cooking and sanitation. However, other types of facilities require this service level to be appropriately adjusted, generally based on water scarcity and economic criteria.

With the anticipated levels of investment in water supply facilities in the plantations, it may be unrealistic to improve the service level in the short term. Awareness creation of the target group is necessary in order to convince them of the need to effectively utilise the services that are provided.

2.3 CHOICE OF TECHNOLOGY

The water schemes provided in the plantation sector are catering to smaller settlements of families when compared to the rural sector. The schemes cover about 25 to 100 families. The future direction in the development of the water schemes is to reach a reasonable level of community ownership and maintenance. This suggests that the schemes would be made simple in design for the community to take over the management and maintenance with a minimum amount of training.

The simple nature of the water supply facilities means that it would not be feasible to expect a high level of water quality standards, especially at this stage.

The present strategy is to tap the best available sources in the plantations within available financial resources. Source protection at local level is within the limits of control of the present standards and is a strategic activity that should be pursued vigorously.

The pumped water schemes that have been constructed in the past are more complicated than simple gravity schemes and have had a high rate of failure. However, there are also a number of pumped projects which are operating satisfactorily. The present strategy is to encourage dug wells without pumping, when simple gravity piped water supply facilities are not feasible. From 1996, when a pumped system is inevitable, the estate management will be required to bear the cost of the pumping equipment, including the electrical connections, with a view to ensure proper operation and maintenance.

2.4 TRAINING AND AWARENESS

The training and awareness building should be coordinated at the national level, attracting all sections of the population with specific areas covered for different actors. The initiatives should attract the children, as well, and therefore should be taken up at school level. Through such a development, the communities will be aware of the national expectations and the role of different parties in the community.

A series of health education programmes are being undertaken for the estate community both through formal staff training programmes and through community based health volunteer programmes. The plantation sector is fortunate in this regard due to the availability of health and welfare staff on the estates. This positive situation should be further strengthened and exploited.

2.5 INSTITUTIONAL FRAMEWORK

Presently the management companies play a major role with regard to the implementation of water supply and sanitation projects and their operational maintenance because of the absence of an alternative institutional framework.

Whilst moving towards community-based, community-managed water and sanitation schemes for the future, we cannot expect an institutional framework for public utilities to be a reality in the short and medium term. Therefore in the interim this vacuum should be addressed and the plantation management would play an important role in this regard. It is also important for the future to build linkages with other sector agencies, including non-governmental organisations.

2.6 TENURE OF HOUSING

The plantation residents do not own the houses they live in. Even though it is expected that there is a defacto ownership of the dwellings, there is an element of uncertainty regarding the tenure of housing in the minds of the estate workers.

One could expect that community participation for water and sanitation could be enhanced in the new housing schemes that are emerging, where the beneficiaries have a more stable state of mind. Ownership of housing, creates the right environment for community participation in water supply and sanitation. Whilst the new housing development would take a substantial period of time, if the tenure of housing for the balance community is addressed, the conditions may improve for better community participation in water and sanitation.

2.7 WATERSHED MANAGEMENT INCLUDING SOURCE IDENTIFICATION

Past experience has shown that the reliability of the estate water sources, especially the springs, is strongly influenced by the activities in the catchment areas. Activities which have a direct impact on the water resources should be coordinated, if the water sources are to be reliably utilised on a long term basis. This applies both to ground water and surface water sources. The water sources in the plantations are generally selected on the basis of the experience of the resident community and not on technical investigations or available data. It is suggested that initiatives in professional watershed management, including flow measurements, would be a positive development because reliability of water sources would be crucial for the sustainability of the water schemes. Therefore, this aspect may require national level policy coordination.

2.8 SANITATION AND HYGIENE

The plantation health status was poor in the past. There were many contributory factors but the direct health interventions through national and donor-assisted programmes yielded encouraging results. For instance, the infant mortality rate which was over 75 per 1000 live births in the early 1980's has now been reduced to about 29.

Parallel to these direct health interventions, systematic health education programmes were also implemented with positive results.

At present, it has been recognised that further health improvements would be through better housing and housing environment because the other direct health interventions have reached a point of saturation.

Because the quality of water is not considered a major problem in the plantations the supplies are not chlorinated. However, this is an area which needs further study.

2.9 COMMUNITY PARTICIPATION

The target population for estate water supply schemes is well-defined. It has been recognised that a change towards community participation at all levels of the project cycle is vital for its sustainability. Considering the nature of the plantation community and the historical background, moving towards the expected level of community participation cannot be achieved in a short period of time.

This is a process which can be accelerated by a concerted effort involving all levels of the community and requires ample awareness creation. In the interim, until such time as the conditions are favourable for total community participation and management of the schemes, it would be important for the estate management to play a facilitating role.

2.10 SUSTAINABILITY

Sustainability was identified as an important area of concern. Taking many factors into consideration, such as the type of the communities, choice of technology etc., community participation will be the key to sustainability. External funding for water and sanitation investments would be required for many years to come.

The investment programmes, that are mostly time-bound and include specific targets, sometimes, make unrealistic demands on the implementing organisation which often has to balance between the requirements for sustainability and these targets. The committee re-emphasises the need for sustainability through community participation and the need to address the other vital aspects covered above. Any water supply and sanitation programme in the plantation sector therefore must be guided by realistic targets that build-in concerns for participation.

