

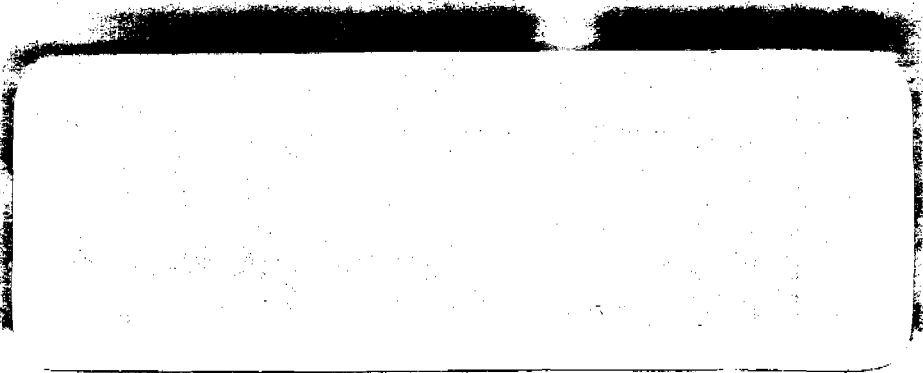
822 BD93

Government of Bangladesh
Ministry of Local Government
Rural Development and Cooperatives
Department of Public Health Engineering

Government of the Netherlands
Ministry of Foreign Affairs
Directorate General of
International Cooperation

NETHERLANDS-BANGLADESH DEVELOPMENT CO-OPERATION PROGRAMME
DPHE-WATER SUPPLY AND SANITATION PROJECTS

LIBRARY
RESEARCH CENTRE
FOR RURAL WATER SUPPLY AND
SANITATION (RCS)



Programme Office, Netherlands Assisted Water Supply & Sanitation Projects

822 - BD93 - 12276

UTILITY MANAGEMENT IN 18DTP

WORK PROGRAMME AND WORK PLAN

LINE NO.	DATE	DESCRIPTION
1	APRIL, 1993	SUPPLY
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

13W 12276
LO: 822 8093

Utility Management in 18DTP: Workprogramme and Workplan

Table of contents

1. Introduction
2. Objective
3. Present Situation
 - 3.1 Position in the Government structure
 - 3.2 Financial
 - 3.2.1 Liquidity Plans
 - 3.2.2 Bookkeeping
 - 3.3 Personnel
 - 3.4 Offices
 - 3.5 Service levels
 - 3.5.1 Water Quality
 - 3.5.2 Supply hours
4. Products to be made
 - 4.1. Business plan
 - 4.2. Management tools
 - 4.3. Training programme
5. Time frame
6. Barchart of Activities
7. Terms of Reference UME

Annexes

1. Summary of the findings during the field visit.
2. Discussion issues on the Institutional Setting of the PWSS
3. Draft Job Descriptions PWSS staff

Figures and Tables

Figure 1 Composition Supervisory Board

Figure 2 Organigramme of Municipal Water Supply Organization

Table 1 Estimated staffing requirements for a piped water supply system

Glossary

AE	Assistant Engineer
DGIS	(Netherlands) Directorate General for International Cooperation
DPHE	Department of Public Health Engineering
18DTP	18 District Towns Water Supply, Sanitation and Drainage Project
12DTP	12 District Towns Water Supply and Sanitation Project
EE	Executive Engineer
GOB	Government of Bangladesh
GON	Government of the Netherlands
MLGRD (C)	Ministry of Local Government, Rural Development and Cooperatives
MIS	Management Information System
O&M	Operation and Maintenance
PC	Programme Coordinator
PD	Project Director
PO	Programme Office
Pourashava	District Town Municipality
PP	Project Proforma
PWSS	Pourashava Water Supply Section
SAE	sub-Assistant Engineer
SDE	sub-Divisional Engineer
SB	Supervisory Board
UME	Utility Management Expert
WHO	World Health Organization
IRP	Iron Removal Plant

1. Introduction

In the 18 DTP concept, the operational tasks regarding water supply are to be performed by the Pourashava Water Supply Section (PWSS). Consequently, the operations of the PWSS are very important for the sustainability of the improvements the project wants to introduce in the Water Supply.

