

5 IMPLEMENTATION MANUAL

5.1 Establish a Policy for Settlement Improvement in CMC

In the light of the recent commencement of the STP/REEL High Rise Building Programme, MUDCP/NWSDB/NHDA/USIP/CMC should consult with STP/REEL and formulate a general policy on the upgrading of services to the settlements in CMC.

There is a need to liaise closely with CMC. The Municipal Council is the agency responsible for environmental matters such as sanitation, drainage, solid waste disposal, public health etc, and there must be consultation and co-ordination with CMC and other ongoing projects in the municipality. The institutional framework for re-location and upgrading of settlements is shown in Figure 5.

It is most important to co-ordinate the work of the donor community to ensure that there is no duplication of effort and that a common approach to the problem of underserved settlements is developed.

STP/REEL have computerised information on every settlement in CMC BY Ward. A sample of Ward 2 is given in Figure 5-1. A breakdown of the STP/REEL information for the whole of CMC and for the approximate area of CB1 is given in Figure 5-2. This Figure abstracts the number of Low cost Flats (LCF), Old Deteriorated Quarters (ODQ) and Unplanned Dwellings (UPD), leaving the total number of settlements comprising of Shanties, Slums and Relocated Houses which require individual household connections.

5.2 Identify Settlements for Upgrading

Having reached agreement on general policy with the parent ministry and its various agencies plus CMC, NWSDB should then classify the settlements from a desk exercise as follows:

- Designated for early re-location (next 3-5 years)
- Designated for later re-location
- Non-Designated; That is settlements which will not be subject to re-location

As can be seen the CB1 area contains 57% of the settlements and 50% of the households out of the totals in CMC. In all cases where settlements are classified as designated for re-location to

High Rise Buildings, it may be appropriate to adopt short-term, low-cost solutions to any environmental problems that may arise from the installation of household connections. However, low-cost solutions must be compatible with the general design standards of CMC in terms of grey, black and storm water disposal.

Settlements designated for re-location in Phase I of the High Rise Building Programme should be given special consideration since re-location may take place in the next 2-3 years. The list of such settlements may be obtained from STP/REEL.

As regards the non-designated settlements, NHDA has recently identified 90 settlements in CMC which will remain for upgrading of services. 44 will be re-developed whilst 36 will require re-locating. This list is available from NHDA/USIP and shows 41 settlements located in CB1. There is currently a joint CMC/GTZ initiative, which may involve upgrading of 52 of these settlements, and there is clearly a need for co-ordination.

Having identified the 41 settlements for upgrading in CB1, the future of the remaining 64 non-designated settlements (105-41) should be determined.

5.3 Site Inspection of Settlements

In order to finalise classification and selection of settlements, it will be necessary to carry out site inspections to establish the present condition of services at each location. This is a vital step in view of the diverse nature of the settlements and the huge variation in the number of households per settlement. Figure 5-3 gives the settlements broken down by number of households, showing that about one third of the settlements are of 10 or less households, and a total of about 60% are of 20 households or below. Clearly such settlements require a different approach to that of the larger pilot sites, and it is likely that there will be little or no environmental improvements required. A limited number of site visits by the Study Team shows that this will probably be the case.

There is no one solution that will fit the various settlements, hence the need for comprehensive data collection. Furthermore the sites must be located on drawings to enable a systematic approach to be made to implementation.

5.4 Allocation of Settlements for Upgrading

Since it is the current policy of NWSDB to convert all settlements in CB1 by 2003 to individual household meters, regardless of their STP/REEL designated status; implementation of this policy may be achieved through the following broad classification:

- NWSDB Direct Labour Works Little or no environmental upgrading required
- Current JBIC Loan Some environmental improvement required

- Further Loans from JBIC/Others Permanent and substantial sanitation and/or drainage works for settlements identified by NHDA to remain as permanent townships.

(i) NWSDB Direct Labour Works

Where little or no environmental upgrading is required the NRW driven individual household connection project currently underway by NWSDB may continue.

Limited site inspections have revealed that there should be many settlements where additional environmental works will not be required, particularly where the number of households is small. Whereas it is accepted that NWSDB is not the agency responsible for sanitation and drainage, it will have to recognise some responsibility for the prevention of environmental degradation resulting from its household connection policy in settlements.

It should be possible for NWSDB together with the settlement landowner and CMC, to find ways to finance environmental improvements. Landowners, particularly agencies such as NHDA and SLLRDC may be able to contribute to such improvements. In addition CMC may be able to assist, particularly with offsite improvements, and it may be able to co-ordinate with the particular Ward Member for the allocation of his annual budget of Rs 1.5 million for settlement improvements.

The alternative is not to install individual connections in environmentally vulnerable settlements and suffer the consequences of the continuation of the NRW problem, or to develop a policy of payment for standpost water.

There are many examples in other countries of successful standpost supply schemes where charges are levied, and the most successful are where the communities operate, maintain and organise payment.

However, it is difficult to see payment for standpost water being accepted in Colombo, as there is a political/historical background to the provision of free water from standpost supplies in

settlements. Standpost water is not supplied free outside of Colombo, so there is a chance, given the political-will that it could succeed. The chance of success would be much higher if standpost supplies were to be operated and maintained by communities.

(ii) Current JBIC Loan

Where some improvements to the environmental conditions are required, and the settlements are not suitable to be permanent sites, then low-cost solutions must be found. Schemes under *the current JBIC loan allow the employment of a consultant and an NGO*. The environmental improvements could be carried out by the communities under the guidance of an NGO following on from the installation of household water connections by NWSDB. There has recently been some capacity building within NGO personnel for installation of services, and it should be feasible for the NGO/Community to develop the necessary action plan, with the design being checked by the consultant, and approved by CMC.

Once again, funds may be forthcoming from landowners/CMC/Ward Members. However, should it be necessary for the board to provide some limited funding for environmental issues arising, it should be noted that the income generated from the installation of individual connections in settlements will be substantial and will easily offset the one off costs for environmental improvements. For example, the cost to install 30,000 individual connections over say a five year period would be in the order of Rs 75-100 million, whereas total revenue over the same period could as high as Rs 200-230 million.

(iii) Further Loans from JBIC/Others

As already stated, NHDA has recently identified ninety settlements in CMC (forty-one in CB1) suitable for permanent occupation, forty-four require re-development whilst thirty-six require to be re-located. Full water supply, sanitation and drainage schemes may be implemented in these settlements similar to the JBIC/JOCV projects in Greater Colombo. The JBIC/JOCV projects involved the use of a local NGO with community participation from the formulation of an action plan to the actual construction of a substantial proportion of the works. The pilot projects in CB1 did not have the opportunity to test the community participation on sanitation and drainage works since the sites were designated for early re-location at a late date during the project implementation. However, it is clear that the communities in CB1 are willing to contribute and participate in a similar manner to the Badowita project, hence adopting the same system should prove successful.

One outcome of the Badowita pilot project was that bulk domestic metering to groups of householders is not workable and is not considered to be an option for future settlement improvements. It was also noted that all conversion schemes to individual connections must have a follow-up procedure to ensure that monthly water bills are paid. In addition, NWSDB must ensure that the first and subsequent bills are issued monthly, and that the meter is read accurately and correctly. There should also be an education programme on the economic use of water to restrict monthly water bills to the minimum.

Recommendations for the selection system are given in Figure 5-4.

5.5 Summary

NWSDBs current proposal is to complete the NRW exercise in CB1 by 2003. This involves about 780 settlements; therefore the settlements must be broken down into groups, which may be summarised generally as follows:

Settlements in CB1 Area

Implemented by	Settlement Status	Extent of Upgrading
NWSDB Direct Labour Works	Designated	Individual Connections, little or no Environmental Work
By Contracts through current JBIC Loan	Designated	Individual Connections, some environmental improvement works
Further Loans by JBIC and/or other Donors	Non-Designated	Individual connections, full Water Supply Sanitation & Drainage Works

Because of the large variation in settlement sizes it is not possible to give the number of settlements to be allocated to each of the above with any accuracy. However it is possible to give an indication of the number of connections that can be installed under the current JBIC loan. At an average estimated cost of Rs 3,000 per household for water supply infrastructure, about 5,250 connections can be installed. That is equivalent to 100 settlements of average 50 households, but the actual number of settlements would depend on the site investigations.

This leaves about 25,000 connections to be done by NWSDB between now and 2003. The current annual budget of Rs 5 million per annum would only finance 5,000 connections over a three-year period. The availability of finance and the capacity to carry out the work is something that requires immediate attention.

There is no information yet on the availability of additional loans for the upgrading of settlements identified for permanent occupancy, and in addition the scope of the CMC/GTZ project referred to earlier must be ascertained to determine the remaining settlements.

To speed up project implementation it is recommended that NWSDB commence work now, through the Project Implementation Unit (PIU), to establish a policy for the upgrading of settlements in CMC, particularly the CB1 area. Identification of the settlements by a desk study followed by site visits will enable allocation of the settlements to the three methods of implementation, previously described.

6. IMPLEMENTATION PROCESS

Further loans will be required for the upgrading of water supply, sanitation and drainage for non-designated settlements that require permanent improvement. These projects will be community demand driven and the implementation process is shown in Figure 6-1.

The recommended implementation process for individual connections and environmental improvements to be carried out by NWSDB and through the current JBIC Loan are basically NRW driven projects in designated settlements, and the implementation process is shown in Figure 6-2.

6.1 Further Loans from JBIC and/or Other Donors

6.1.1 Employment of a Consultant

Depending upon the terms and conditions of the loan, either the financing agency or NWSDB should employ a consultant to work together with NWSDB to implement the projects.

6.1.2 Consultant Employs NGO

The first task of the consultant will be to appoint an NGO, or if necessary a number of NGOs to facilitate capacity building for community participation within the NGO fraternity. The contract for NGO(s) should set out the settlements to be facilitated, the major tasks to be accomplished, a total contract period, and a total cost, but should not be too rigid with methodology and interim targets, as the strength of communities will vary.

6.1.3 NGO Facilitation of Settlements

The NGO should first carry out site visits and confirm the suitability of the various settlements already pre-selected by the PIU. This can be done on the basis of a Baseline Survey as described earlier in this report. When selections are confirmed, the basic tasks of the NGO at each settlement will be to:

- Form an effective CBO, by reviving and strengthening existing CBO or CDC, or forming a CDC if none exists. A CDC is preferable as such organisations are fully recognised by CMC.
- Assess the overall needs of the people in terms of social and environmental aspects
- Explain and agree with the community, the NWSDB household connection scheme, (together with NWSDB)
- Form a Water Committee
- Evaluate the environmental impact of installing household connections, and agree any environmental improvement works such as sanitation and drainage with the community. Refer the outcome to the Consultant/NWSDB/ for evaluation and initial layout design and estimate.
- Formulate an Action Plan with the community based on community participation in the provision of water services (free labour), and the contribution of cash and labour to the construction of environmental improvement works by the community.

6.1.4 Applications for a Water Connection

NWSDB should then commence its application procedure for the provision of individual connections to households through the newly formed or strengthened CDC. This is a complex and time consuming exercise best left to NWSDB, and it should run in parallel with the following works.

6.1.5 Preparation of Improvement Plans

i) Water Supply

The PIU of NWSDB, together with the consultant should prepare layouts and estimates of the water reticulation system within the settlement together with details of the connection to the outside distribution system.

ii) **Environmental Improvements**

The NGO, together with the community should draw up plans for any environmental improvements to sanitation and drainage that will be necessary due to the provision of individual household connections. *The proposals should be referred to the Consultant for verification and to finalise construction details and costs.*

6.1.6 Confirmation with Agencies and Landowners

Having decided on the broad details of the settlement improvement, the plans for upgrading should be referred to the relevant agencies and landowners for confirmation and agreement. Depending on who the landowner is, it may be possible to have a financial contribution from the landowner. In any event, the permission or agreement of the landowner should be sought for the community to carry out the environmental improvement works.

6.1.7 Agreement with the Community

The NGO must present the improvement plan to the community, obtain its agreement, and draw up an Agreement for the community participation and cash contribution to the project. A down payment may then be made to release disbursement of the finance.

6.1.8 Finalise Water Supply

NWSDB should finalise the water supply layout drawings and cost estimate for discussion with the consultant.

6.1.9 Finalise Total Improvement Project

In agreement with NWSDB, the consultant should finalise the details and cost estimate of the environmental improvements and formulate an integrated implementation schedule for the construction of the water supply, sanitation and drainage works.

The project may then commence with NWSDB implementing the water supply and the community implementing the environmental works.

6.1.10 Implementation and Costs

A typical Implementation Schedule is given in Figure 6-3 showing a more realistic time-scale for projects of this nature. Costs are bound to vary due to the different size and nature of the settlements. However, budget estimates could be developed using say Rs 3,000 per household for water reticulation, Rs 26,000 per household for drainage and Rs 22,000 per household for drainage. Clearly, it would be better to determine the likely cost from site inspections, should this be possible.

6.1.11 Follow-up to Implementation

i) NWSDB

NWSDB must ensure that the new meters are read at the end of the first month and that water bills are sent out on time to the new customers. Customers should also be educated on the correct economic usage of water to maintain a proper level of hygiene at the most economic rate. Further monitoring should take place to ensure the receipt of monthly bills and the making of monthly payments.

ii) NGO

Under the Guidance of the Consultant and NWSDB, the NGO should instruct the community on the operation and maintenance of the works and assist NWSDB with the education of the community on the need to pay for the new water service provided.

6.2 Current JBIC Loan

The Work under the current JBIC loan, being the Contract for Low income Settlement Environmental Improvement, is fully described in Chapter 4.4 of the Final Report. The only differences to the procedure described in the foregoing Chapter 5 are:

- (i) The Consultant will be the Construction Supervision Consultant (SVC)
- (ii) The water supply and individual connections to the settlements will be done by contract in accordance with the prototype tender documents prepared by the JICA Study Team.
- (iii) The environmental improvements will be limited to appropriate low-cost solutions commensurate with the temporary nature of the works required at settlements designated for re-location to High Rise Buildings.

6.3 NWSDB Direct Labour Works

NWSDB already has a broad programme for the installation of individual household connections in settlements. Its policy is not to install such connections if environmental problems will result. It is possible for NWSDB to select this type of settlement from the site inspections, in particular many of the small settlements located in high density housing areas should not require any additional works.