SUMMARY OF ISSUES

- Does the present norm of a water point for five families within a distance of 100 metres and a quantity of 200 litres per family per day provide an appropriate service level? Is an improvement to this norm desirable from a health perspective and can it be economically and financially feasible? What are the constraints related to water resources?
- Training, education and awareness building should be addressed at a national level
- The plantation sector should continue to provide simple technology schemes considering the nature of the resident population clusters, operation and maintenance needs, participation and water quality factors.
- The introduction of watershed management techniques would enable identification and use of the best available source and thereafter protection of source.
- Community participation is the key to a sustainable policy towards providing water and sanitation facilities to the plantation community.
- Enhanced training and education of family health aspects in the plantation would be essential.
- Project related physical and financial targets should not compromise community participation.
- A formalised tenure of housing would enhance community participation in water and sanitation.
- The estate management will continue to play a role in the management of facilities until an effective institutional framework is developed for water and sanitation in the plantations.
- The plantation community should reduce their dependency on the estate management for housing and public utilities, systematically.
- The plantation areas must be included in the overall environmental and water resources development programme as they have an impact on the surface and ground water.
- National programmes must adequately cater for the residents in privately owned estates as well.

1

POPULATION FIGURES

PHSWT REGION	RESIDENT POPULATION	RESIDENT FAMILIES	NON RESIDENT WORKERS
GALLE	52554	12574	15142
RATNAPURA	110227	26336	14207
BADULLA	155478	36455	8992
KEGALLE	55093	12906	9214
KANDY	102318	24381	5395
HATTON	182225	43448	3230
N'ELIYA	193034	44643	3527
TOTAL	850929	200743	59707

(Source: Annual Health Return PHSWT 1994)

COVERAGE OF PUBLIC UTILITIES - PLANTATION SECTOR

REGION CODE	BLOCK TYPE	INFRASTRUCTURE NOT AVAILABLE			
		No Electricity %	No Paved Access Path %	No Water Source %	No Latrines %
GALLE	Back to Back	84	87	88	60
	Single Lines	95	92	58	71
	Cottages	92	72	96	48
	Reg-total	89	81	87	57
RATNAPURA	Back to Back	96	30	35	87
	Single Lines	100	20	37	78
	Cottages	98	20	42	60
	Reg-total	97	26	37	79
BADULLA	Back to Back	78	82	25	58
	Single Lines	81	87	39	55
	Cottages	76	79	39	8
	Reg-total	79	84	36	46
KEGALLE	Back to Back	100	39	54	93
	Single Lines	99	58	70	87
	Cottages	100	22	33	80
	Reg-total	100	42	55	88
KANDY	Back to Back	100	100	56	41
	Single Lines	100	85	54	41
	Cottages	24	30	26	87
	*Regional	85	81	49	57
HATTON	Back to Back	98	19	4	64
	Single Lines	100	30	3	57
	Cottages	99	17	17	46
	Reg-total	99	22	9	55
N'ELIYA	Back to Back	76	59	67	82
	Single Lines	80	64	47	67
	Cottages	93	50	71	65
	Reg-total	80	59	61	75
SUMMARY	Back to Back	89	58	48	71
	Single Lines	89	69	41	60
	Cottages	86	44	48	50
OVERALL		88	58	46	62

(Source: Survey on Estates Housing Conditions, April, 1994)

SUMMARY FINDINGS ON WATER SUPPLY AND SANITATION IN FIVE PRIVATELY OWNED ESTATES

Three estates in Nuwara Eliya district (upcountry) and two estates in Matara district (low country) were selected for an initial survey with the objective of getting some insights of the housing, health, water supply and sanitation situation in privately owned estates. Note that this annexure can only provide some initial remarks. Any conclusions will be preliminary until borne out by a larger sample size.

	Sample of Upcountry Estates	Sample of Lowcountry Estates	TOTAL
Major Crop	Tea	Tea & Rubber	
Extent, Ha	446.9	78.5	525.4
No. of Resident Workers	1277	106	1383
No. of Non-resident Workers	37	196	233
Population of Resident Worker Community	2913	169	3082
No. of Resident Worker Families	695	46	741

WATER SUPPLY FACILITIES

Upcountry : The three estates provide pipe borne water to the estate worker families through systems which are over 50 years old. Estate streams have been tapped and water supplied under gravity. The pipelines are rusted and leaking, and the structures are damaged and leaking. About 4-9 families are supplied through one standpipe.

Lowcountry: One estate has an old piped water supply facility which is quite similar to those observed in upcountry. One estate has only a few open wells, for drinking, washing and bathing.

SANITATION FACILITIES

Upcountry : The three estates have 129 common water seal latrines. Their condition is unsatisfactory. One estate had 02 family (water seal) latrines. The total need for family (water seal) latrines is 679.

Lowcountry: The two estates have 09 common water seal latrines and 12 family (pit) latrines. No water seal latrines are available for individual families. The total need for individual water seal latrines is 46.

This reveals the tragic situation that exists in the privately owned estates regarding the sanitation facilities. Nearly all defecate in the open air, under shrubs and on the banks of water streams. According to the observations, presently there is one latrine per 123 families.