The utility management experts in 18DTP which consisted for the first mission of two expatriate Utility Management Experts are engaged to set up a management plan or business plan for the PWSS 'to operate on a No-Loss basis' (Chapter 7 contains the Terms of Reference for these experts)

This document contains:

- the objective to be achieved
- the 'products' to be made
- the activities to be carried out
- the time frame
- the bar chart of activities.
- terms of reference for the UME

Most of the specific areas necessary for the 'products' to be made have been described in some detail in the Final Report Non-Technical Items, produced in 1990 by the Project. This present report sets out details based on experiences since that date. Where there is contradiction, it should be assumed that the plans set forth in this report is the new policy to be followed by the project.

2. Objective

When the 18DTP project ends, by the end of 1995, the PWSS should operate as a autonomous cost efficient entity. This means, that the revenues the PWSS generates, should be sufficient to cover at least the costs of the required operation and maintenance activities.

3. Present Situation

Management is about the art to combine/control resources in order to achieve the objectives of the utility in the most efficient way. To achieve this the resources in hand and the parameters/objectives of the utility must be known and defined. Some of the parameters already known are briefly mentioned hereunder:

3.1 Position in the Government structure.

During the 12DT Project it was the DPHE who organized, operated and maintained the piped water supply in the Pourashavas. In the second stage of the 12DTP it was decided that piped water supply in the Pourashavas would be brought under the Pourashava Water Supply Section.

To implement the project activities the PWSS was brought under the control of the DPHE for the duration of the implementation of the project.

To involve the Pourashava in the project however, a Joint Account was made

whereby both the DPHE/SDE and the Pourashava Chairmen are signatories. Out of the Joint Account all PWSS expenses were to be paid. In addition to the above mentioned arrangements a Supervisory Board (SB) was established in 18DTP which would provide joint control over the PWSS (see figure 1).

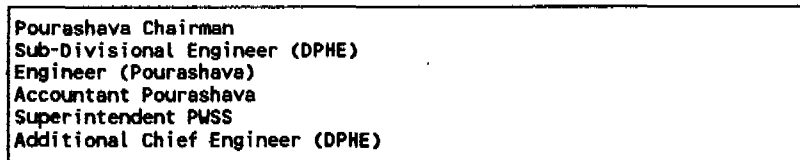


Figure 1: Composition Supervisory Board

It appears that it is difficult to make the PWSS financially sustainable in the short run (see also section on finance). New investments and technical, institutional, managerial and training back-up will have to be provided for a long time by government agencies. The government agency best placed to do this is the DPHE.

It is envisaged that the PWSS will have some degree of independence from other Pourashava sections and indeed the Pourashava. This is because the PWSS has to be run on an autonomous cost efficient basis with as aim to provide a service to the community at cost price. The price should be calculated having in mind the above principles.

Therefore the SB should be further strengthened to act like a Board of Directors over the PWSS (see figure 2).

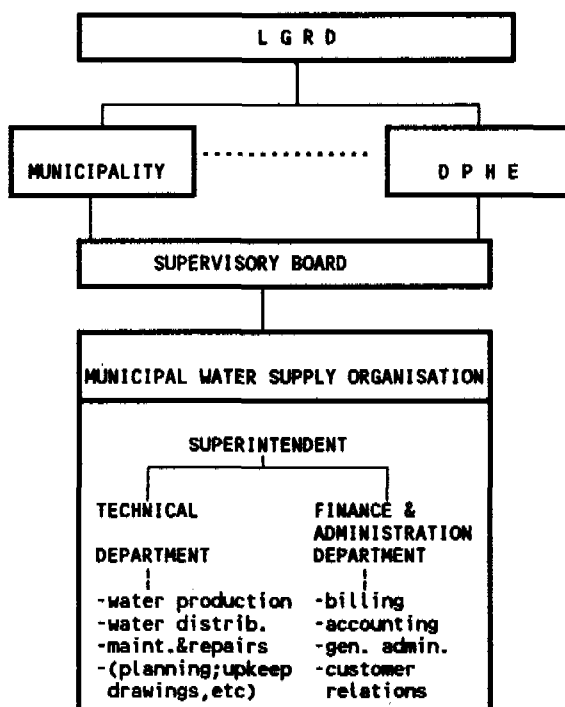


Figure 2: Organogramme for Municipal Water Supply Organisation

Since the PWSS is now to be taken from the direct control of the SDE/DPHE it must be decided on a short term how the PWSS can assume a

more independent role under the control of the SB. It is also required to establish what legal framework may be required to do this.