In 1999, NWSDB were able to provide about 1,500 connections and disconnect about 113 standposts with the budget of Rs 5 million. The capacity of the NRW Reduction Unit and the budget will have to be increased to raise the output to about 8,300 connections per annum. Given sufficient funds, the alternative would be to outsource the work to competent contractors.

6.3.1 Facilitation of Communities

The task of NWSDB to provide individual connections in all settlements will become increasingly difficult particularly in the small settlements in high-density housing areas. The Pilot Project for the Reduction of Non-revenue Water contains at least 27 settlements and there are 92 standposts (4 being registered wayside). All the residents in the pilot block use the standpost water as well as outsiders, and therefore a careful approach to the disconnection of standposts is required. It is recommended that an NGO with skills in the facilitation of communities be used. Should NWSDB wish to pursue the project with its own staff, then suitable personnel must be made available from among the sociologists currently employed, and/or additional staff employed. It should be noted that CDCs do not exist in communities of less than 20 households, therefore community leaders must be found to convince the people to change to household connections.

6.3.2 The Application Procedure

Experience on the pilot projects has shown that this complicated and lengthy procedure is best left to NWSDB. It is recommended that the current procedure be reviewed. It is further recommended that NWSDB set up a permanent mobile unit to handle applications on site as an alternative to having thousands of people making numerous trips to the NWSDB offices.

6.3.3 Preparation of Layouts and Estimates

Again, drawing on the experience from the pilot project, it is recommended that NWSDB design all new reticulation systems using a simple computer programme, and using pressure

readings taken at the proposed connection point to the distribution system. It is known that CB1 is a problem area for water pressure, and may remain so for some time to come.

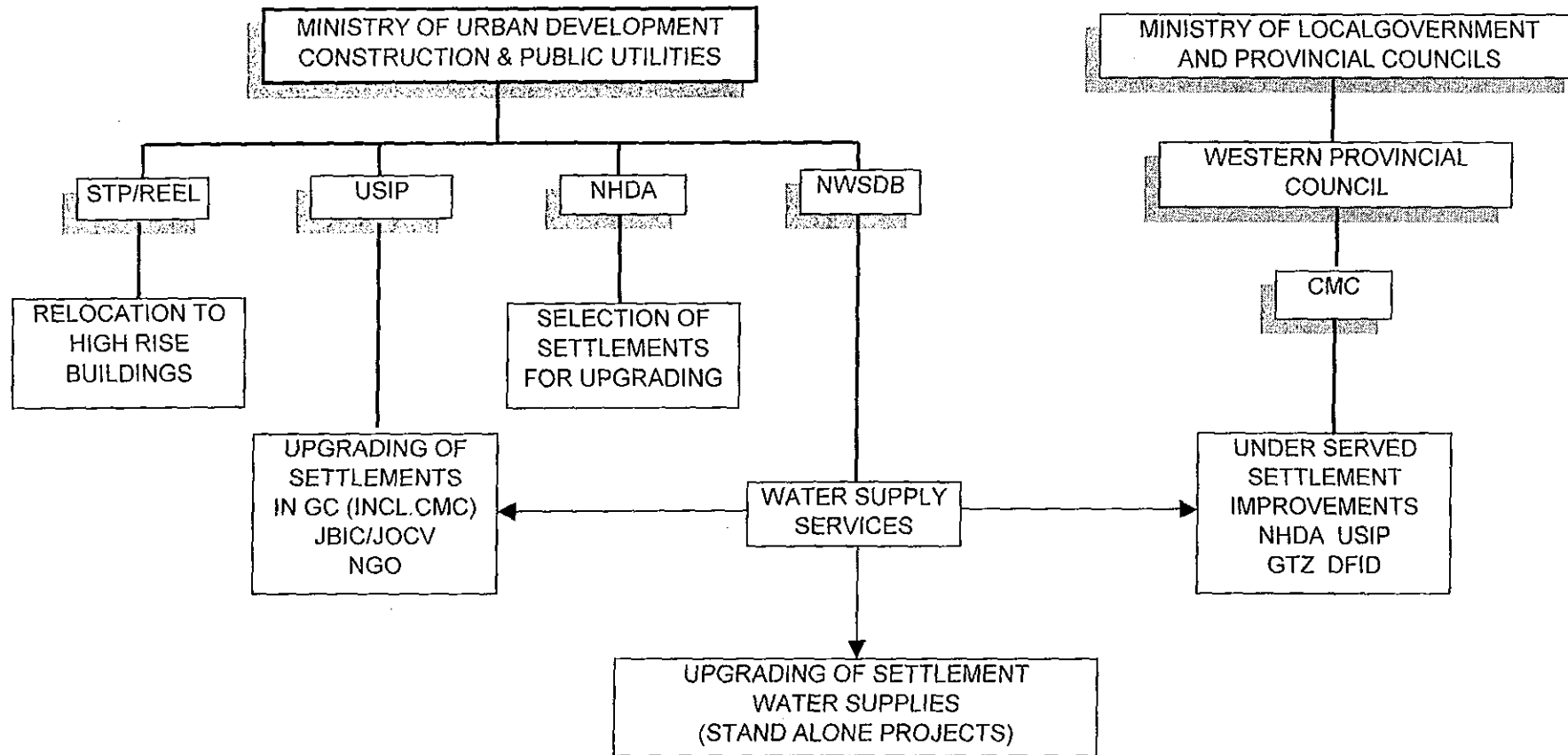
It is also recommended that the economics of laying small diameter pipes in the range ND 50mm – 100mm be carefully considered for the new reticulation systems. Layout designs and cost estimates can be prepared in parallel with the application procedure.

6.3.4 Follow-up Action

Following the construction works, in order to ensure the success of the installation of individual connections, it is essential to follow up on the timely receipt of monthly bills based on regular and accurate meter readings. NWSDB must check that payments are being made regularly by the newly connected households, and that any standposts remaining are only used for the intended purpose and that they are kept in good condition.

INSTITUTIONAL FRAMEWORK FOR UPGRADING SETTLEMENTS

Figure 5



Information Profile

Ward No : 2
Ward Name : Modara

Map Reference No.	Quest No	Name of the Settlement	Address of the Settlement	Settlement Type	Land Ownership	No of Units	Extent of the Settlement	Designated Status
3	000032	Gettuwatta (149)	Modara Street, Col. 15	Slums A	CNH	65	102	D
4	000035	141 Watta	Modara Street, Col. 15	Relocated Houses A	NHDA	32	108	D
5	000036	Wist Passage	Modara Street, Col. 15	Relocated Houses A	NHDA	30	87	D
7	000041	Bonavista Flats (64 Watta)	Modara Street , Col. 15	LCF A	Private	72	440	D
9	000040	Miniram Maduwa Watta	Aluthmawatha Rd, Col. 15	Slums A	CNH	75	143	D
18	000357	144 Watta	Madampitiya Rd, Col. 15.	Shanties A	Ports Authority	94	110	D
19	000359	Kimbula Ela	Kibula Ela, Madampitiya Rd , Modara	Relocated Houses A	Ports Authority	815	714	D
1	000216	Bokkuwatta (227, 217, 173, 167)	Modara Street, Col. 15	Slums A	CNH	173	200	D
2	000034	161 + 159 Watta	Modara Street, Col. 15	Slums A	Private	15	81	D
8	000038	Bekari Watta	Madampitiya Road, Modara, Col. 15	Slums A	CNH	23	45	D
10	000042	Rajamal Watta Lane	Rajamalwatta Lane, Modara, Col. 15	Slums A	Private	108	153	D
12	000043	Palliya Watta	Aluthmawatha Road, Col. 15	Slums A	Private	75	102	D
13	-	127 Watta	Dhawalasingharama Rd, Modara	Slums A	Private	8	10	D
14	000044	135 Watta	Dhawalasingharama Rd, Modara	Slums A	CNH+Private	11	15	D
17	000039	664 + 99 Watta	Aluthmawatha Road, Col. 15.	Slums A	Private	24	85	D
21	000033	159 Watta	Modara Street, Col. 15.	Slums A	Private	17	75	D
6	000037	Temple Road squatters	Temple Rd, Modara	Shanties A	Ports Authority	64	26	ND
15	000356	126 Watta	Madampitiya Road, Col. 15	Slums A	CNH	10	14	ND
20	-	Rajamalwatta Flats	Aluth Mawatha Rd., Modara	LCF A	NHDA	46	190	ND
11	000045	Samagipura	Aluthmawatha Rd, Col. 15	Slums A	CNH	53	82	ND
16	000358	821 Watta	Blue Mendhal Road, Col. 15	Slums A	CNH	28	41	ND

1838

Source: STP/REEL

BREAKDOWN OF STP/REEL FIGURES FOR SETTLEMENTS ETC. IN CMC

Figure 5-2

TOTAL FOR CMC

STP Classification	Total No. Housing Units	Total No. of Locations	UPD ODQ LCF
			Locations
Non Designate	10,898	249 100%	57 23%
Designated	55,042	1264 100%	96 8%
Combined	65,940	1513 100%	153 10%

Settlements			
Shanties	Slums	Relocated	Total
52 21%	123 49%	17 7%	192 77%
132 10%	956 76%	80 6%	1168 92%
184 12%	1079 71%	97 6%	1360 90%

CB1 AREA OF CMC

STP Classification	Total No. Housing Units	Total No. of Locations	Flats etc UPD ODQ LCF		Settlements				Total Housing Units
			Locations	House Units	Shanties	Slums	Relocated	Total	
Non Designate	6,338	136	31	3146	16 15%	87 83%	2 2%	105 100%	3,192
Designated	33,462	723	47	3171	70 10%	568 84%	38 6%	676 100%	30,291
Combined	39,800	859	78	6317	86 11%	655 84%	40 5%	781 100%	33,483

Source: STP/REEL

BREAKDOWN OF STP/REEL INFORMATION ON SETTLEMENT HOUSEHOLDS

Figure 5.3

TOTAL FOR CMC

Classification	Settlements				Settlements by Number of Households							
	Shanties	Slums	Relocated	Total	1 to 10	11 to 20	21 to 50	51 to 100	101 to 200	201 to 300	301 to 500	Over 500
Non-Designated	52 27%	123 64%	17 9%	192 100%	68 35%	51 27%	38 20%	25 13%	7 4%	1 1%	1 1%	1 1%
Designated	132 11%	956 82%	80 7%	1168 100%	367 31%	310 27%	294 25%	104 9%	54 5%	18 2%	11 1%	10 1%
Combined Total	184 14%	1079 79%	97 7%	1360 100%	435 32%	361 27%	332 24%	129 9%	61 4%	19 1%	12 1%	11 1%