HEALTH FACILITIES

Upcountry Estates: One estate had a five-bed Maternity Home and one had a Dispensary. These two estates offer limited family planning services, with an acceptance of 15.5% for permanent methods, and 11.8% for temporary methods out of the total eligible couples.

Lowcountry Estates: No medical facilities in the estates, but Govt. Medical Institutions available within 15 Km. No family planning facilities are available.

The situation in these estates with regard to health facilities is far below the rest of the plantation sector that comes under the State Corporations or the RPCs and this is a major concern.

HOUSING FACILITIES

	Double Lines	Single Lines	Twin Cottages	Single Cottages	Temporary Sheds	Total
No. of Units	29	27	14	15	27	
No. of Dwelling Units	456	193	28	15	27	719
No. of Dwelling Units Unsatisfactory	316	124	20	15	27	502

This shows that 502 dwelling units out of a total of 719 (69.8%) have been unsatisfactory.

CONCLUSIONS

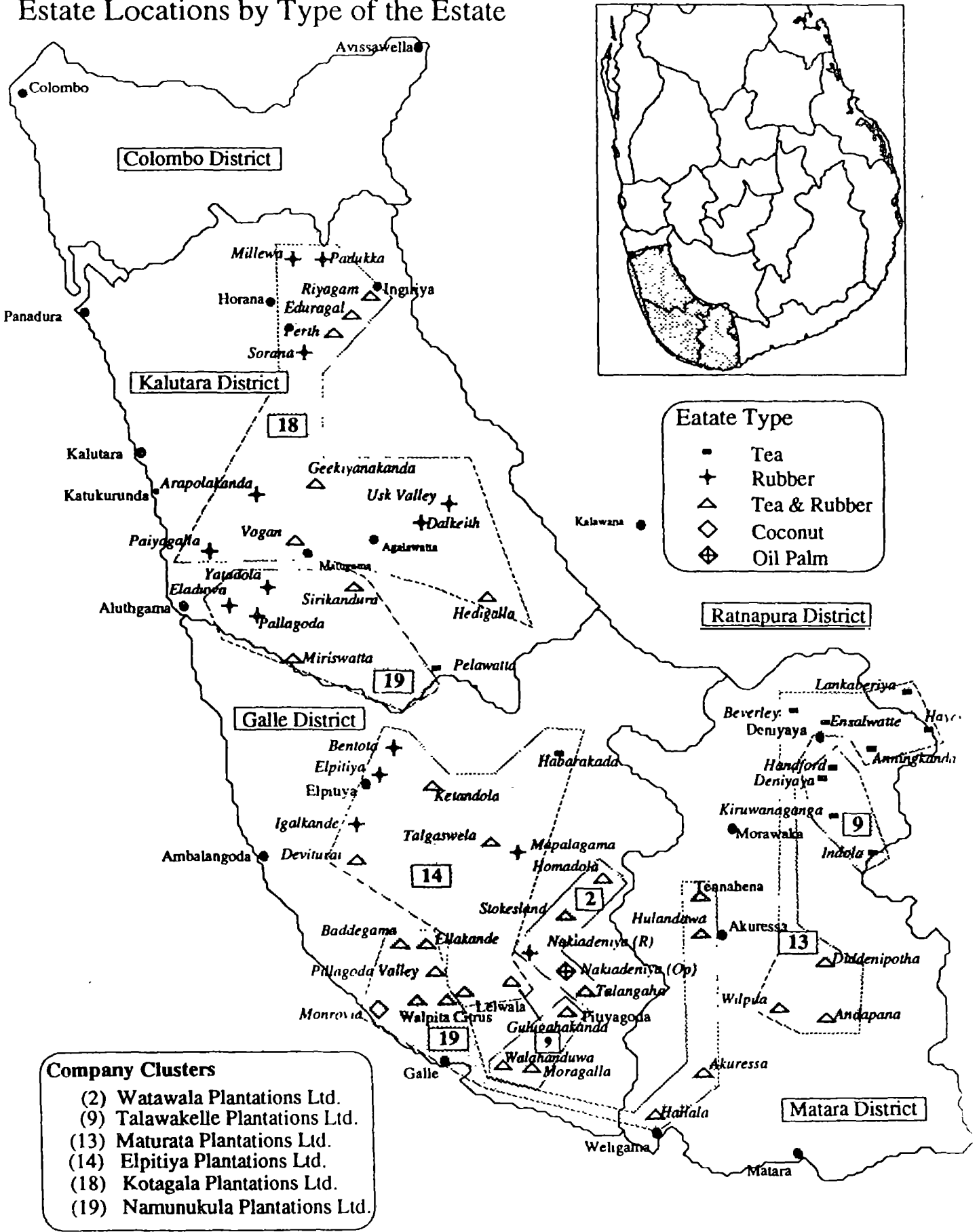
The initial findings show that the overall situation in the privately owned estates needs immediate attention as health, housing and social welfare situation is well below the rest of the plantation sector. It is likely that the privately owned estates would not be in a position to invest in social welfare and housing for the population in these estates.