3.2 Financial

The financial position of most Pourashavas is weak. Collection rate of taxes and tariffs is low. Controls on the finances is weak. This has compelled the project to take an approach where all the above mentioned components can be strengthened. Joint Accounts provide a better control, project subsidies may be made dependent on good collection rates and so forth. To achieve sustainability however most of these activities should be firmly embedded in the Pourashava and PWSS routines before the project ends.

3.2.1 Liquidity Plans

The 18DTP has prepared liquidity plans for all towns covered by piped water supply. These liquidity plans show the possible financial situation of the PWSS up to the year 2000. These liquidity plans are complete from an accounting point of view. They clearly show that most PWSS will have difficulty in reaching sustainability, as the level of water rate required and the level of the willingness to pay are far apart. To counter this a number of measures are proposed which needs further investigation:

- Only O&M costs should be borne by PWSS
- Service levels should be raised to increase willingness to pay
- Hygiene education should aim at creating appreciation for safe drinking water.
- HTW should form a separate break-even centre apart from the piped water supply.
- HTW should be paid as much as possible out of the Holding Tax while the piped water system should be eventually fully covered out of the water tariff.
- O&M for piped water supply should be fully financed out of the water tariffs before the project is completed.

In addition to the above it should also be investigated what the cost and benefits are of introducing water-meters in the longer term.

3.2.2 Bookkeeping

Bookkeeping manuals for the PWSS are available in the project. They were already tested in the 12DT project and have proven to work reasonably well. The system used is a double entry bookkeeping record. These bookkeeping practices have also been introduced in the 18DTP. Monitoring teams have been monitoring the introduction of these practices and have been giving on-the-job training to the assistant accountants of the PWSS.

3.3 Personnel

The amount of personnel required in the PWSS was given in the general report and has been shown to be as follows:

Table 1 Estimated staffing requirements for a piped water supply system.

Jobtitle	Number of service conn.		
	<500	500-1000	1000-2500
1. Superintendent	1	1	1
2. Head Technical Department	-	-	1
3. Head Fin&Admin.Department	-	-	1
4. Chief F/A Off.;(Ass.)Accountant	1	1	1
5. Accounts assistant/bookkeeper	1	1-2	2-4
6. Bill clerk	1	1-2	1-3
7. Cashier/revenue officer	-	0-1	1
8. Customer relations officer	-	0-1	1
9. Storekeeper	-	0-1	1
10. Pumpdriver/linesman/valve oper.	1	1-2	2-4
11. Plumber	1	1-2	1-3
12. Tr. Plant Supervisor/Operator	(1*3)	(2*3)	(2*3)
13. Treatment plant operator	(1*3)	(2*3)	(2*3)
14. Laboratory technician	(0-1)	(0-1)	(1)
15. Peon (junior staff;assistant)	1	1-2	2-3
16. Security guard	1	1	1-2
TOTAL	9-16	9-30	18-41

Job Descriptions have already been made by the project for some of the above mentioned positions. (See Annex 3 to this report). Furthermore some of these positions have been sanctioned by the MLGRD, which thereby provides a legal basis for these positions. For other positions this remains to be done.

3.4 Offices

18DTP is providing offices for the PWSS. These offices are planned to be adjacent to the Community Sanitation Centres (CSC). The same type of building as the CSC is planned for the PWSS. Electricity, telephone and water supply are included in the design.