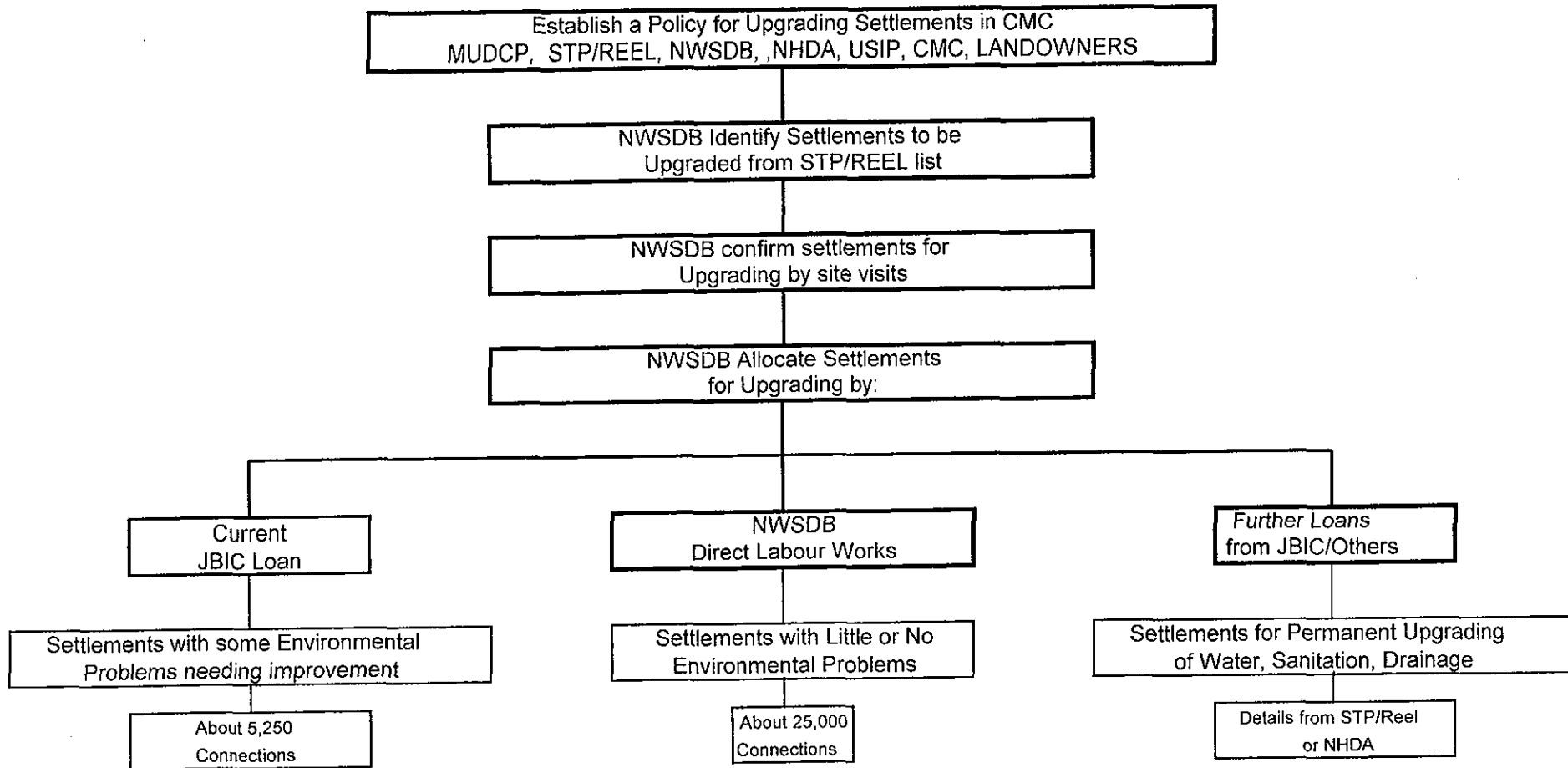
CB1 AREA OF CMC

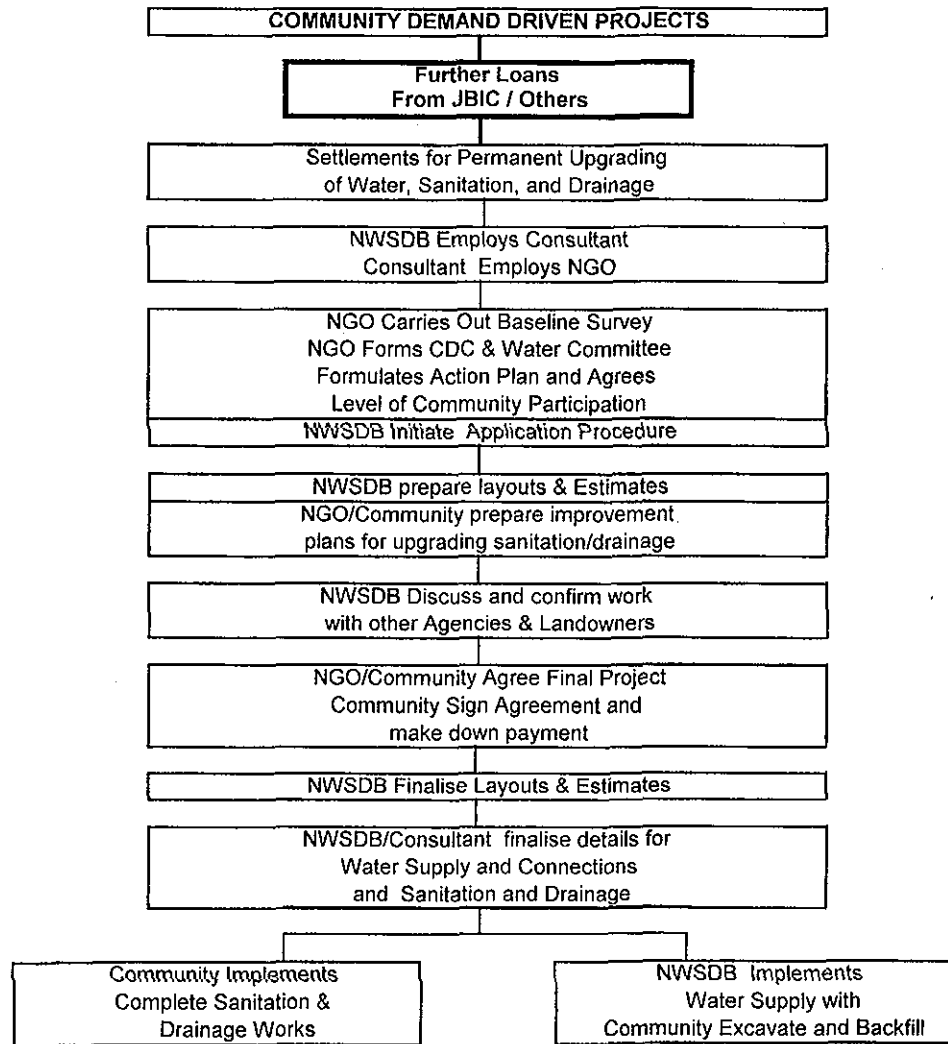
STP Classification	Settlements				Settlements by Number of Households							
	Shanties	Slums	Relocated	Total	1 to 10	11 to 20	21 to 50	51 to 100	101 to 200	201 to 300	301 to 500	Over 500
Non-Designated	16 15%	87 83%	2 2%	105 100%	36 34%	35 33%	21 20%	10 10%	1 1%	0 0%	1 1%	1 1%
Designated	70 10%	568 84%	38 6%	676 100%	221 33%	171 25%	173 26%	57 8%	27 4%	14 2%	6 1%	7 1%
Combined Total	86 11%	655 84%	40 5%	781 100%	257 33%	206 26%	194 25%	67 9%	28 4%	14 2%	7 1%	8 1%

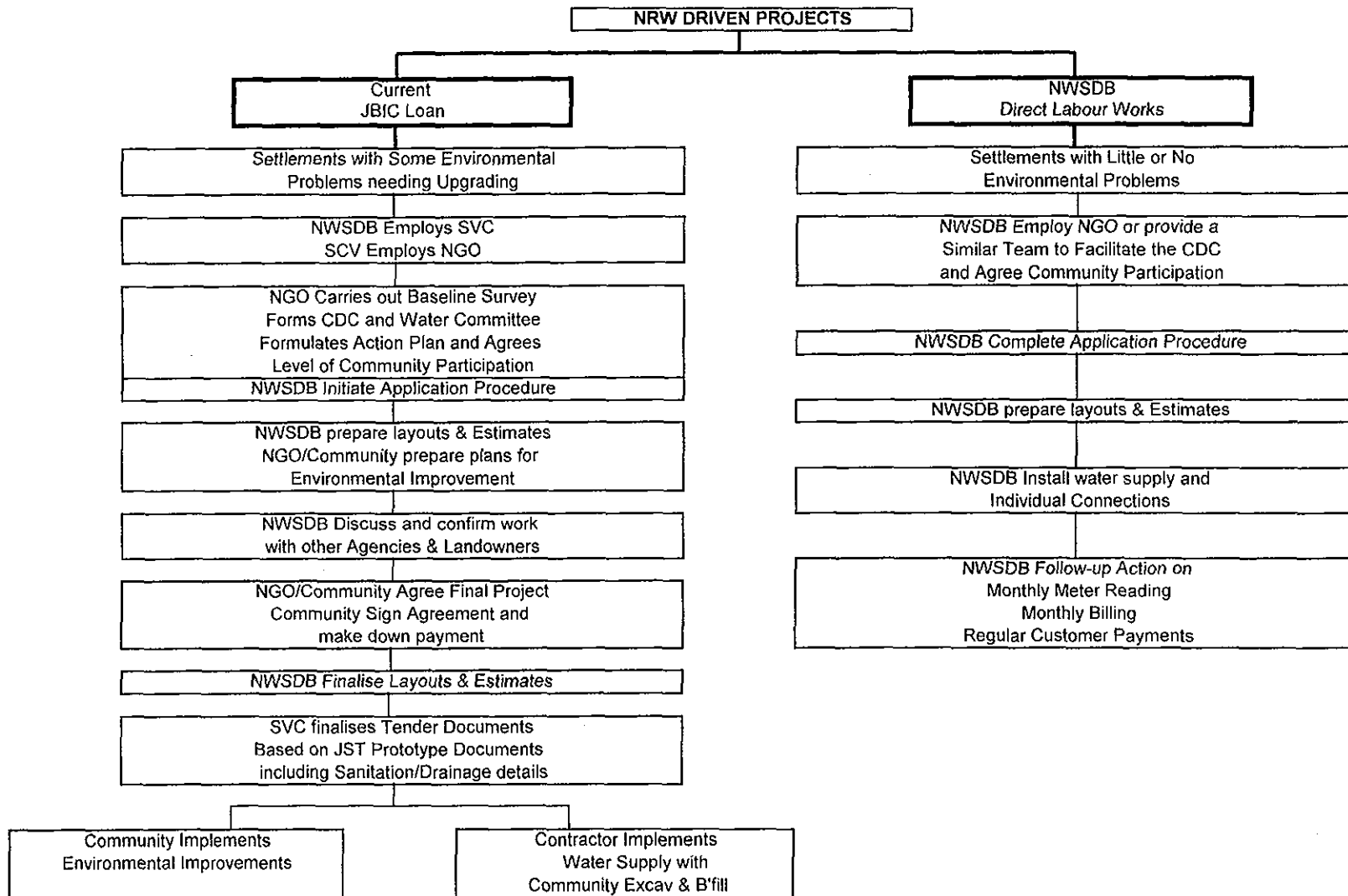
Source: STP/REEL

SELECTION SYSTEM FOR SETTLEMENT UPGRADING PROJECTS

Figure 5-4







TYPICAL IMPLEMENTATION SCHEDULE FOR SETTLEMENT UPGRADING WITH FURTHER JBIC AND/OR OTHER LOANS

Figure 6-3

Preliminary Work	Months	1	2	3
Establish Policy Framework		[Bar from month 1 to 3]		
Identify Settlements for upgrading from STP/REEL data		[Bar from month 1 to 2]		
Confirm by site visits			[Bar from month 2 to 3]	
Allocate Settlements for the projects			[Bar from month 2.5 to 3]	

No. of Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Appointments																					
NWSDB Employs Consultant	[Bar from month 1 to 2]																				
Consultant Employs NGO			[Bar from month 3 to 4]																		
Preparation Work																					
NGO Total Input				[Bar from month 4 to 21]																	
NGO Carries out Baseline Surveys				[Bar from month 4 to 5]																	
NGO Forms CDC/Water Committee					[Bar from month 5 to 7]																
NGO-Community Participation & Action Plan						[Bar from month 6 to 8]															
NWSDB carries out Application Procedure								[Bar from month 8 to 13]													
NWSDB - Water Supply Layouts & Cost Estimates								[Bar from month 8 to 9]													
NGO/Community- Sanitation & Drainage Layouts								[Bar from month 8 to 9]													
Consultant Finalises Layouts									[Bar from month 9 to 10]												
NWSDB Discuss /Confirm with Agencies/Landowners										[Bar from month 10 to 11]											
NGO Agreement with Community											[Bar from month 11 to 12]										
NWSDB Finalise Water Supply Layouts & Estimates												[Bar from month 12 to 13]									
Community Sign Agreement & Make Down Payment													[Bar from month 12 to 13]								
Consultant Finalises All Layouts													[Bar from month 13 to 14]								
Construction																					
NWSDB Implement Water Supply														[Bar from month 14 to 18]							
Community Implement Sanitation & Drainage														[Bar from month 14 to 18]							
NGO Assists Community Implementation														[Bar from month 14 to 18]							
Follow-up																					
NWSDB Follow-up on Billing/Payment																			[Bar from month 19 to 20]		
NGO Follow-up with Community on O/M etc																			[Bar from month 19 to 20]		

APPENDIX 4C

WATER AWARENESS MASS MEDIA
CAMPAIGN

APPENDIX 4C-1

NGO REPORT ON THE SURVEY IN
COLOMBO CITY FOR A WATER
AWARENESS MASS MEDIA CAMPAIGN
(FINAL REPORT ON THE
QUESTIONNAIRE SURVEY – NOV. 2000)

**THE SURVEY IN COLOMBO CITY
FOR A
WATER AWARENESS MASS MEDIA CAMPAIGN**

**Final Report on the Questionnaire Survey
November 2000**

**Submitted by SEVANATHA – Urban Resource Centre to Nihon Suido Consultants (NSC)
Co. Ltd., No. 7/9, Jayanthe Mawatha, Pelawatta, Talangama North, Sri Lanka**

**THE SURVEY FOR A
WATER AWARENESS MASS MEDIA CAMPAIGN**

TABLE OF CONTENTS

1	Introduction	1
2	Objectives of the Study	1
3	Selection of Survey Area	2
4	Organization of the Field Survey	3
5	The Questionnaire Survey	3
6	Data Analysis	5
7	Findings of the Survey – General Questions	6
	7.1 Type of Respondents	6
	7.2 Water Usage	6
	7.3 Availability of Water	6
	7.4 Settling of Water Bills	7
	7.5 Customers Opinion of Water Pressure	7
	7.6 Satisfaction with the Quality of Water	7
	7.7 Customer Opinion of the Present Situation of Water Supply	8
	7.8 Meter Readers Visit	8
	7.9 Complaints about the Water Bill	8
	7.10 Complaints about Water Leakage	8
8	Findings of the Survey – Awareness Questions	9
	8.1 Awareness of Water Supply Agency	9
	8.2 Opinion on Current Water Tariff	9
	8.3 Customer Justification for Paying for Water	9
	8.4 Awareness of Leakage, Free Water, Illegal Connections	10
	8.5 Awareness on Misuse, Wastage and Loss of Revenue	10
	8.6 Preventative Measures on Misuse and Illegal Connections	10
	8.7 Water Conservation Methods Used	10
	8.8 Knowledge on Source of Supply and Costs	10
	8.9 Desire to Know More about Water Supply	10
9	Conclusion	11
Annex 1	Findings of the Survey: Frequency Tables	12
Annex 2	Questionnaire	23

THE SURVEY FOR A WATER AWARENESS MASS MEDIA CAMPAIGN

1 Introduction

The demand for a reliable supply of pipe-borne water is growing rapidly due to the expansion in the population as well as due to the escalating demand from the commercial and industrial sectors. In Colombo City the majority of the city population enjoys water supply through pipe-borne water connections. Most of the low-income communities obtain their pipe-borne water through common standposts.

The bulk of the water supply to the City of Colombo is provided by the National Water Supply and Drainage Board, with operation and maintenance mainly being carried out by the Water Supply Section of the Colombo City Council. The total monthly water supply to Colombo City in October 1999 was 8,237,980 m³. Out of this total supply 4,428,885 m³ (53.76%) is considered to be non-revenue water. Such a large volume of non-revenue water in the city was attributed to system leakages, illegal connections, meter related losses and the free supply from standposts in Tenement Gardens.

The Government of Sri Lanka and the Japan International Cooperation Agency (JICA) has assigned an agreement under which the Nihon Suido Consultants Company in Japan to do a detailed study for the reduction of non-revenue water in the Greater Colombo areas. It has been planned to carry out this study over a period of 14 months from December 1999. As part of this study, a questionnaire survey for a Water Awareness Mass Media Campaign was planned, involving about 1000 Water Board customers within the Colombo Municipal Council area. SEVANATHA - Urban Resource Centre, a national level Non- Governmental Organization, has been engaged by the JICA study team to carry out the interviews of identified customers.

2 Objectives of the Study

The primary objective of this questionnaire survey has been to gather information from a cross sections of the customers regarding their awareness of the water supply system, their own particular water use, problems encountered by them and suggestions for improvement. More specifically data on the following aspects were to be collected.