Arising from the above situation, it would be logical for the state to assist these estates in providing health and other infrastructure facilities by extending national programmes and other donor assisted welfare programmes to this segment of the population as well.

The Sub-sector Committee on the Plantation Sector recognises the need to do a further study and pilot projects to obtain more information that would enable the inclusion of the privately owned plantation into a National Water Supply and Sanitation Development Plan.

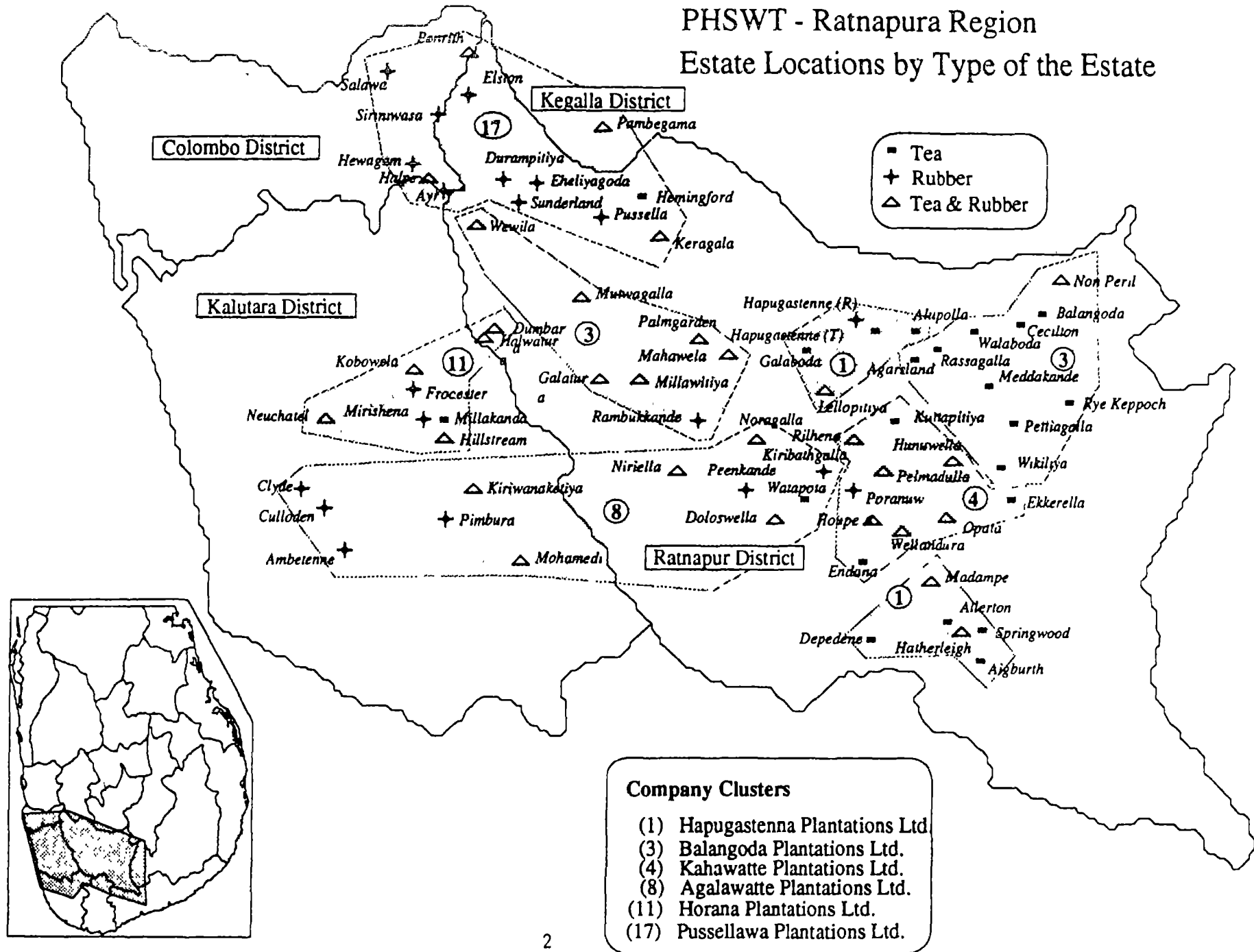
PHSWT - Galle Region

Estate Locations by Type of the Estate



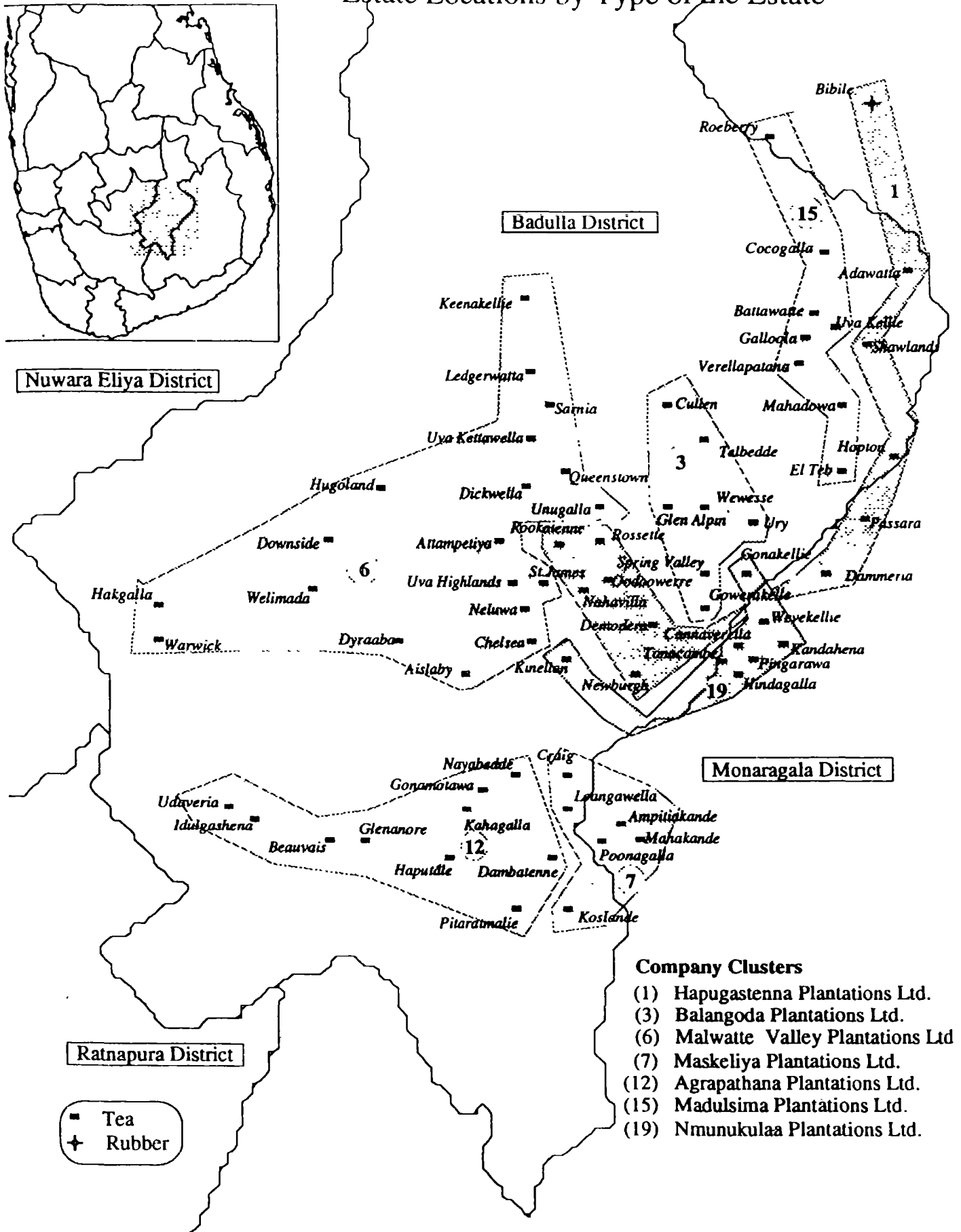
PHSWT - Ratnapura Region

Estate Locations by Type of the Estate