3.5 Service levels

Service levels will determine the attractiveness of having piped water and thus a house connection. It also determines the willingness to pay for the water. Therefore the water must be of good quality and must be provided on a regular basis. For this the following parameters have been accepted by the project:

3.5.1 Water Quality

In principle the WHO standard have been accepted. These are as follows:

- Bacteriologically safe : (WHO Guidelines)
- Iron content : < 0.1 (mg/l)
- Manganese content : < 0.5 (mg/l)
- Hardness : < 400 (mg/l)
- Salinity : < 250 (mg/l;as Cl)
- Electrical Conductivity : < 1500 (μ S/cm)

3.5.2 Supply hours

The PWSS will strive to supply water for 12 hours continuously. This should be build up to come to an 24 hours supply by the year 2000. It has been shown that there is a relationship between extended supply hours and reduced wastage of water.

4. Products to be made

The utility experts will make a business plan and develop management tools for the PWSS. They also will develop a training programme for the staff of the PWSS.

4.1 **Business plan**

The experts will make a management or business plan, which will have to cover a.o. the following subjects:

- Legal/procedural:
 - . which laws/regulations have to be adhered to
 - . which procedures have to be followed.
- Organisational
 - . what are the tasks of the PWSS
 - . Determine the job description for the PWSS
 - . what is the position of the PWSS in the Pourashava
 - . what is the relationship with DPHE
 - . what are the tasks of DPHE at Pourashava level
- Financial
 - . how to collect water rates
 - . what to do when customers don't pay
 - . how to collect other revenues
 - . what to do when the Pourashava doesn't pay
 - . what are the relevant financial and administrative performance indicators.
 - . which financial/administrative procedures have to be followed.
- Operational
 - . what is the required water quality
 - . how can water leakage be reduced
 - . how can water wastage be reduced
 - . which maintenance schedule is to be followed
 - . what are the relevant technical performance indicators
 - . how much stock is required
 - . how should the store be managed.

4.2. **Management tools**

The utility experts have to develop a number of management tools, such as:

- a maintenance scheme
- a management information system.
- procedures for new water connections
- procedures for disconnections

- procedures for customer relations
- schedules and materials for information campaigns
- a schedule for performance improvement

4.3. Training programme

There is no regular instituted training programme for the Pourashava staff or for the PWSS staff. All training given at PWSS level is donor sponsored. There is therefore a twofold need for a training programme. One is the need to upgrade the abilities of the present PWSS staff. The other is a need for a regular recurrent training programme for different types of jobs in the PWSS, which will survive project-oriented activities.

The UME will have to involve himself in setting up and actively see that the immediate training programme is carried out.

For the recurrent training programme a proposal should be made.

The programme so far designed by the project aims mostly at the accountants and the watersuperintendent. No technical training programme has yet been designed. It is therefore that the utility experts have to develop a training programme for all PWSS staff based upon an assessment of individual training needs. This should also comprise an evaluation of the applicability of the present training programme aimed at the PWSS personel and an inventory of the existing training facilities and training materials.

5. Time frame

Until the end of the project period, i.e. until the end of 1995, the expatriate UME will visit Bangladesh 3-4 times during a period of one to two months.

The local UME will be available from May 1993 until the end of the project period. The expatriate UME will be available during three months per year.

The work programme is described further in the report.

- At the end of 1993, agreement should be reached on the future institutional setting of PWSS. This includes in principle agreement on the possible establishment of a National Federation of Water Supply Enterprises. The draft business plan should be available, as well as a draft training schedule.
- At the end of 1994, the 'tools', including the operational and legal instruments should be available. The PWSS's should all have been formed and be operational. This a.o. means, that the staff of the organisation must have been trained to perform well in their new positions.

6. Barchart of Activities

Below follows the general bar chart of activities / work programme for the utility management experts.

Activity	1993	1994	1995	Expert
1.Orient.	xxx			B
2.Model	xxx			B
3.Agree	xx			All
4.Workplan	xxx			B
5.Masterpl	xxxxxxxx			A, B
6.Business	xxxxxxxx			A, B
7.Frame	xxx			A, B
8.Tools		xxxxxxxxxxx		A, B
9.Design		xxxxx		A, B
10.Train		xxxxx	xxxxx	A
11.Test		xxxxxxx	xxxxx	A, B
12.Eval			xx	All
13.Adjust			xxx	A, B
14.Implem			x	DPHE

A = UME (local)
 B = UME (expat)

7. Terms of Reference Utility Management Expert(s)

These Terms of Reference were written after the first mission of the expatriate UME were completed. They are based on the first Terms of Reference produced by the Advisory Team 18DTP and the experiences of the UME's in the field. The Terms of Reference are valid for the expatriate UME as well as the local UME. A rough division of the tasks has already been shown in the above Barchart of Activities.