- How much the public know about their water supply
- To find out how they use water
- What problems do they face
- How such problems can be solved
- To obtain their views on the general situation of the water supply
- To compare the price of water with electricity and telephones

- To test awareness of the importance of conservation of water, the need to avoid misuse, and the need to pay for water services
- To test awareness of leakage, free water and illegal connections
- To test awareness on their knowledge of supply sources and costs

The results of this questionnaire survey are to be used to formulate the components and activities of a long-term Water Awareness Mass Media Campaign, which it is hoped will obtain public support, cooperation and participation in a drive to reduce the amount of non-revenue water to the benefit of both the public and the Water Board

3 Selection of Survey Area

The survey area of the project is the Colombo Municipal Council area. This area consists of 47 Wards, covered by 15 postal areas. Postal areas were chosen as a basis for location of customers in an effort to ease the field work.

Out of a total of about 77,000 computerized customers in CMC, 1000 were chosen at random from print-outs of 5,000 customers for both domestic (700) and non-domestic (300) customers for the survey. The survey covered households, industrial, commercial, government institutions and tourist places etc.

Distribution of sample customers of the survey are indicated as follows:

Postal Code	Domestic	Non-Domestic	Total	P.C % Total
1	00	32	32	3.2
2	41	51	92	9.2
3	61	34	95	9.5
4	74	06	82	8.2
5	17	21	38	3.8
6	107	09	116	11.6
7	79	35	114	11.4
8	52	10	62	6.2
9	31	05	36	3.6
10	61	37	98	9.8
11	30	13	43	4.3
12	14	10	24	2.4
13	64	12	76	7.6
14	53	14	67	6.7
15	16	11	27	2.7
Total	700	300	1000	100.0

The above list with detailed information such as addresses of places was made available to SEVANATHA the local NGO who has been contracted to carry out the survey by the JICA Study team.

4 Organization of the Field Survey

The steps indicated below were followed in carrying out the questionnaire survey.

- i) The questionnaire survey was carried out with selected water board customers during the period from May to June 2000.
- ii) Recruited ten (10) field investigators who were diploma holders of the government Social Service School in Colombo.
- iii) The field investigators were trained for two days on interpretation of the questionnaire and gathering the field data.
- iv) The ten field investigators were grouped into five groups and sent off to the field for pre-testing of the questionnaire.
- v) Subsequently certain modifications were introduced to the questionnaire in consultation with the JICA Study Team.
- vi) It was planned to interview seven customers (07) by a group in a day, but due to difficulties of locating the customers as well as time taken for explaining the purpose of the survey etc. it was possible only to complete four to five interviews per day.
- vii) Staff of SEVANATHA supervised the field survey on daily basis.

5 The Questionnaire Survey

In obtaining information from domestic customers care was taken to interview either the head of the household or an adult member to maintain the accuracy of data. However, in certain cases considering the time limitations etc, the survey team had to obtain information from the other members of the house. However, the number was insignificant since 85.9 % of the respondents of the domestic category were head of the household / spouse (See Table 1.0 in annex 1).

In the case of the non-domestic category, the type of respondents included owner, the employees, security officers and others. However, in this category too, it was able to gather information from concerned officials (employees) in about 84.9 % cases and another 12.1% from the owners themselves. Thus, from the non-domestic category too the survey had covered about 97% responsible respondents (See Table 1.1 in annex 1).

However, despite the use of postal district addresses and Water Board employees, problems were encountered that lead to an extended survey period. The major problems are set out below:

- i) The investigators had to interview a mixed group of customers including high-ranking executives, businessmen, high and middle-income residents who generally have little or no regard for this type of surveys due to their busy schedule. As a result some of the respondents did not want to spend their time to answer a lengthy questionnaire.
- ii) The questionnaire itself was a lengthy one running over seven pages consisting of 85 questions, that required about one to one and half hours time from a respondent. Requesting such a long time for responding to questionnaire had become a difficult compromise with many of the customers. The Questionnaire was a combination of general and awareness questions jointly drawn up by NWSDB and the JICA Study Team.
- iii) Some of the domestic customers had changed their property use and became non- domestic customers. Therefore, questions were not relevant.
- iv) It was not possible to gather information from 59 customers out of the total sample of 1000, since some of the premises were presently closed, occupants had gone abroad, buildings were demolished, and it was not possible to trace some of the addresses.
- v) In a number of cases, when the investigators were visiting the premises, they were closed requiring several visits thereby loosing survey time.
- vi) In a few situations, since the field staff were unable to meet the head of the household or an adult member, servants and watchers had to be interviewed to gather the data.
- vii) In some places the head office of the respective institutions had made payments of water, electricity and telephone bills. Therefore, no bills were available at the sub divisions or the branches at the respective places. Some institutions were larger than expected and field staff had to go to various places to get the information thereby spending more time. In addition, tracing of relevant bills was always difficult in most of the non-domestic cases.
- viii) Water connections of some houses/institutions had been disconnected.
- ix) Absence of Chief Executive Officers of the respective public/private sector organizations was one of the problems faced. Other officials of the department had either rejected the survey or were reluctant to give information without permission of the CEO.

- x) In some places, samples of the customers were found widely scattered. Therefore, it took more time and effort to visit from one place to another.
- xi) There was a general tendency among the respondents to evade questions of certain types. e.g. penalties with regard to misuse and illegal connections and prices of the electricity and telephone bills.
- xii) Many respondents indicated that there was no meters in their houses. It was not possible to get information which related to meter reading.

6 Data Analysis

The data analysis was carried out using the Statistical Package for Social Sciences (SPSS). Descriptive statistics like frequencies, cross tabulation, mean, standard deviation were used for data analysis.

Prior to commencement of the data processing of the survey, a field re-checks was undertaken by the investigators so as to verify the accuracy and validity of collected data. All completed survey formats were closely scrutinized for completeness and consistency of data. The computer edit programme was designed to detect errors due to inconsistency, incompleteness and range errors. The data processing involved the following steps:

- i) Checked the accuracy of the field data
- ii) Data Entry
- iii) Data processing and tabulation

Though it was planned to interview 1000 customers it was only possible to complete 886 interviews i.e.:

Category	Target	Completed	Percentage
Domestic	700	654	93.4
Non-domestic	300	232	73.3
Total	1000	886	88.6

The reasons for inability to complete 114 interviews were beyond the control of the survey team as described under the Limitations of the survey.

7 Findings of the Survey

7.1 Type of Respondents

The water awareness survey was carried out among two broad categories of customers. They included Domestic Customers and Non-domestic Customers. The number of domestic customers was 654 and the non-domestic customers was 232. Within the non-domestic category, different institutions such as industries, commercial offices, government institutions, tourist establishments and shipping offices were included. Therefore, diversity of the customers was evident in that category. In the meantime, the residential category too had a great diversity in terms of ethnic groups as well as income groups whose attitudes and response towards the survey was more complex than expected.

7.2 Water Usage

Water usage by domestic category of respondents showed some key purposes such as drinking, cooking, bathing, toilet and house cleaning purposes. Gardening and outside cleaning also have been indicated as significant usage. This implies that the domestic category of customers generate a greater demand for water for different purposes other than basic needs of water (See Table 1.2 in annex 1).

It was found that a majority of the non-domestic category (over 70%) use water for drinking, toilets and bathing purposes while less than 50% of customers use water for purposes such as industrial use, cooking, washing clothes, vehicle washing, inside washing, outside washing and other washing purposes. Naturally water usage in the non-domestic sector is greater than the domestic sector as represented in its diversity of needs.

7.3 Availability of Water

Analysis of the availability of water for domestic customers showed that the full day water service is available only for about 61.6% customers. About 16.4% indicated they get water between 18 to 24 hours a day. Another 7.3% indicated their water availability was between 12 - 18 hours per day. It was also found that between 6 to 12 hours and less than 06 hour day service was available for another 7.2 % and 4.7 % of the respondents. When combining the above two groups it reveals that about 11.9% of the customers receive less than 12 hours water supply per day which is an alarming figure to be considered (See Table 1.4 in annex 1).

In the non-domestic category, the full day water availability was indicated by about 60.8% respondents which is quite close to the figure for domestic category.

The second highest category was between 18 - 24 hours daily indicated by about 12.5% of the respondents. The cumulative figure for less than 6 hours water supply was 3.0% which slightly lower than the figure for domestic

category. Therefore, it can be reasonably concluded that a large majority of customers enjoy over 18 hours of water supply per day in the city.

7.4 Settling of Water Bills

Time taken for settling the water bill was examined and it was found that about 62.2% of domestic customers and 84.1% of non-domestic customers settle their bill on a monthly basis.

Those who wait till the red bill arrives consist of 12.5% domestic customers and 4.7% of non-domestic customers. About 10.0% of domestic customers wait for one or two months to settle the bills while it was only about 1.7 % of non-domestic customers who wait for such a long period. The above situation indicates that the non-domestic customers were more concerned about settling the water bill in time than the non-domestic customers.

7.5 Customers Opinion of Water Pressure

Customer's opinion on water pressure was examined and it was found that about 58.2% of the domestic customers replied positively while 38.0 % of the customers said they experience low water pressure. In respect of non-domestic customers, it was revealed that about 59.1 % indicated they have adequate water pressure while 36.2 % reporting of inadequate water pressure. In this regard, there is no significant different among the two categories of customers about their experience, and low water pressure prevailing in the city can be regarded as an issue for future water supply improvement programmes.

7.6 Satisfaction with the Quality of Water

Customer's satisfaction of quality of water indicated that about 58.2% of domestic customers were satisfied while another 38.0% indicated their dissatisfaction. In the case of non-domestic customers, it was found that about 59.1 % were satisfied while 36.2% showed their dissatisfaction. Though there was no quantitative indicators to explain more about this variable, generally there is some concern with the quality of the water supplied to them (See Table 1.7 in annex 1).

7.7 Customer's Opinion of the Present Situation of Water Supply

A qualitative assessment of the present situation of water supply was made by asking the customer satisfaction with the overall situation. The response from domestic customers was that 28.3% and 28.7% replied good and no problem while another 29.4% indicated the situation was bad whereas only about 3.7% viewed that it was very bad. This reveals that a little less than 50% view that the present water supply situation was bad.

The responses of non-domestic customers show that only 20.7% said that the situation was good while another 39.2% said no problem. However, 28.8%

indicated the situation was bad. This implied that the non-domestic customers are not so critical about the water supply situation (See Table 1.8 in annex 1).

7.8 Meter Readers Visit

Meter reader visits were checked with the customers and it was found that about 96.5% of the domestic customers said the meter reader was visiting every month. In the case of non-domestic customers 91.0% indicated about the monthly visit. When asked whether the customers knew about the exact date of visit of meter reader, only about 11.9% of the domestic customers replied affirmative while 84.0% replied negatively. Of the non-domestic customers only 10.8% indicated that they knew and about 75.0% said they were not aware of the date of visit. This implies either irregularity of his visit or the customers were not good at remembering the date. Some questions were asked whether the meter reader was polite in providing his service and it was found that the majority of customers (42.7% of domestic and 60.3% of non-domestic) replied "no idea". This may be due to the meter readers' involvement not being a significant matter to the customers. The majority of customers of both the categories indicated that the meter readers' figures were correct.

7.9 Complaints about the Water Bill

When asked about the complaints made by the customers on the water bill it was revealed that about 24.5% of the domestic customers and about 26.3% of non-domestic customers had said they had complained to the Water Board about the water bill.

The majority of them in both categories made such complaints by telephoning while other means, such as through a letter and through meter readers were also used by the customers.

7.10 Complaints about Water Leakages

Whether the customers had made complaints about water leakages within and close to their premises was inquired. For this question too, only a small percentage of respondents (i.e. 10.4% for domestic and 9.1% for non-domestic) responded positively. They also had used means such as making a phone call as well as writing a letter to the Water Board Office. Time taken for repairs on such cases varied from two days to one month. However, due to the small percentage of occurrences recorded no substantial conclusion can be made in this regard.

8 Findings of the Survey – Awareness

8.1 Awareness of Water Supply Agency

On the awareness of the responsible agency for water supply, only 56.6% of domestic customers indicated that they knew the name of the agency while 85.8% of non-domestic customers were aware of the responsible agency. When asked about the penalties for illegal use of water, it was interesting to note that only less than 50% of both categories of respondents were aware of such penalties. This implies that people may tend to misuse water partly influenced by their lack of knowledge about offences and penalties.

8.2 Opinion on the Current Water Tariff

The majority of domestic customers expressed the opinion that the water tariff is low or reasonable. In the case of non-domestic customers, about 40.1% indicated the rates were reasonable. Yet another 34.5% of non-domestic sector customers said the rates were high or very high. This may be due to their high consumption needs when compared with the domestic sector.

8.3 Customers Justification for Paying for Water

Water is only free in its natural state. It costs a lot of money to develop water sources, treat and sterilize the water and to get it delivered to the customers. When asked about who should pay for water, the majority of customers of both categories (i.e. 63.5% domestic and 90.5% non-domestic) indicated that the user must pay for water. Still another 17.6% of domestic customers said the cost should be borne by the government (Water Board + CMC). In the case of the non-domestic sector the above percentage was as low as 3.0%. This implies a section of domestic customers believe that they should get water free of charge. People may not be aware about the complexities of the water supply system and costs involved in it.

8.4 Awareness of Leakage, Free Water and Illegal Connections

It is interesting to note that when asked about their awareness on water leakages, free water and illegal connections etc., the majority of domestic customers (75.0%) indicated that they did not know about such things and 22.8% indicated that they knew. On the contrary, a majority of non-domestic customers (72.2%) had indicated that they knew about such incidents. In this context, it is doubtful whether the domestic customers were purposely ignoring such questions while the non-domestic customers were more concerned about such issues.

8.5 Awareness on Misuse, Wastage and Loss of Revenue

In respect of the above, the majority of customers of both categories knew the situation. This may be due to the wide range of practices or prevalence of such

misuses and wastages of water in the city. Therefore, it is important to take note of this situation.

8.6 Preventive Measures on Misuse and Illegal Connections

When asked about the preventive measures on the above situation, customers of both categories had suggested a range of measures, some they have adopted and some proposed. About 23.3% of non-domestic customers indicated that they telephoned the Water Board Office about the situation.