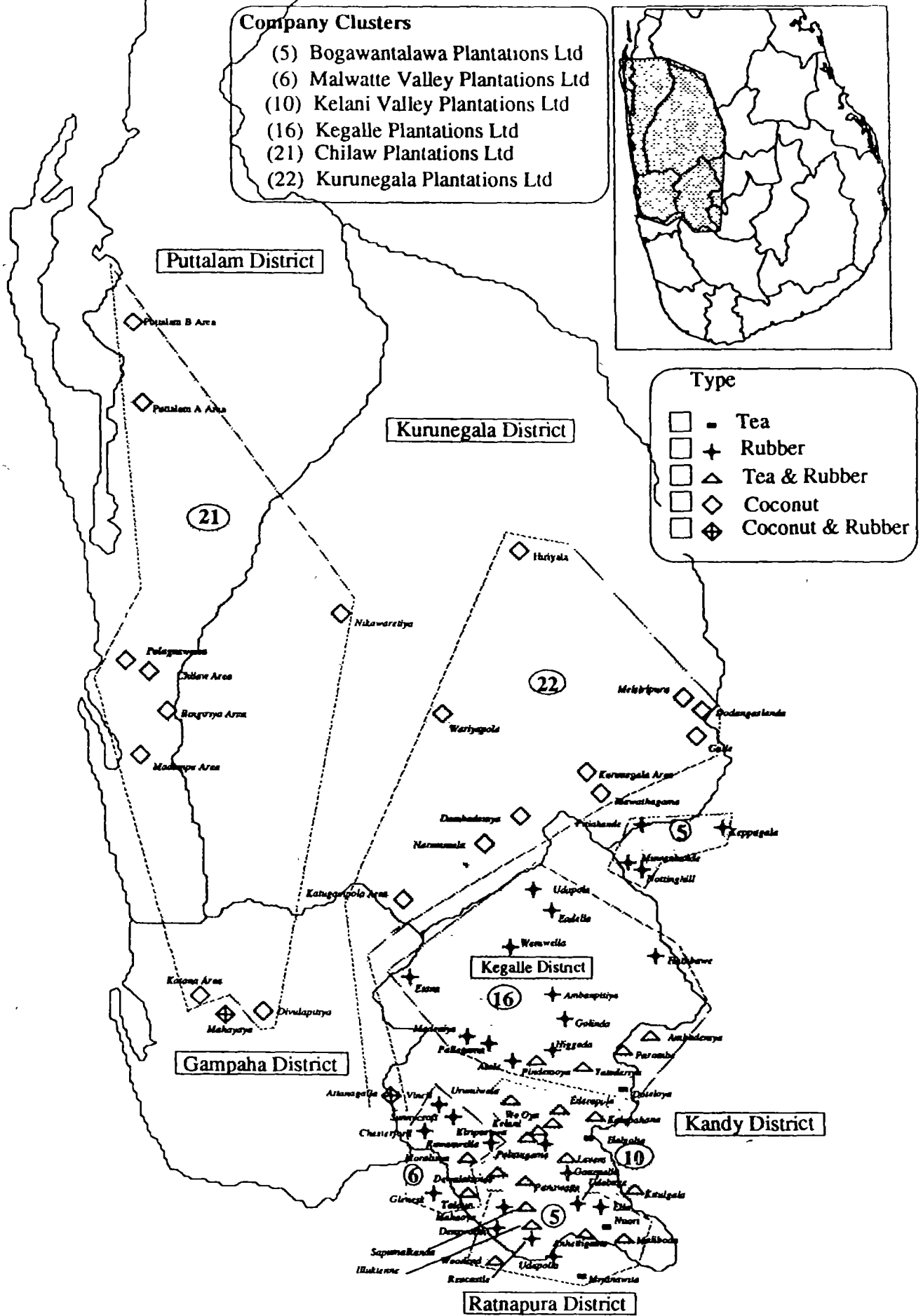


PHSWT - Badulla Region

Estate Locations by Type of the Estate

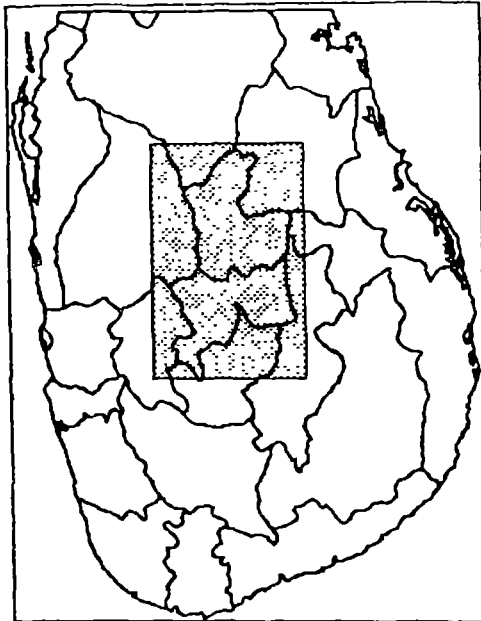


Estate Locations by the Type of the Estate PHSWT - Kegalle Region

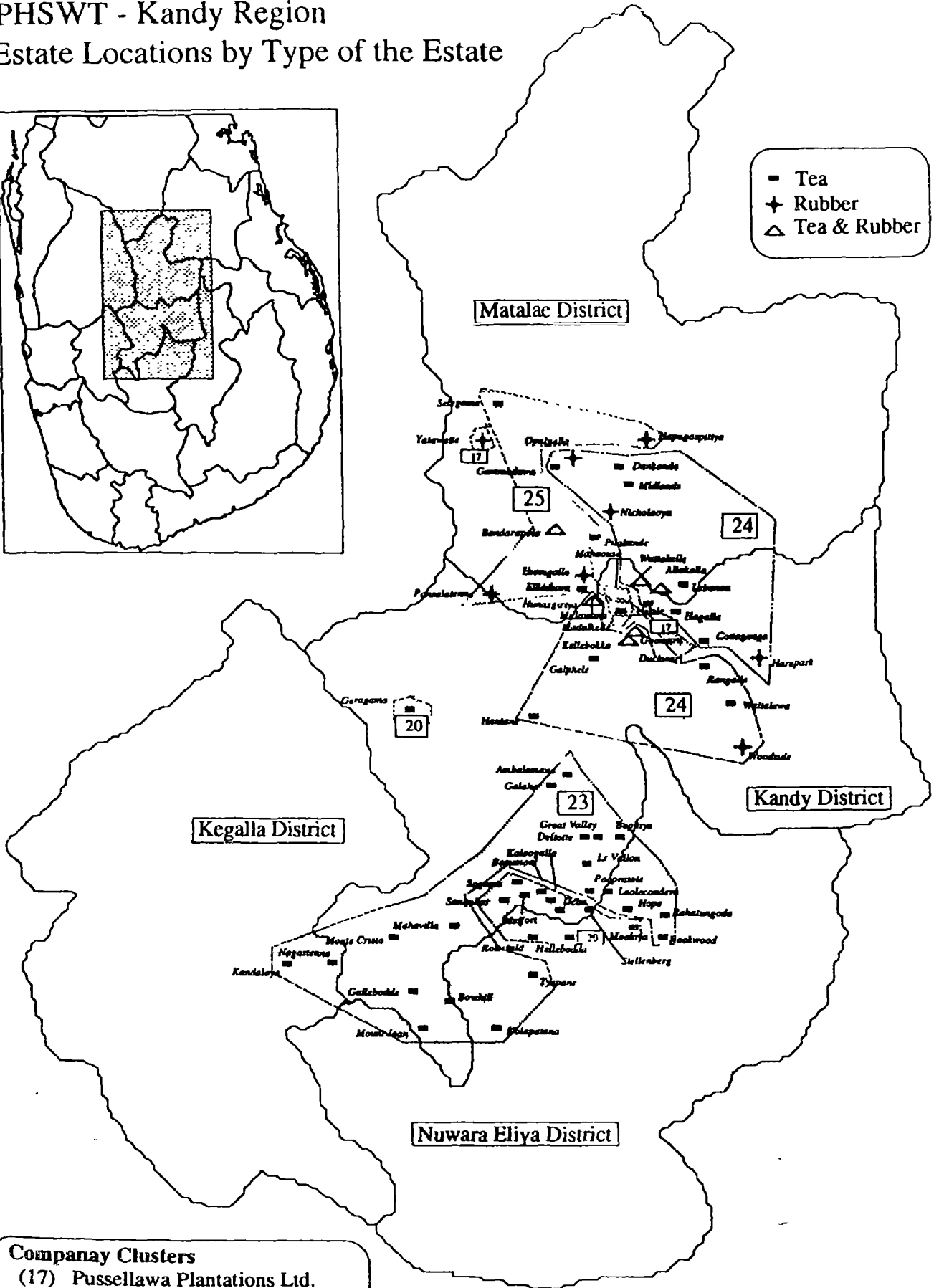


PHSWT - Kandy Region

Estate Locations by Type of the Estate



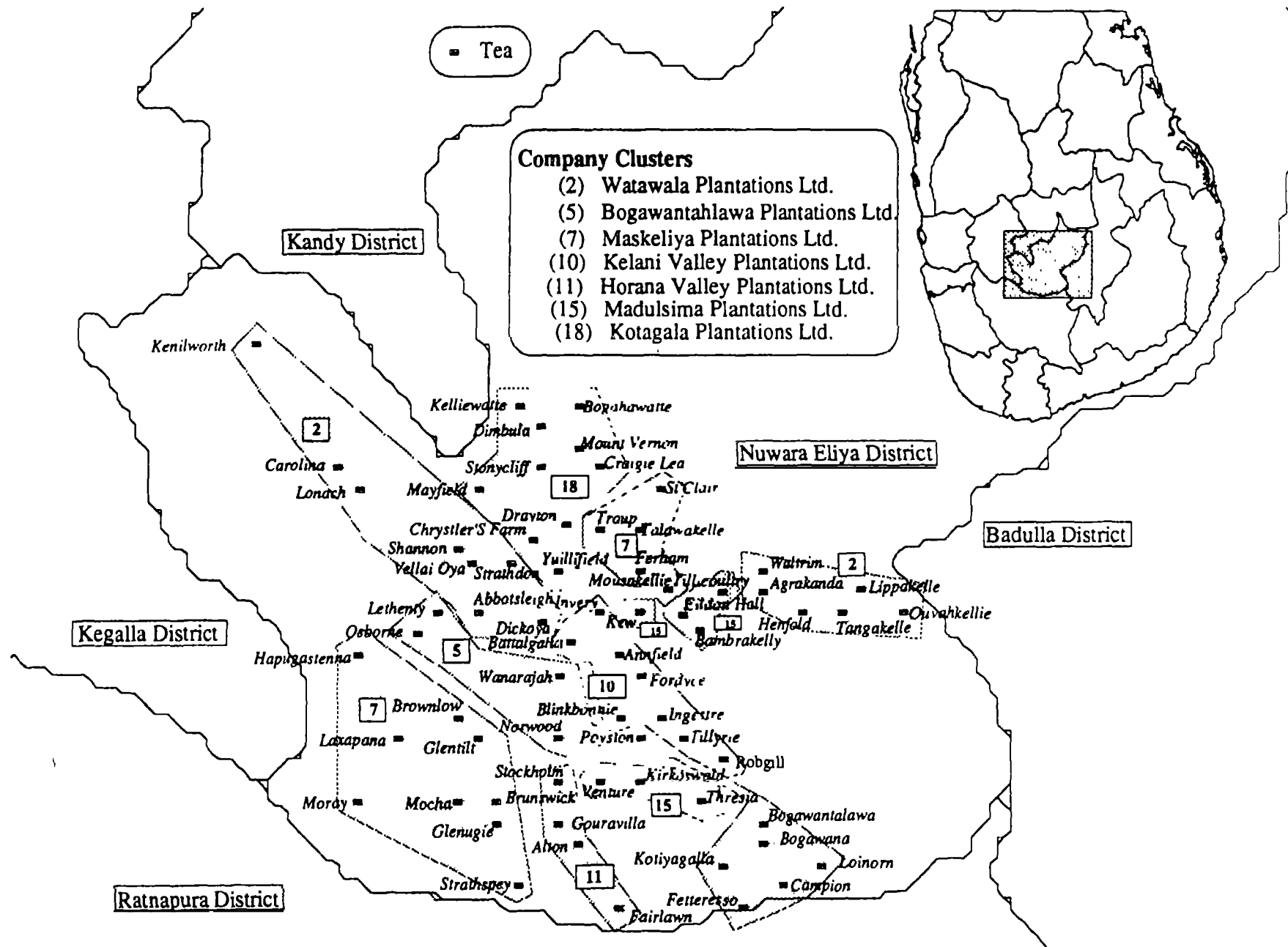