Title: Utility management expert

Reports to: The utility management expert reports to the Programme Coordinator.

Tasks:
 The utility management expert is assigned to the 18DTP project. He is a member of the Advisory team.

The UME will work to develop a sustainable PWSS in the 18DTP.

The PWSS needs to be developed as a separate and independent entity, as an enterprise, with the Pourashava and DPHE being "shareholders" or "Board of Commissioners" of this enterprise. The idea of the PWSS being an enterprise is quite new for Bangladesh and needs a lot of explaining and convincing from the Consultant towards all kind of authorities. In this light the UME has to study and give advise on the following points:

- **Legislation.** Study the by-laws of the PWSS and give suggestions for improvement/alterations.
- **Organization structure.** Set up a businessplan for the PWSS This plan should be as specific as possible but should fit the majority of the 18 PWSS's.
Define precisely the relationship between the SDE (DPHE) and the PWSS and define the place of the PWSS within the Pourashava.
- **Job Descriptions of Key Personnel.** The Project prepared draft job descriptions for some PWSS staff. These job descriptions need to be studied, discussed and if necessary revised. Besides this, job descriptions should be formulated for additional PWSS staff, describing tasks like Leak Detection and Repair, Personnel Management, Store Management of materials, tools and spare parts, etc., etc. The total amount of staffing required needs to be specified for each PWSS, taking into account the total number of house connections, the number of hand pumps, etc.
- **Training.** Training needs have to be identified and formulated. Training programmes have to be designed and implemented. Review the already defined training programme of the 18 DTP in the light of the needs assessment. Assist in implementing the training programme. Develop a training programme for the MIS implementation in cooperation with the MIS specialist.
- **Operation and Maintenance and Rehabilitation.** The Project prepared draft guideline for the Rehabilitation of the existing piped water supply systems and the rehabilitation of handpumps. These draft guidelines need to be studied, discussed and updated. Besides guidelines have to be prepared for the implementation of proper Operation & Maintenance methods for both piped and non-piped water supply. These methods should be described and explained in detail.
A framework should be made for a maintenance schedule.
Pay attention to the following Operational Problems:
 - * how can water wastage be reduced
 - * which technical improvements are possible
- **Finance.** The Project prepared Liquidity Plans for the Pourashava's. What is needed now is:
 - * Give suggestions how water rates may be collected. Related to this, suggestions for sanctions on non-payment should be given short of disconnecting the water-supply.
 - * The revenue picture involving water tariff payments and holding

tax payments should be reviewed and recommendations should be given on ways how to make sure that both revenue sources are matched with what they are meant to pay for (HTW versus piped water supply).

- * Preparation of PWSS budgets, taking into account all expenditures and revenues, including salaries of all staff, electricity costs, maintenance costs, transport costs, depreciation and necessary investments like bicycles and ledger books, income from bills and possibly Pourashava holding tax and necessary subsidies from the Project.
- * Review the PWSS accounting method
- * how to assess water rates

All these activities should be undertaken in close cooperation with the financial consultant.

Make a plan on how the Joint Account relationship with the DPHE should be ended and the actions/milestones required to do this.

The role of the PWSS in the fields of Community Participation, Customer Relations, Information Campaigns and Hygiene Education needs to be formulated and subsequently additional staff requirements and job descriptions need to be specified.

The Project prepared a format for a Management Information System (MIS, with forms to be filled in monthly and quarterly). This MIS needs to be studied, discussed and upgraded. Performance indicators (administrative, financial and technical) need to be defined and included in the MIS. The MIS (or part of it) needs to be further developed to make it suitable for use by PWSS.

Define water quality indicators and indicate how, where and when this should be measured.

Set-up a store management system and specify a rational amount of spares to be kept in the stores of the PWSS

Look into the possibility of a National Federation of Water Supply Enterprises

Timeframe

In total some 40 manmonths have been made available:

- local consultant UM : 31 manmonths
- expatriate consultant UM : 9 manmonths

Annex 1: Summary of the findings during the field visit.