With regard to unattended street tap, the domestic customers said they close the tap to prevent waste of water. Both categories strongly felt that giving individual connections to every body as well as educating the public on the above issues are important.

8.7 Water Conservation Methods Used

When asked whether water conservation methods were used, it was found that a large majority of customers (i.e. 66.7% of domestic and 74.1% of non-domestic) do not practice any such methods. Only about 29.4 % of the domestic customers used some water conservation measures while this was as low as 17.7 % for non-domestic users. This situation provides an opportunity for introducing such measures in the future.

8.8 Knowledge on Source of Supply and Costs

Customers' knowledge about the source of water supply to the city and its costs were examined and it was found that a large majority of non-domestic customers knew about such issues while it was known to a small percentage of domestic customers (34.3%).

When asked about the customers' knowledge on unit cost of water at the source, it was revealed that a large majority of them (i.e. 90.7% of domestic and 82.0% of non-domestic) did not know about such details. A similar situation was observed in the case of production cost of water to the Water Board.

8.9 Desire to Know More about Water Supply

It was encouraging to note that there was a great desire from both categories of customers to know more about the water supply system. A keen interest by the non-domestic category of customers i.e. 88.8%, and 88.6% by domestic customers is a good response from society for NWSD&B to create awareness of the water supply related issues.

9 Conclusions

On the whole, the survey results reveal that the customers were generally satisfied with the supply of water but concerned about obtaining a much better service by improving the water pressure and frequency of supply. Some important issues highlighted by the survey are listed below:

- i. Making available water for 24 hours period for a major part of the city. In certain section less than 12 hours is a disparity of service provisions which needs to be overcome.
- ii. Domestic as well as non-domestic customers should be motivated to settle their water bills within a one month period since about one fourth of them are not doing so at present.
- iii. More awareness should be created among the public about the quality of water and minimizing wastage of water.
- iv. The majority of customers were not aware of illegal usage of water and the penalties. Hence, extensive awareness on these issues must be created.
- v. A large majority of customers are aware of the misuse, waste and loss of revenue to the Water Board. If no corrective actions are taken to arrest such issues those who comply with regulations might get discouraged.
- vi. Customers should be encouraged to use water conservation methods since there is very little such practices at present.
- vii. General information of the water supply system, its costs, source of water etc, are not well known by the customers. However, their desire to know more about the water supply system is a positive factor which should be capitalized on to benefit both the Water Board as well as the customers in providing improved water services to the people.

FINDINGS OF THE SURVEY : Frequency Tables

The Target and the Completion Rate of Survey

Category	Target	Completed	Percentage
Domestic	700	654	93.4
Non-domestic	300	232	73.3
Total	1000	886	88.6

Reasons for Inability to Complete the Target Sample

	Non-domestic	Domestic
Premises Closed	3	5
Rejected Answering	10	-
Can't Locate	55	41
Total	68	46
Percentage of Total	22.66	6.57

1.0 Type of Respondents (Domestic Customers)

Type of Respondent	Frequency	Percentage
Head of Household	562	85.9
Children	11	1.7
Servant	34	5.2
Watcher	12	1.8
Neighbours	5	0.8
Others	30	4.6
Total	654	100.0

1.1 Type of Respondents (Non-Domestic Customers)

Type of Respondents	Frequency	Percentage
Owner	28	12.1
Employee	197	84.9
Security officers	4	1.7
Contractor	2	0.9
Others	1	0.4
Total	232	100.0

1.2 Water Usage

Water Usage	Yes	Percentage	No	Percentage
Drinking	607	92.9	5	0.8
Cooking	602	92.8	9	1.4
Bathing	592	90.5	16	2.4
Toilets	588	89.9	17	2.6
Gardening	232	35.5	211	32.3
House Cleaning	401	61.3	122	18.6
Out side Cleaning	259	39.6	218	33.3

1.3 Water Usage (Non-Domestic Customers) (Total Interviews completed 232)

Water Usage	Yes	Percentage	No	Percentage
Industrial Usage	110	47.4	86	37.0
Drinking	207	89.2	13	5.6
Cooking	111	47.8	91	39.2
Bathing	170	73.2	44	18.9
Toilets	179	77.1	35	15.0
Washing Clothes	105	45.2	101	43.5
Vehicle washing	104	44.8	98	42.2
Inside Washing	99	42.6	98	42.2
Outside Washing	103	44.3	78	33.6

1.4 Availability of Water

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Full Day	403	61.6	141	60.8
18-24 hrs	107	16.4	29	12.5
12-18 hrs	48	7.3	27	11.6
6-12 hrs	47	7.2	17	7.3
Less than 6 hrs	31	4.7	7	3.0
Not Answered	18	2.8	11	4.8
Total	654	100.0	232	100.0

1.5 Settling of Water Bills

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Monthly	407	62.2	195	84.1
One or two months time	65	10.0	4	1.7
Upon Red bill	82	12.5	11	4.7
Affer disconnection	3	0.5	3	1.3
Not Answered	97	14.8	19	8.2
Total	654	100.0	232	100.0

1.6 Customer's Opinion of Adequacy of Water Pressure

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	381	58.2	137	59.1
No	248	38.0	84	36.2
Not Replied	25	3.8	11	4.7
Total	654	100.0	232	100.0

1.7 Satisfaction with the Quality of Water

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	308	47.1	137	59.2
No	308	47.1	84	36.1
Not Replied	38	5.8	11	4.7
Total	654	100.0	232	100.0

1.8 Customer's Opinion of the Present Situation of Water Supply

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Good	185	28.3	48	20.7
No Problem	188	28.7	91	39.2
Bad	192	29.4	67	28.8
Very Bad	24	3.7	3	1.3
No Idea	25	3.8	8	3.5
Not Replied	40	6.1	15	6.5
Total	654	100.0	232	100.0

1.9 Whether Aware of Monthly Visit by the Meter Reader

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	631	96.5	211	91.0
No	12	1.8	5	2.1
No Idea	2	0.3	5	2.1
Not Replied	9	1.4	11	4.8
Total	654	100.0	232	100.0

1.10 Whether Know about the Extract Date of Visit of the Meter Reader

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	78	11.9	25	10.8
No	550	84.0	174	75.0
No Idea	8	1.3	22	9.5
Not Replied	18	2.8	11	4.7
Total	654	100.0	232	100.0

1.11 Whether the Meter Reader was Polite on His Service

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	339	51.8	72	31.1
No	11	1.7	4	1.7
No Idea	279	42.7	140	60.3
Not Replied	25	3.8	16	6.9
Total	654	100.0	232	100.0

1.12 Type of the Non-Domestic Business

Type of the Business	Frequency	Percentage
Industries	40	17.2
Commercial	109	47.0
Government	58	25.0
Tourism	11	4.8
Shipping	01	0.4
Not Replied	13	5.6
Total	232	100.0

1.13 Did Water Supply Adversely Affect Your Business (Non-Domestic)?

	Frequency	Percentage
Yes	109	47.0
No	112	48.3
Not Replied	11	4.7
Total	232	100.0

1.14 Nature of the Problem (Non-Domestic)

	Frequency	Percentage
Low Pressure	79	34.1
Irregular water supply	15	6.4
Low quality	10	4.3
Other	3	1.3
Not Replied	125	33.9
Total	232	100.0

1.15 Comparison of Water Bills with Electricity and Telephone Services (Domestic Customers)

1.15.1 Water Bill

Range (Rs.)	Frequency	Percentage
29-100	320	48.9
101-200	95	14.5
201-500	121	18.5
501-1000	33	5.1
Over 1000	21	3.2
Not Replied	64	9.8
Total	654	100.0

1.15.2 Electricity Bill

Range (Rs.)	Frequency	Percentage
100-500	264	40.4
501-2000	176	26.9
2001-3000	105	16.0
Over 3000	43	6.6
Not Replied	66	10.1
Total	654	100.0

1.15.3 Telephone Bill

Range (Rs.)	Frequency	Percentage
350-500	78	11.9
501-1000	150	23.0
1001-2000	92	14.0
2001-5000	52	8.0
Over 5000	18	2.6
Not Replied	264	40.4
Total	654	100.0

1.16 Non-Domestic Customers

1.16.1 Water Bill

Range (Rs.)	Frequency	Percentage
60-2000	20	8.5
2001-5000	13	5.6
5001-10000	24	10.3
10001-20000	67	28.9
20001-50000	49	21.2
50001-100000	19	8.2
Over 100000	19	8.2
Not Replied	21	9.1
Total	232	100.0

1.16.2 Electricity Bill

Range (Rs.)	Frequency	Percentage
300-10000	36	15.5
10001-30000	39	16.9
30001-50000	18	7.6
50001-100000	30	13.0
100001-200000	32	13.8
200001- 1000000	39	16.9
Over 1 million	01	0.4
Not Replied	37	15.9
Total	232	100.0

1.16.3 Telephone Bill

Range (Rs.)	Frequency	Percentage
1000-10000	50	21.6
10001-30000	37	16.0
30001-50000	17	7.3
50001-100000	36	15.5
Over 100000	36	15.5
Not Replied	56	24.1
Total	232	100.0

1.17 Satisfaction with the Service of Meter Readers

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	288	44.0	85	36.6
No	124	19.0	15	6.5
No Idea	206	31.5	115	49.6
Not Replied	36	5.5	17	7.3
Total	654	100.0	232	100.0

1.18 Complaints about Leakages

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	68	10.4	21	9.1
No	498	76.2	87	37.5
Not Replied	88	13.4	124	53.4
Total	654	100.0	232	100.0

1.19 Time Taken for Repair

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Less than 2 days	2	0.3	5	2.2
2-7 days	16	2.4	4	1.7
7-30 days	14	2.2	1	0.4
More than 30 days	10	1.5	6	2.6
Not yet repaired	26	4.0	5	2.2
Not Replied	586	89.6	211	90.9
Total	654	100.0	232	100.0

1.20 Complain about Water Bill

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	160	24.5	61	26.3
No	440	67.3	162	69.8
Not Replied	54	8.2	9	3.9
Total	654	100.0	232	100.0

2.0 AWARENESS ABOUT WATER USAGE, WATER SUPPLY AND WATER BOARD

2.1. Awareness of Responsible Agency

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	370	56.6	199	85.8
No	219	33.5	22	9.5
Not Replied	65	9.9	11	4.7
Total	654	100.0	232	100.0

2.2. Awareness of Penalties for Illegal Use

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	311	47.6	110	47.4
No	330	50.5	113	48.7
Not Replied	13	1.9	9	3.9
Total	654	100.0	232	100.0

2.3. Opinion of the Current Water Tariff

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Low rate	90	13.8	3	1.3
Reasonable	273	41.7	93	40.1
High rate	111	17.0	80	34.5
Very high rate	16	2.4	04	1.7
No opinion	79	12.1	33	14.2
Not Replied	85	13.0	19	8.2
Total	654	100.0	232	100.0

2.4. Who should Pay for Water?

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Customer	415	63.5	210	90.5
Government	115	17.6	7	3.0
Water Board	70	10.7	2	0.9
Colombo MC	12	1.8	2	0.9
Other /Donors	19	2.9	1	0.4
Not Replied	23	3.5	10	4.3
Total	654	100.0	232	100.0

2.5. Awareness about Water Leakage, free Water and Illegal Connections

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	149	22.8	179	77.2
No	490	75.0	44	19.0
Not Replied	15	2.2	9	3.8
Total	654	100.0	232	100.0

2.6. Awareness about Misuse, Wastage and Loss of Revenue to the Water Board

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	427	65.3	180	77.6
No	183	28.0	38	16.4
Not Replied	44	6.7	14	6.0
Total	654	100.0	232	100.0

2.7. Preventive Measures

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Inform by telephone to W/B	165	25.2	54	23.3
Close the tap	169	25.8	19	8.1
Water supply to every body	40	6.1	28	12.1
Educate the people	189	29.0	85	36.7
Other	11	1.7	6	2.6
Not Replied	80	12.2	40	17.1
Total	654	100.0	232	100.0

2.8. Whether Water Conservation Methods are Used

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	192	29.4	41	17.7
No	436	66.7	176	75.9
Not Replied	26	3.9	15	6.4
Total	654	100.0	232	100.0

2.9. Do you Know from where Water is Supplied to Colombo

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	224	34.3	172	74.1
No	407	62.2	49	21.1
Not Replied	23	3.5	11	4.8
Total	654	100.0	232	100.0

2.10. Do you Know the Production Cost per Unit at Ambatale

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	39	6.0	31	13.4
No	593	90.7	190	82.0
Not Replied	22	3.3	11	4.6
Total	654	100.0	232	100.0

2.11. Do You Know the Production Cost to Water Board

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	39	6.0	206	88.8
No	593	90.7	14	6.0
Not Replied	22	3.3	12	5.2
Total	654	100.0	232	100.0

2.13. Desire to get more information with regard to water supply

	Domestic		Non-Domestic	
	Frequency	Percentage	Frequency	Percentage
Yes	527	80.6	206	88.8
No	103	15.7	14	6.0
Not Replied	24	3.7	12	5.2
Total	654	100.0	232	100.0

**QUESTIONNAIRE FOR THE
WATER AWARENESS MASS MEDIA CAMPAIGN**

GENERAL

Name of Enumerator: _____ Sample No: _____

Date of interview: _____ / _____ / 2000

1. DOMESTIC CUSTOMER

1.1 Interviewee (position in the family) _____

1.2 Assessment No.: _____

1.3 House No: _____ / Meter Book Ref No. _____

Current monthly water consumption _____ m³/month

Current billed amount _____ Rs/month

1.4 Road/Street: _____

1.5 No. of Occupants: Adults. _____ Children (below 16 years) _____

1.6 Nature of the House: Single ___ Multistory ___ Flats ___ TG _____

Water Use (Domestic Customers Only)

1.7 Do you and your family drink the tap water Yes ___ No ___

If Yes, do you Boil it Yes ___ No ___ Filter it Yes ___ No ___

If No, do you use bottled water for drinking Yes ___ No ___

1.8 What do you and your family use most often for bathing, Bucket bath ___ Shower ___

1.9 Do you use the piped water supply for:

Water Usage	Yes	No
Drinking		
Cooking		
Bathing		
Toilet		
Laundry		
Car washing		
Garden watering		
House cleaning		
Cleaning Outside		
Other (Specify)		