- Tea
- ✦ Rubber
- △ Tea & Rubber

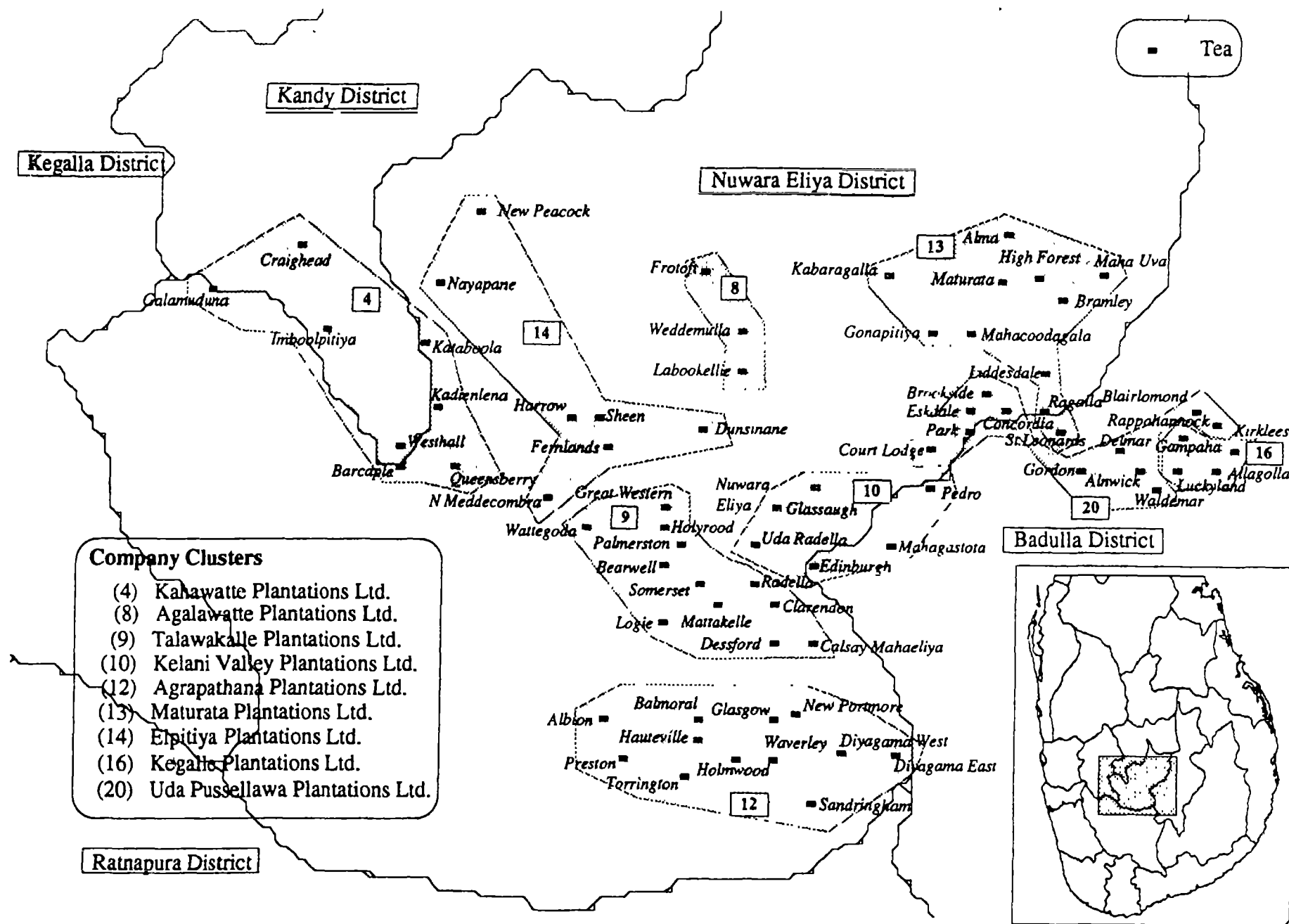


- Company Clusters**

 - (17) Pussellawa Plantations Ltd.
 - (20) Uda Pussellawa Plantations Ltd.
 - (23) JEDB
 - (24) SLSPC
 - (25) Elkaduwa Plantations Ltd.

PHSWT-Hatton Region - Estate Locations by Type of the Estate





Company Clusters

- (4) Kahawatte Plantations Ltd.
- (8) Agalawatte Plantations Ltd.
- (9) Talawakalle Plantations Ltd.
- (10) Kelani Valley Plantations Ltd.
- (12) Agrapathana Plantations Ltd.
- (13) Maturata Plantations Ltd.
- (14) Elpitiya Plantations Ltd.
- (16) Kegalle Plantations Ltd.
- (20) Uda Pussellawa Plantations Ltd.

PHSWT - Nuwara Eliya - Estate Locations by Type of the Estate Region