From 21 March till 11 April 1993 the first mission of the expatriate Utility Management Experts (UME) was carried out.

Visits were made to the first batch towns of the 18DTP and discussions with representatives of the Pourashava's, PWSS and DPHE were held. The following is an impression of the present situation.

- The scale of the PWSS seems to be small. The PWSS is often influenced by in their activities by local politics. This is undesirable for operating on a "No-Loss" basis.
- The financial position of the Pourashava's and the PWSS is very weak. Non-payment of bills and taxes was given as the most important reason for this.
- Revenues of the PWSS are too low because the bill collection rate is about 50%
- Disconnection of house connections because of non-payment of water tariffs doesn't take place for political reason.
Non paying categories are:
 - * rich people
 - * political people
 - * government institutions
- Holding Tax collection rate is at about 30% - 40%
- Water quality control is irregular. When carried out the Zonal Laboratories gives a report which gives only figures and no recommendations.
- High leakage losses were seen in all towns in especially house connections. Reasons for this are: bad quality of materials and contracting of works by the house-owner himself. The PWSS has no legislation, to oblige the houseowner to repair the leakage.
- Wastage is a big problem. Street hydrants as well as houses are the places where wastage takes place.
- A lot of houses have no taps inside the house and the people cannot be obliged to install them. House storage tanks often overflow.
- Corrective maintenance is different from preventive maintenance. But there is no system of preventative maintenance of production plants and the piped system.
- There is a need of a local store for tools for the PWSS.

Annex 2: Discussion issues on the Institutional Setting of the PWSS.

Table of contents

1. Introduction
2. Improving the revenue/cost ratio of the PWSS
 - 2.1. Can the revenues be increased
 - 2.2. Can the costs be decreased
 - 2.3. Can costs be reduced/revenues be increased
3. Actions to be taken

INTRODUCTION

In 1995, at the end of 18DTP, the 18 PWSS must have become organisational entities, carrying out their operation and maintenance activities on a 'no-loss' basis. This means, that the operation and maintenance costs have to be covered by sufficient revenue/income.

At present the financial means of the PWSS are supposed to be tapped from two different sources:

- the contributions of customers (house connections)
- Holding Tax collected from each Holding present in the Pourashava

For each PWSS, a liquidity plan has been made. These plans are every year updated and/or refined to get a clear picture of the actual situation in the towns. From these plans it is clear that, even after extension of the piped water supply systems, hardly any PWSS will be able to operate on a no-loss it basis if also depreciation has to be paid out of the PWSS accounts.

The utility management experts have therefore considered:

1. whether the revenue/cost ratio of the PWSS could be improved through:
 - 1) increasing revenue,
 - 2) decreasing cost, or
 - 3) a combination of 1 and 2.
2. whether the institutional set-up should be re-designed in such a way that the financial viability would be better warranted.

The chapters 1 and 2 deal with these issues. Chapter 3 presents the actions to be taken, either by the utility expert(s), or by other consultants in the 18DTP project.

2. IMPROVING THE REVENUE/COST RATIO OF THE PWSS

2.1. Can the revenue be increased?

The revenues of the PWSS consist of water fees, to be paid by customers, and of water charges, as a part of the holding tax.

The water fees are meant to finance operations and maintenance of the piped water supply systems. The water charge should be to finance the operation and maintenance of the handtubewells and the street hydrants.

Water fees

The O&M of the piped water supply can be carried out on a no-loss basis, provided:

- there are sufficient house connections
Some of the first batch towns presently (and some also in the future) have very few house connections. As a result thereof, O&M of the system will only be financially feasible, if the water fees are considerably increased probably by

400% or more. This will have an adverse effect on the consumers willingness to pay. So this may not be a practical solution. It remains to be seen, if, through extension of the system, in most of the 18DTP towns, sufficient house connections can be made. This aspect should be studied further.