2. NON-DOMESTIC CUSTOMER

- 1.1 Name/position of Interviewee: _____ / _____
- 1.2 Assessment No _____ / Meter Book Ref No. _____
- 2.3 Address, Road name: _____
- 2.4 State name and type of Business: Name _____
Type: Industrial 73, Commercial 70, Government 60, Tourist-Hotel 71, Shipping 72
- 2.5 No. of Employees: _____

Water Use (Non-domestic Customers Only)

2.6 Do you use the piped water supply for:

Water Usage	Yes	No
Industrial Use		
Drinking		
Cooking		
Bathing		
Toilet		
Laundry		
Car washing		
Garden or plant watering		
Cleaning inside premises		
Cleaning outside premises		
Other (list under)		

2.7 Is your business adversely affected by the water supply Yes ___ No ___

If yes, state nature of the problem

3. Water Supply General

- 3.1 Do you have Overhead Water Tanks: Yes ___ No ___
- 3.2 Do you have a Sump & Pump Yes ___ No ___
- 3.3 Is the quantity received from the piped water supply sufficient for your needs
Yes ___ No ___
- 3.4 If no, do you use other water sources (Specify)
Bowser ___ Borehole ___ Tube well ___ Shallow well ___ Other (state) _____
If you use other water sources, why:
Cost ___ Quality ___ Low pressure ___ Intermittent supply ___ Other _____
What do you use this water for: _____
How much do you use: Ave. _____ m³/month Cost _____ Rs/month
- 3.5 Do you use water from public stand posts: Yes ___ No ___ If Yes, why:
Reduces water bill ___ Better supply ___ Other _____
What do you use this water for: _____
How often do you use stand posts Daily ___ Weekly ___ Other _____
- 3.6 Is your Water Bill paid promptly: Yes ___ No ___
If no, why not _____
How often do you pay: _____
How is the bill paid: Cash ___ Cheque ___ Money Order ___
Where is the bill paid: Head Office ___ AE Office ___ Bank ___ Agency Office ___

4. Water Quantity & Quality

- 4.1 What is the availability of piped water at your premises:
24 hrs per day _____
18 – 24 hrs _____
12 – 18 hrs _____
06 – 12 hrs _____
Less than 6 hrs _____
- 4.2 Does your piped water supply have adequate pressure Yes ___ No ___
- 4.3 Are you satisfied with the water quality Yes ___ No ___
- 4.4 Is the overall situation of present supply:
Good ___ No problem ___ Bad ___ Very bad ___ No comment ___

5. Water Service Connection – Documentation (for connections in last 5 years)

5.1 Did you encounter any problems in obtaining the water service connection:

Item	Yes*	No	No Comment
Obtaining Application			
Filling in the Application			
Submitting the Application			
Getting Estimate/Payment Voucher			
Getting Road Cutting Permit			
Making Payment			
Getting Pipe Connection			

* **Comments on any items to be filled in below**

If Yes to any of the above, specify problem:

Your suggest improvement

5.2 **Total time taken for the connection from the date of submitting the Application**

Less than 1 month _____

1-2 month _____

2-3 month _____

3-6 month _____

More than 6 months _____

5.3 **Politeness and courtesy of the staff who gave the connection**

Satisfactory _____ Not satisfactory _____

If not satisfactory, suggestion for improvements _____

5.4 **Did you make any payments to outside parties other than the Water Board**

Yes _____ No _____

If yes, amount paid for:

- a. Road cutting Rs. _____
- b. To expedite work Rs. _____
- c. As present to the workers Rs. _____

6. After getting the service connection (for connections in the last 5 years)

6.1 Time taken to receive the first bill

- Less than 1 month _____
- 1-3 months _____
- 3-6 months _____
- 6-12 months _____
- More than 1 year _____

6.2 What was the total cost of the Connection: Rs _____

7.0 Meter Reading

*Item	Yes	No	No Comment
Does the Meter Reader visit every month			
Do you know the date of his visit			
Is the Meter Reader Polite			
Is the Meter Reading usually correct			
Is your water bill estimated			
Do you receive information relating to water from him			
Do you give information relating to water to him			
Is your meter in a readable position			
Is Meter Reading Inconvenient			
Are you satisfied with his services			

*** Comments on any items to be filled in below**

If you have any problems with the above, please specify the problem:

Your suggest improvement

8.0 Complaints – Water Bills

8.1 Have you ever had to complain about your Water Bill Yes ___ No ___
If Yes, how were the complaints made Letter ___ Telephone ___
Meter Reader ___ Personal visit to Office ___

8.2 How long did it take to resolve the problem

Less than 2 weeks _____
1-2 month _____
2-3 month _____
More than 3 months _____
Still not resolved _____

9.0 Complaints – Leaks

9.1 Have you ever complained about water leaks close to your property Yes ___ No ___
If Yes, how were the complaints made Letter ___ Telephone ___
Meter Reader ___ Personal visit to Office ___

9.2 Time taken for repairing the leak

Less than 2 days _____
2-7 days _____
7-30 days _____
More than 1 month _____
Still not repaired _____

10 Comparison with other services (Obtain water information from NWSDB)

10.1 Water Average current monthly bill Rs _____
10.2 Electricity Average current monthly Bill Rs _____
10.3 Telephone Average current monthly Bill Rs _____

11. Awareness

11.1 Do you know which Agency is responsible for water supply to your premises
No ___ Yes ___ (if Yes) Specify _____

11.2 Do you know the address and Telephone numbers of the Water Authority's Offices in
your area, (e.g OIC/AE/MANAGER) Yes ___ No ___

- 11.3 Do you know the provisions in the Water Board Act with regard to misuse/illegal use of water, and what the penalties for such offences are Yes ___ No ___
- 11.4 What is your opinion on the current Connection Charge
Cheap ___ Reasonable ___ Expensive ___ Very expensive ___ No Opinion _____
- 11.5 What is your opinion on the current water tariff
Low ___ Reasonable ___ High ___ Very High ___ No Opinion _____
- 11.6 Would you be prepared to pay more if it leads to better pressure and water quality
Yes ___ No ___ Comment/No Comment _____
- 11.7 Water is only free in its natural state. It costs a lot of money to develop water sources, treat and sterilise the water, and get it to your premises using storage tanks, pumps and pipelines. Who then, do you think should pay for water
You, the customer _____
Your Government _____
The water Authority _____
CMC _____
Other (Specify) _____
Why do you think someone else should pay for the water you use

- 11.8 Do you know that water charges are the only means of operating, maintaining and expanding the water supply system Yes ___ No ___
- 11.9 Do you know that over half of the water supplied to the Colombo City area is not paid for due to leakage, free water and illegal connections Yes ___ No ___
- 11.10 Do you know that the water supply is often misused by the public, causing wastage and loss of revenue to the Water Board, particularly at standposts, for example not turning off the tap or car washing. Have you seen this happening Yes ___ No ___
If Yes; what do you think can be done to prevent this _____

- 11.11 Do you know how much water each person uses, on average, every day
Yes ___ No ___ If Yes, how much _____
- 11.12 Are you practicing any kind of water conservation in your home (or business)
No ___ Yes ___ If Yes, what are they _____

11.12 Do you think that there is enough water to supply Colombo:

Now Yes ___ No ___ Don't Know ___

In the future Yes ___ No ___ Don't Know ___

11.14 Do you know where the water supply for Colombo comes from Yes ___ No ___

11.15 Have you ever thought of the unit cost (1m³) of water produced at Ambatale, and the amount spent by the Water Board to bring one unit of water to your premises

Yes ___ No ___

11.16 Would you like to know more about the Colombo water supply Yes ___ No ___

Notes:

APPENDIX 4C-2

REPORT ON WATER AWARENESS MASS
MEDIA CAMPAIGN (DEC. 2000)

JAPAN INTERNATIONAL COOPERATION AGENCY

THE DETAILED DESIGN STUDY
ON
THE PROJECT FOR REDUCTION OF NON-REVENUE WATER
IN THE GREATER COLOMBO AREA
IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

WATER AWARENESS MASS MEDIA CAMPAIGN

DECEMBER 2000

JICA STUDY TEAM

JAPAN INTERNATIONAL COOPERATION AGENCY

THE DETAILED DESIGN STUDY

ON

THE PROJECT FOR REDUCTION OF NON-REVENUE WATER

IN THE GREATER COLOMBO AREA

IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

WATER AWARENESS MASS MEDIA CAMPAIGN

TABLE OF CONTENTS

CHAPTER 1	INTRODUCTION.....	1
CHAPTER 2	OBJECTIVES OF THE MASS MEDIA CAMPAIGN.....	2
CHAPTER 3	COMPONENTS AND ACTIVITIES OF THE CAMPAIGN	5
3.1	Campaign Components.....	5
3.2	Campaign Activities.....	6
3.2.1	Conservation of Water.....	6
3.2.2	Increased Awareness and Understanding	7
3.2.3	The Need to Avoid Misuse of Water.....	8
3.2.4	The Need to Pay for Water.....	9
CHAPTER 4	IMPLEMENTATION ARRANGEMENTS.....	15
4.1	Overall Project Management	15
4.2	Campaign Implementation.....	16
4.3	Implementation Programme.....	17
CHAPTER 5	PRELIMINARY COST ESTIMATES	20
CHAPTER 6	SUMMARY	22
ANNEX A	SURVEY LOCATION.....	A-1

1. INTRODUCTION

At an early stage in the study, it was recognised that purely technical solutions alone would not resolve the problem of NRW in Colombo. In addition, it was clear that any attempt to reduce NRW is likely to fail, if it is implemented in the absence of support from the general public. The public is generally not aware of the problems faced by NWSDB, and there are those who believe that water should be supplied free of charge and are hence reluctant to pay.

In the Inception Report, the implementation of a continuous, systematic campaign through mass media, such as TV, radio and newspaper was recommended as it was felt necessary to increase the awareness and understanding of the public. Such a campaign would need to be carefully programmed in advance and implemented step by step on a theme by theme basis.

Subsequent discussions between the JICA Study Team and NWSDB revealed that NWSDB also believed that public support was necessary if the goal of a substantial reduction in NRW was to be achieved by 2003. This concept was further reinforced by press releases on World Water Day (March 22, 2000) showing that the government and senior figures in both MUDCP and NWSDB were very much aware of the fundamental problems in water supply and the need for public support. The following extracts illustrate these points:

- **The President**

“We are well aware of the important role that water plays in our lives water resources have come under increasing threat due to human development activities undertaken in the name of development protection of water resources lies squarely on all players, the government, non-governmental organisations and civil society in general”

- **The Prime Minister**

“Much expenditure is borne by NWSDB annually under the direction of MUDH&C to supply potable water But for the success of any programme by the government or any institution, the active participation of beneficiaries is an essential factor - the active participation of the consumer is needed”

- **The Minister (MUDC&H)**

“Though the major portion of this responsibility (to make use of the considerable financial resources devoted by the government) has to be shouldered by NWSDB, it is not an effort that could be left to it alone. The co-operation of various other organisations as well as the people generally is required to make the island-wide water supply programme a success”.

- **The Deputy Minister (MUDC&H)**

“Through the technical and technological services that have been made available by NWSDB it is hoped to meet this challenge (protection of water resources) laying emphasis particularly on economy in the use of water”

- **The Chairman (NWSDB)**

From his speech on the future trends in water supply in Sri Lanka, the Chairman drew attention to the following:

-Limited water resources, major rivers almost fully utilised

-UFW is normally 30%, but it is 50% in CMC

-Greater Colombo demand will increase to 250MGD (1,125,000 m³/day) in 25 years from today's demand of 110mgd (500,000 m³/day))

-Today the average domestic (water) bill is less than Rs 100 per month. It is obvious at this level of subsidy it is impossible to recover investments. Politicians have to educate people on the need for tariff increase to provide adequate water supplies in Sri Lanka.

A “Water Awareness” Mass Media Campaign, will seek the active participation of the customers, and educate the public on the economic use of water. This will lead to efficient use of water resources, and the ultimate goal of this project; the Reduction of Non-Revenue Water.

2. OBJECTIVES OF THE MASS MEDIA CAMPAIGN

The main objective of the campaign is the reduction of Non-Revenue Water (NRW), in Colombo, particularly in CMC where the figure is far higher than it should be.

To achieve this objective, and develop an effective campaign, it is necessary to understand the basic problems faced by the government, the water authority and the public. To some extent, these were made known on World Water Day, and others are documented in previous NWSDB reports. There is no doubt that NWSDB is aware of some of the major issues it is faced with which require resolving if the Board is to progress in its endeavours to provide an efficient and effective water supply to its growing number of customers. One does not have to go further than the Public Complaint records for an idea of the more general problems encountered by the customers.

However The awareness of the public and their level of understanding of the problems faced by NWSDB have been made clear from an analysis of data collected from the Water Awareness Questionnaire Survey. This survey set out to interview 1,000 customers in the CMC area covering high, medium and low consumption domestic users, as well as government,

institutional, commercial and industrial users. The survey covered the whole of the CMC area to ensure a fair and representative sample was obtained. The geographic spread of the survey is given in Annex A. The results of this survey have given a clearer picture of the level of awareness of the public on the water supplier; the water supply; what their problems are; and what their views are on a variety of water related matters.

A summary of the major problems highlighted by the survey is given below:

Replies from Non-Domestic Customers

Question	Yes %	No %	Other %
Do you have water 24 hours per day	60.8	34.4	4.8
Is your business adversely affected by the water supply	47.0	48.3	4.7
Does your piped water supply have adequate pressure	59.1	36.2	4.7
Are you satisfied with the water quality	59.2	36.1	4.7
Is the overall situation of the supply good/no problem	59.9	33.6	6.5
Do you have overhead water tanks	84.3	11.0	4.7
Do you have a sump and pump	81.4	13.9	4.7

Replies from Domestic Customers

Question	Yes %	No %	Other %
Do you have water 24 hours per day	61.6	35.6	2.8
Does your piped water supply have adequate pressure	58.2	38.0	3.8
Are you satisfied with the water quality	47.1	47.1	5.8
Is the overall situation of the supply good/no problem	57.0	36.9	6.1
Have you ever complained about your water bill	24.5	67.3	8.2
Have you ever complained about leaks near your property	10.4	76.2	13.4

It is quite worrying that almost half of the non-domestic customers say that their business is adversely affected by the water supply. Clearly there are shortcomings of quantity, quality and pressure, and individual systems are reinforced with overhead tanks, sumps and pumps. Businesses badly affected use water bowsers (24.1%) and boreholes (75.9%)

For domestic customers, the overall situation of the water supply is similar with the same problems with quantity, quality and pressure. Problems with the billing system are also relatively high, confirming the Public Complaints information.