- **the collection efficiency is about one hundred percent**
The collection efficiency of the PWSS has been rather low up till now. In some towns, however, over 40% of the customers do not pay at all, while a higher percentage pays too late. It is unacceptable, that the non-payers are mostly VIP people. And consequently, other, and mostly poorer, people have to pay for the water use of the rich.
This is contrary to the development objectives of the Bangladesh government. Moreover, it affects the viability of the PWSS in a negative sense. It is thought that after some time, as service improves, these people should be willing to pay their due.

Water charge

The O&M of the handtubewells and the street hydrants can be carried out on a no-loss-no-profit basis, provided the Pourashava:

- **is effective in collecting the holding tax**
In some 18DTP towns, the Pourashavas have shown not to be very effective in collecting the holding tax. Also here we find, that collecting holding tax money from institutions - many of these are government institutions - and/or VIP people, is very difficult.
In this respect a project to strengthen the Pourashava would be very much appreciated. For the time being, it is unlikely the Pourashavas will all of a sudden improve their collection efficiency.
- **pays the water charge out of the holding tax to the PWSS**
Up till now, not one of the Pourashavas, notwithstanding MOUs, has paid its share of the holding tax, i.e. the water charge, into the Joint Account of the PWSS. Apparently the chairmen are very reluctant to do so. Of course, it is known that the finances of many Pourashavas are in a dire state. For example, in some towns, staff has not received salaries for months.
It is unlikely, that this situation will drastically improve in the near future and that the Chairmen will do as they should. Moreover, the situation might occur, that, as and when the Joint Account is transferred to the Pourashava, the money might not be spent on O&M of water supply, but on other urgently required programmes. Notwithstanding the fact that in some towns the handtubewells are already in a bad shape (in some cases over 35% are out of order).

To sum things up, it is extremely unlikely, that revenue of the PWSS can be increased significantly.

2.2. Can the costs be decreased

The present breakdown of costs is as follows:

- Personnel
- Electricity
- Materials
- Depreciation costs.

If these costs could be reduced, this would improve the financial situation of the PWSS.

- **can personnel costs be reduced**
It may be argued, that personnel costs could be decreased significantly. For example, why employ assistant accountants and/or billing clerks in a PWSS? Can the collection of the water tariff be simplified?. And why employ one pump driver and three assistant pump drivers, when there are only two pumps working?

So it would be wise to review the personnel configuration and save some costs there. On the other hand, few plumbers are available. They need to be recruited, which increases personnel costs. All in all, it seems unlikely, that personnel costs can be reduced significantly.

- **can electricity costs be reduced**

It may be argued, that electricity costs could be cut. At present most of the pumps are operating during 5 - 7 hours per day. However, as it is intended to double the number of hours during which water is provided, electricity cost will not decrease, but increase.

Electricity costs could also be reduced if leakage and wastage would be reduced significantly. However, to achieve this in the short term, additional investments, e.g. for the construction of storage tanks or OHT, are required. As these are not provided by 18 DTP, the water will continue to be pumped straight into the system.

In all, it is extremely unlikely, that a significant reduction of electricity costs can be achieved.

- **can materials costs be reduced**

It may be argued, that materials costs could be reduced. This, however, would be very unwise. The quality, as well as the quantity for the drinking water supplied, depends of the quality of the materials used. In the end, good quality materials will reduce O&M costs. However, such materials cost more money.

- **can depreciation costs be reduced**

It may be argued, that the cost of depreciation could be reduced, e.g. by extending the expected lifetime of the system. This is thought to be unwise. Moreover, at present, depreciation costs are not included in the O&M costs, so the net result of this would in an increase of O&M costs.

To sum things up, it is highly improbable that the level of expenditures of the PWSS can be reduced significantly.

2.3. **Can costs be reduced/income be increased**

Of course, efforts must be made to reduce costs and to increase income. There should be continuous efforts to improve performance. The results of this will in the end lead to a situation, in which the costs are as low as possible, and the revenue as high as possible. But it will not necessarily lead to a no-loss-no-profit situation.