The campaign will have to recognise and address these problems.

A summary of the information on domestic customer awareness is given below:

1. Awareness on Water Resources/Conservation

Question	Yes %	No %	Other %
Do you think that there is enough water to supply Colombo			
Now	29.2	60.7	10.1
In the future	17.7	77.7	4.9
Do you know where the water supply for Colombo comes from	33.1	62.0	4.9
Are you practising any kind of water conservation in you home	29.4	66.7	3.9

2. General Awareness

Question	Yes %	No %	Other %
Do you know which agency is responsible for water supply to your premises	56.6	33.5	9.9
Would you like to know more about the Colombo Water Supply	80.6	15.7	3.7
Do you know the provisions of the Water Board Act on misuse/illegal use of water, and what the penalties are	48.3	51.5	0.3

3. Awareness on Misuse

Question	Yes %	No %	Other %
Do you know that over half of the water supplied to the Colombo City area is not paid for	22.8	74.8	2.4
Do you know that the water supply is misused by the public	67.8	29.8	2.4
Do you know how much water each person uses every day	22.8	74.3	2.9

4. Awareness on Need to Pay

Question	Yes %	No %	Other %
Do you know that water charges are the only means of operating, maintaining and expanding the system	54.1	42.4	3.5
Have you ever thought about the cost of water production	5.4	92.2	2.4
Do you think that you, the customer, should pay for water	64.6	33.0	2.4
Is the Water Tariff reasonable	62.5	34.6	2.9
Is the Connection Charge reasonable	57.0	19.5	23.5
Would you pay more for better pressure and water quality	26.5	39.4	34.1

As can be seen from the foregoing, the majority of domestic customers appear to be generally aware that the water resources situation for Colombo is far from satisfactory, yet few are aware of the source of water and only a small percentage practice any kind of water conservation.

Quite a high number of customers are not aware that NWSDB is the supply authority for Colombo, and an overwhelming majority would like to know about the Colombo water supply.

The public are generally not aware of the high rate of NRW in Colombo, yet most admit to witnessing misuse of the water supply. There is a lack of awareness on how much water should be used by each person per day; hence they will have little idea on economic usage.

Few people have any idea of the cost of delivering water to their premises, but a fair proportion of customers still consider that water should be provided to them free of charge. Although the majority of customers consider the connection charges and water tariff to be reasonable, there is still a significant number who believe them to be expensive.

The results of the survey, given in detail in the final Report on the Questionnaire Survey, attached as Appendix 4C-1, give strong indicators of the themes to be addressed, and the subjects to be covered by the Water Awareness Mass Media Campaign. It is therefore concluded that the campaign should aim to:

- Make the public aware of the importance of conservation of water
- Increase the awareness and understanding of the public of the Colombo Water Supply
- Educate the public on the need to avoid misuse
- Educate the public on the need to pay for water

3. COMPONENTS AND ACTIVITIES OF THE CAMPAIGN

3.1 Campaign Components

Within the framework of the overall objectives, and in accordance with the research into the particular problems faced, the detailed matters to be addressed as campaign components, on a theme by theme approach are as follows:

Objective	Components
1. Conservation of Water	(i) Water Resources Situation (ii) Problems Faced by NWSDB
2. Increased Awareness and Understanding	(i) Raise the Profile of NWSDB (ii) Advise of action taken by NWSDB to improve the water supply (iii) Develop Cooperation between NWSDB and the public
3. The Need to avoid Misuse of Water	(i) The NRW Situation (ii) Economic use of Water
4. The need to pay for Water	(i) NWSDB Financial Details (ii) Charges for water (iii) Connections

3.2 Campaign Activities

3.2.1 Conservation of Water

The global water resources situation is reaching a crisis, and to a greater or lesser degree is a common problem in all countries of the world. In Sri Lanka, despite its relatively high rainfall, the major rivers are almost fully utilised. Pollution, deforestation around water source areas, and salinity intrusion have become major problems in Sri Lanka and solutions are expensive. The options are; development of impounding reservoirs; more controlled use of irrigation water; protection and conservation of water sources, and the construction of salinity barriers. It is estimated that about half of the population of Sri Lanka will be living in urban centres in the next ten years, and this will put an even greater strain on piped water supplies as crowded urban dwelling severely limits shallow wells as an alternative source of water.

In the case of Colombo's water supply, demand is estimated to more than double in the next 25 years, which will require a similar increase in source works capacity. A recent feasibility study shows that a salinity barrier across the Kelani River could increase the extraction rate by 100%. However, such schemes are complex, costly, and potentially damaging to the environment.

Protection and conservation of water supplies at source is therefore a major issue to be addressed. The campaign should therefore educate the public on the need for conservation and protection of water sources, and this should be done in an informative and entertaining manner to generate public interest. There have been several such TV programmes on the global issue of water resources, and these are usually featured on the "Discovery" or similar type of channel;

these documentaries would be a fitting start to the Water Resources theme which should cover the following:

(i) Water Resource Situation

- The Global issue of Water Resources
- Situations in other Countries

(ii) Problems faced by NWSDB in Colombo

- *Water Resources in Sri Lanka*
- The problems faced by Colombo

3.2.2 Increased Awareness and Understanding

NWSDB is a Public Authority under the MUDH&C, and was established in 1974. Prior to this CMC was responsible for the Colombo Water Supply, and its Water & Drainage Division still plays a major role in the overall activities. However, the survey has shown that a significant number of people do not know who the water supplier is, and it is time for this to be corrected.

The public is generally not aware of the complexity of the water supply system and the important role that NWSDB plays in securing the well being of the residents of Colombo. Where the service levels are adequate, there is a tendency to merely accept that water is something that comes out of a tap, and at a relatively cheap price. The time that water supply is recognised for its role as essential to sustaining life, is when service levels are low and when something goes wrong and the supply is interrupted. Hence water authorities are generally seen in a negative perspective, invisible when all is well, and the villain when things go wrong.

However the public is not to be blamed entirely for this perception; NWSDB must examine its own shortcomings and it should give serious thought to the image it has created. The shortcomings in the existing system which has lead to poor supply, low pressure and quality, should be fully explained. Few probably realise the considerable age of the system which *contributes greatly to this situation*. The ongoing and future projects that will improve the system must be fully described to give confidence that the problems are recognised and are being rectified.

There is scope to be more “user friendly” and to develop more of a commercial image instead of remaining a dull out of sight and somewhat obscure public authority.

The Campaign should therefore set out to put NWSDB in the public eye in a positive light and maintain this higher profile through continued campaigning, genuinely seeking the participation and cooperation of the public. NWSDB should present its problems and achievements in a fully transparent manner, using the Mass Media, on the following subjects:

i) Raise the Profile of NWSDB

Who is NWSDB

What does NWSDB do

ii) Advise of action taken by NWSDB to Improve the Water Supply

Present the existing situation

Describe this JBIC Project

Describe other current projects

Set out the policy and strategy for the way forward in the twenty first century

iii) Develop Cooperation between NWSDB and the Public

Set out a policy on public participation

Advise the public of the positive role it can play

.2.3 The need to avoid misuse of water

The letters UFW and NRW to anyone in the water industry spell trouble. To the man in the street they mean nothing. Few people realise that it is not uncommon for up to 30% of water produced to quietly disappear as leakage (UFW), and even less realise that in CMC this figure increases to over 50% when we talk about NRW. These figures would startle anyone in the industry to think that over 50% of the raw material is processed, transported, then literally thrown away!

Water supply is an industry, and the raw material is precious and disappearing fast. This should ring alarm bells in any right-thinking persons' mind, and yet, when the exact place of loss is known, little seems to have been done about it for one reason or another. If the public were aware of the enormity of the problem which will lead to rapid depletion of source water and higher tariffs, they will surely assist NWSDB in its efforts to alleviate the problem.

This campaign needs to reach out to the public; the problem needs explaining and defining, and measures to economise on water usage should be given. The following components therefore should be included in the campaign:

(i) The NRW Situation

- What is NRW
- Why must it be reduced

(ii) Economic use of water

- Domestic users
- Commercial users
- Industrial users
- Standpost use
- Apartment Block use

3.2.4 The need to pay for water

There always has been and always will be a concept by some that water should be supplied free of charge. Few people, if any, realise that nothing in the world is free. If it is “free” to the people, then the government pays and finances this by way of rates and taxes. In the end analysis, almost everyone pays in one way or another.

Yes, water can be “free” when it falls as rain or can be drawn from a river or stream. However, when impure water is purified, treated to prevent the spread of disease, and then transported to a place convenient to the user it is no longer free of cost. Therefore these costs have to be passed on to the customers, and the customers are entitled to know the treatment, storage, transport and distribution costs of water, and how this may be recovered through the tariff charging system.

The public are likely to be more understanding and sympathetic to the charging system if they are well informed of the financial facts. The following components should therefore appear in the campaign:

(i) NWSDB Financial Details

- How is it financed
- How does it spend its money

(ii) Charges for water

- The Tariff system
- Standpost water

(iii) Connections

- Cost of connections

- Tenement Gardens
- Illegal connections

The following Tables 3-1 to 3-4 show details of the subjects to be covered in each component and the suggested use of the mass media to reach out to the people and seek their participation and cooperation.

TABLE 3-1 OBJECTIVE 1 IMPORTANCE OF CONSERVATION OF WATER

Components	Sub-Component	Subjects to be covered	Suggested use of Mass Media etc
(i) Water Resources Situation	The Global Issue of Water Resources Situations in other countries	Dwindling world Water Resources Water resources problems in other countries	Local TV Stations using video films available on this subject (AWWA and IWA should have suitable videos on these subjects)
(ii) Problems Faced by NWSDB	Water Resources in Sri Lanka The Problems Faced by Colombo	The Rivers of Sri Lanka Competing Uses (Hydro/Irrigation etc) Damage to catchment areas Other sources; shallow/deep wells River Sources Used (with capacities) Problems of Salinity Problems of pollution Problems of deforestation Problems of competing users	Need to use a local Media Company to produce videos and the local TV networks to screen them

TABLE 3-2 OBJECTIVE 2 INCREASED AWARENESS AND UNDERSTANDING

Components	Sub-Components	Subjects to be covered	Suggested use of Mass Media etc
(i) Raise the Profile of NWSDB	Who is NWSDB What Does NWSDB do	Clear Description of the National Body. Elaborate on the role in Colombo. Clarify the role played by CMC. Develops, provides, operates and controls a coordinated water supply. Distributes water for domestic, public, commercial and industrial use	TV and Radio Presentations and Debates Feature Article for Newspapers and Magazines Publish Information Booklet
(ii) Advise of Action taken by NWSDB to improve the water supply	Present the existing situation Describe this JBIC Projects Describe other current projects Set out the Policy and Strategy for the Way Forward in the 21 st century	Give an honest report on the Supply and Demand situation and explain the shortcomings of quantity, pressure and quality The Reduction of Non-Revenue Water Explain fully the NRW/UFW Situation and detail the steps being taken to rectify the matter (NWSDB to advise) Improve reliability of supply Provide Individual connections for all Increase efficiency and minimise tariff Participation by settlement communities Outsourcing of some operations	TV and Radio Presentations and Debates Feature Article for Newspapers and Magazines Publish Information Booklet
(iii) Develop Cooperation between NWSDB and the Public	Set out a Policy on public participation Advise the public of the positive role it can play	Public support for policy and activities Pay Water Bills promptly Proper installation procedures Report leaks and other faults	TV and Radio Presentations and Debates Feature Article for Newspapers and Magazines Publish Information Booklet

TABLE 3-3 OBJECTIVE 3 THE NEED TO AVOID MISUSE OF WATER

Components	Sub-Component	Subjects to be covered	Suggested use of Mass Media etc
(i) The NRW Situation	What is NRW	Define UFW/NRW and compare with other cities in Asia Leaks visible and invisible Illegal Connections Standposts in Tenement Gardens Apartment Blocks Metering Errors	Issue Booklet on NRW (and Economic Use of Water) Publish Feature Articles in Newspapers and Magazines
	Why must it be reduced	Waste of Resources Increased cost hence higher charges Public Nuisance and Health Risk	TV and Radio Presentation and Debates
(ii) Economic use of Water	Domestic Users	Washing and Bathing Toilet Flushing Kitchen use Car Washing Garden Watering	Issue Booklet on Economic Use of Water (Combined with NRW as above)
	Commercial Users	Business Toilets and Washrooms Office Cleaning Cleaning of surrounds	Publish Feature Articles in Newspapers and Magazines
	Industrial Use	Knowledge of supply connection Care of the Meter Awareness of usage Recycling	TV and Radio Presentation and Debates Issue Posters and Stickers
	Standpost Use	Wayside standposts Standposts in Tenement Gardens	
	Apartment Blocks	Wastage when tenants don't pay (NB All Users - Attending to Leaks)	

TABLE 3-4 OBJECTIVE 4 THE NEED TO PAY FOR WATER

TABLE 3-4 OBJECTIVE 4	THE NEED TO PAY FOR WATER			
Components	Sub-Component	Subjects to be covered	Suggested use of Mass Media etc	
(i) NWSDB Financial Details	<p>How is it financed</p> <p>How does it spend its money</p>	<p>Revenue from sale of water New Connections, other income Donor Loans and Grants</p> <p>Repairs and Maintenance Electricity Chemicals Personnel Administration Loan and Interest Repayments</p>	<p>Issue Booklet on Financial Operations</p> <p>TV and Radio Presentation and Debates</p>	
(ii) Charges for water	<p>The tariff system</p> <p>Standpost water</p>	<p>List the different categories Explain why the charges vary</p> <p>Explain the National policy Explain the unique situation in Colombo -The history of wayside standposts -The policy in Tenement Gardens</p>	<p>Issue Booklet on Tariff and Connection Charges</p> <p>TV and Radio Presentation and Debates</p>	
(iii) Connections	<p>Cost of connections</p> <p>Tenement Gardens</p> <p>Illegal connections</p>	<p>Normal domestic Domestic Concessions Non-domestic</p> <p>Why subsidised by NWSDB Participation brings the cost down Health and hygiene</p> <p>How much is owed to NWSDB How this affects the cost to honest users The penalty for illegal use</p>	<p>Issue Booklet on Tariff and Connection Charges</p> <p>Issue Special Leaflet for Tenement Gardens</p> <p>TV and Radio Presentation and Debates</p>	

4. IMPLEMENTATION ARRANGEMENTS

4.1 Overall Project Management

NWSDB will be responsible for the overall implementation of this Mass Media project, and it is recommended that a Steering Committee be formed to manage and coordinate the programme. This is a very important subject and since it involves forming a closer relationship with the public, control should be at the highest level. The following is the suggested composition of the Steering Committee:

Committee Chairman	General Manager
Committee Members	Additional GM (CMR)
	DGM (GC)
	AGM (NRW)
	Head of Public Relations Section

* The committee will report to the Chairman of NWSDB who will be responsible for all policy matters

The committee may co-opt any other officer of NWSDB for subjects of a specialist nature, and may delegate particular work items to members of their staff, as appropriate. In addition representatives of the Media in Sri Lanka may be co-opted or invited to attend certain meetings when matters pertaining to their expertise are to be dealt with.

The functions of the committee will be to:

- Formulate the overall policy of the Mass Media Campaign
- Set the major objectives
- Decide on the priority of the campaign components
- Develop a detailed programme
- Propose a method of financing the campaign

The Start up Programme is estimated to take four months, and is shown together with the *Schedule for Production of Information* in Figure 4-1. The timing of commencement will depend on the availability of finance.

4.3 Implementation Programme

An Implementation Schedule is given in figure 4-2 showing commencement with the screening of videos on the global water resources situation to create an initial interest in the need to conserve water resources. During the same period the campaign to increase awareness and understanding should commence with the publication of feature articles in newspapers and magazines. This is an ideal time to introduce the public to the role of the NWSDB in Sri Lanka in general, and Colombo in particular, and how the country fits into the overall global situation with regard to water resources problems. This is to be done through TV and Radio presentations that can also promote the general information booklet on NWSDB. The general information booklet should be made widely available through outlets selected by the PR Section and may include public libraries, schools, etc.

The next step will be the screening of the locally produced videos on the water resources situation faced by NWSDB, as a follow up to the global situation. It is considered important to show how Sri Lanka fits into the global context of water supply and therefore how it measures up internationally in terms of its problems and achievements. At the same time, presentations on TV and radio will introduce the public to the theme of the avoidance of misuse. The booklet on NRW and the economic use of water must be available for circulation.

Lastly, having educated the public on the important topics of water supply and water use, the atmosphere should be right to introduce the need to pay for water. Presentations should be made on both TV and Radio, and the final booklets on Financial Operations, and Tariff and Connection Charges must be made available.

The special leaflet relating to Tenement Gardens should not be included in the foregoing, but introduced to the relevant communities as soon as possible by the most appropriate means. Posters and stickers should be available after the screening of the global water resources videos with messages and slogans appropriate to the components being introduced throughout the period.

Thereafter, the whole process should be repeated at a greater or lesser level of intensity depending upon the initial success or otherwise of the campaign. The campaign, as such, should never end but continue on a permanent basis at the level required to ensure that NWSDB is always in the public eye, and that the awareness raised is maintained. How to proceed in the long term can only be quantified when the outcome of the initial intense campaign is known.

Figure 4-1 START UP & SCHEDULE FOR PRODUCTION OF INFORMATION FOR MASS MEDIA CAMPAIGN

ACTIVITY	2001											
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
START UP												
Form Steering Committee	□											
Formulate Policy												
Set Major Objectives												
Prioritise Campaign Components												
Develop Campaign Programme												
Detail Campaign Finances												
Approve Campaign Budget												
PRODUCTION OF INFORMATION												
1. Importance of Conservation of Water												
Discuss showing of Videos with TV Stations												
Locate Videos on Global Water Resources												
Locate Videos on Water Resources in other Countries												
Organise Video for Water Resources in Sri Lanka												
Organise Video for Colombo's Water Resources												
2. Increased Awareness and Understanding												
Compile Information Profile on NWSDB												
Produce Booklet on NWSDB												
Prepare Feature Articles for Newspapers/Magazines												
Discuss Profile Presentation with TV & Radio Stations												
Prepare Profile suitable for Radio Presentation												
3. The Need to Avoid Misuse of Water												
Prepare Details of the NRW/JFW Situation												
Prepare Information on Economic use of Water												
Produce Booklet on NRW and Economic Use												
Prepare Feature Articles for Newspapers/Magazines												
Prepare Posters and Stickers												
Discuss NRW Programme with Radio Stations												
Prepare NRW/Economic Use for Radio Presentation												
4. The Need to Pay for Water												
Prepare NWSDB Financial Detail												
Prepare Details of the Tariff and Connection Charges												
Produce Booklet on Financial Operations												
Produce booklet on Tariff and Connection Charges												
Prepare Special leaflet for Tenement Gardens												
Discuss Presentation/Debates for TV and Radio												

Figure 4-2 IMPLEMENTATION SCHEDULE - WATER AWARENESS MASS MEDIA CAMPAIGN

	2002				2003				2004	
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q
1. Importance of Conservation of Water										
Screen Videos on Global Water Resources										
Screen Videos on Water Resources in Other Countries										
Screen Video on Water Resources in Sri Lanka										
Screen Video on Colombo's Water Resources										
2. Increased Awareness and Understanding										
Issue Information Booklet on NWSDB										
Publish Feature Articles in Newspapers & Magazines										
Presentations and Debates on Television and Radio										
3. The Need to Avoid Misuse of Water										
Issue Booklet on NRW & Economic Use of Water										
Publish Feature Articles in Newspapers & Magazines										
Issue Posters and Stickers										
Presentations and Debates on Television and Radio										
4. The Need to Pay for Water										
Issue Booklet on Financial Operations										
Issue Booklet on Tariff & Connection Charges										
Issue Special leaflet for Tenement Gardens (start 2001)										
Presentations and Debates on Television & Radio										

Key
 Original Activity
 Repeat Activity with variations and updated information as necessary

5. PRELIMINARY COST ESTIMATES

Preliminary estimates indicate an overall cost of about Rs 15 million and are detailed in Figure 5-1. The cost estimates are quite high in comparison to the current annual budget of the PR Section.

However, this must be seen in the context of the benefit that will accrue from the reduction of NRW and the increase in revenue. In terms of the average revenue per cubic metre of water sold, which is currently about Rs 15/m³, a reduction from 40% to 35% in NRW, which may result from this campaign, would give an additional annual income of over Rs 140 million.

Even if all of the water saved was consumed at the lowest tariff level (Rs 35/10m³) the annual income would be about Rs 33 million. Therefore an annual expenditure of about Rs 5 million is a small price to pay for the improvements that should result from this campaign.

This broad cost estimate should be considered as an indication of the order of finance required by such a campaign. Detailed costs will have to be developed through the Steering Committee and reviewed on an annual basis as the campaign progresses and the impact on the public is better understood.

Figure 5-1 BUDGET FOR WATER AWARENESS MASS MEDIA CAMPAIGN

Item	Number Required	Rate (Rupees)	Total (Rupees)	Capital Costs	Running Cost	Annual Costs			
						(Part) 2001	2002	2003	(Part) 2004
Additional Staff Costs									
Project Manager	1x3 years	240,000	720,000		720,000	180,000	240,000	240,000	60,000
Project Assistant (TV & Radio)	1x3 years	180,000	540,000		540,000	135,000	180,000	180,000	45,000
Project Assistant (Booklets, Newspapers Magazines, Leaflets & Posters)	1x3 years	180,000	540,000		540,000	135,000	180,000	180,000	45,000
Support Staff	3x3 years	288,000	864,000		864,000	216,000	288,000	288,000	72,000
Additional Staff Costs	sub-total		2,664,000		2,664,000	666,000	888,000	888,000	222,000
Equipment									
Computers (Desk Top)	3	150,000	450,000	450,000		450,000			
Printer (Colour)	1	60,000	60,000	60,000		60,000			
Photocopier	1	125,000	125,000	125,000		125,000			
Equipment	sub-total		635,000	635,000		635,000			
Transport									
Hire of Vehicles (vehicle months)	30	60,000	1,800,000		1,800,000	450,000	600,000	600,000	150,000
External Promotion Company									
External Promotion Company	3	40,000	120,000	120,000		40,000	40,000	40,000	
1/2 hour Video, Water Resources in Sri Lanka	3	40,000	120,000	120,000		40,000	40,000	40,000	
External Promotion Company	sub-total		240,000	240,000		80,000	80,000	80,000	
International Purchases									
International Purchases	1	15,000	15,000	15,000		15,000			
Purchase of Videos (Global & Other Countries Water Resources Problems)	2	15,000	30,000	30,000		30,000			
International Purchases	sub-total		45,000	45,000		45,000			
Electronic Media									
Screening Time for Videos on National TV	30	85,000	2,550,000		2,550,000		850,000	850,000	850,000
Screening Time for Presentations on National TV	15	65,000	975,000		975,000		325,000	325,000	325,000
Air time for Presentations on National Radio	15	45,000	675,000		675,000		225,000	225,000	225,000
Electronic Media	sub-total		4,200,000		4,200,000		1,400,000	1,400,000	1,400,000
Newspapers & Magazines									
Newspapers & Magazines	12	175,000	2,100,000		2,100,000		700,000	700,000	700,000
Feature Articles	15	50,000	750,000		750,000		250,000	250,000	250,000
Newspapers & Magazines	sub-total		2,850,000		2,850,000		950,000	950,000	950,000
Printing Costs									
Booklets (3 different publications)	15,000	125	1,875,000	1,875,000			625,000	625,000	625,000
Posters (5 different designs)	10,000	15	150,000	150,000			50,000	50,000	50,000
Stickers (5 different designs)	25,000	20	500,000	500,000			166,667	166,667	166,667
Leaflets (Tenement Gardens)	30,000	2	60,000	60,000			20,000	20,000	20,000
Printing Costs	sub total		2,585,000	2,585,000		2,585,000	861,667	861,667	861,667
Total	Total		15,019,000	3,505,000	11,514,000	1,876,000	4,779,667	4,779,667	3,583,667

6. SUMMARY

The purpose of this report is to establish the framework for the first three years of a continuous and systematic mass media campaign aimed at raising the awareness and understanding of the public to the importance of conservation of water resources; educating the public on the powers and duties of NWSDB; the need to use water economically and the need to pay for this essential service.

The framework covers the components and activities of the campaign and gives an indication of how the message can be put to the public by the use of the mass media.

A concept for the overall management of the project is included, giving ideas on the formation of a Steering Committee, what its functions should be, and how it will oversee the campaign implementation.

Recommendations are put forward on the methodology of campaign implementation and the contents and timing of the production of information and initial contact with the media. In addition, a schedule is included setting out the programme for a step by step, theme by theme approach to create awareness and to educate the public on the water supply and how they may cooperate and participate to the benefit of all parties.

Budget estimates are given to demonstrate the order of cost and the financial gain by way of increased revenue that will accrue from a successful campaign.

The report does not set out details of the media presentations, this being a task best left to the experts in this field. NWSDB already has an experienced PR Section that has produced many media programmes, advertising campaigns, feature articles, posters, leaflets and stickers.

It must be stressed that for the campaign to be a success, NWSDB must have the genuine desire to join hands with the public, and the willingness to share with them the details and finances of this public authority in a fully transparent manner.

It has been said that the overall goal of a substantial reduction in NRW may fail without the support of the public. Equally, this support may not be forthcoming unless there is a genuine belief by NWSDB that contact and dialogue with the public to encourage their participation is desirable as well as necessary.

**LOCATION OF DOMESTIC AND NON-DOMESTIC CUSTOMERS FOR WATER AWARENESS SURVEY
BY POSTAL AREA**

Location of Selected Non Domestic Customers by Postal Area(Categories 60, 70, 71, 72, 73)																																
Area	Group A					Group B					Group C					Group D					Group E					Grand Total						
	1	9	11	12	Total	3	4	5	Total	2	6	Total	7	8	14	Total	10	13	15	Total												
CB 1	32		13	10	55				0							14				11				14				15	12	11	38	
CB 2		5			5	3			3	50		50	11	9		20				22				25							22	
CB 3					0	31	6	21	58	1	9	10	24	1		25				0											0	
Total	32	5	13	10	60	34	6	21	61	51	9	60	35	10	14	59	37	12	11	60	12%	4%	3%	20%	12%	3%	5%	20%	4%	4%	20%	100%

Location of Selected Domestic Customers by Postal Area (All Category 10)																																
Area	Group A					Group B					Group C					Group D					Group E					Grand Total						
	1	9	11	12	Total	3	4	5	Total	2	6	Total	7	8	14	Total	10	13	15	Total												
CB 1			30	14	44				0							53				16				53				35	64	16	115	
CB 2		31			31				0	41		41	45	51		96				26				96							26	
CB 3					0	61	74	17	152	107		107	34	1		35				0											0	
Total	0	31	30	14	75	61	74	17	152	41	107	148	79	52	53	184	81	64	16	141	9%	4%	2%	22%	11%	8%	8%	27%	9%	9%	2%	100%

Combined Domestic and Non-Domestic																																
Area	Group A					Group B					Group C					Group D					Group E					Grand Total						
	1	9	11	12	Total	3	4	5	Total	2	6	Total	7	8	14	Total	10	13	15	Total												
CB 1	32	0	43	24	99	0	0	0	0	0	0	0	0	0	67	67	50	76	27	153												
CB 2	0	36	0	0	36	3	0	0	3	91	0	91	56	60	0	116	48	0	0	48												
CB 3	0	0	0	0	0	92	80	38	210	1	116	117	58	2	0	60	0	0	0	0												
Total	32	36	43	24	135	95	80	38	213	92	116	208	114	62	67	243	98	76	27	201	3%	4%	4%	13%	10%	8%	7%	24%	10%	8%	3%	21%