3. **ACTIONS TO BE TAKEN**

1. **Decide on a fundamental division between the organisation of drinking water supply through handtubewells, and drinking water supply through a piped water system.**
2. **Separate the HTW operation/maintenance/investment out of the PWSS to be paid solely out of Holding Tax collections. PWSS revenue should consist solely out of water tariffs.**
3. **Depreciation/new investments should be done by finance appropriated by the Central Government.**
4. **Develop a quantitative model for a financially sustainable piped water supply system.**
5. **Make for each town a detailed cost reduction / income improvement programme for operation and maintenance of the piped water supply system. Base this programme upon a revised staffing pattern, adapted to the local situation.**

Appendix 3 Draft Job Descriptions PWSS staff.

Designation : **Pump Operator**
Qualification : **SSC (Secondary School Certificate)**
Experience : **5 years in Pump Operation or as a Pump Mechanic in any organization or 5 years as a private practitioner with certificate**
Report to : **Superintendent/Accountant(in absence of Superintendent)**
Pay Scale : **Tk. 1200-60-1620 EB-65-2335 (ref. Pay Scale/1991)**

Duties and Responsibilities :

- Operation of the production well / Iron Removal Plant (IRP) i.e. daily activities required to keep the water production and supply system operational.
- Daily and periodical(weekly, monthly, quarterly & yearly) maintenance of the IRP, backwashing of filters, filter media(sand), production well, pump, motor, sluice valves, check valve, piping, pressure gauge, pre-lubrication system of production well, electrical control panels, etc. which are required to conserve the system in normal operating condition and preventing from any breakdown.
- Supervision during the operation of the pump & equipment and filters of IRP
- Maintaining the rate of water production within the PWSS standard.
- Monitoring the activities of Asstt. Pump Operator
- Keeping and checking records in Log Book
- Trouble shooting and informing the Superintendent for any malfunctioning of the equipment which can not be repaired by him or local arrangement.
- Regular checking the stock of spare parts, materials, availability of necessary tools & equipment and informing Superintendent if it is not standard.
- Keeping the pump house/IRP in a clean and serviceable condition.
- Periodical checking and maintenance of the pump house/IRP structure, boundary wall, drains, land, gate ,etc. within the compound. Informing superintendent for any major maintenance which is beyond his scope of works.

Designation : **Assistant Pump Operator**
Qualification : **SSC (Secondary School Certificate)**
Experience : **1 year in Pump Operation or as a Pump Mechanic in any organization or 3 years as a private practitioner with certificate**
Report to : **Pump Operator/Superintendent/Accountant(in absence of Superintendent)**
Pay Scale : **Tk. 1050-45-1365 EB-50-1915**
(ref. Pay Scale/1991)

Duties and Responsibilities :

- Operation of the production well /Iron Removal Plant (IRP) i.e. daily activities required to keep the water production and supply system operational.
- Daily and periodical(weekly, monthly, quarterly & yearly) maintenance of the IRP, backwashing of filters, filter media(sand), production well, pump, motor, sluice valves, check valve, piping, pressure gauge, pre-lubrication system of production well, electrical control panels, etc. which are required to conserve the system in normal operating condition and preventing from any breakdown.
- Supervision during the operation of the pump & equipment and filters of IRP
- Maintaining the rate of water production within the PWSS standard.
- Keeping records in Log Book
- Assisting Pump Operator in performing his duties if required.

- Trouble shooting and informing the Operator/Superintendent for any malfunctioning of the equipment which can not be repaired by him or local arrangement.
- Regular checking the stock of spare parts, materials, availability of necessary tools & equipment and informing Operator/ Superintendent if it is not standard.
- Keeping the pump house / IRP in a clean and serviceable condition.
- Periodical checking and maintenance of the pump house/IRP structure, boundary wall, drains, land, gate ,etc. within the compound. Informing Operator/Superintendent for any major maintenance which is beyond his scope of works.

Designation : **Superintendent**
Qualification : **Diploma in Civil/Mechanical Engineering**
Experience : **3 years in any Water Works or similar plant**
Report to : **Chairman / Pourashava**
Pay Scale : **Tk. 1725-105-2460 EB-2460-115-3725**
(ref. Pay Scale/1991)
Gets reports from : **All other staffs of the PWSS**
Accountable to : **Chairman / Pourashava for Proper functioning of the PWSS**
Duties and Responsibilities :

A. General Duties and Responsibilities

- To plan, organize, direct and control all the activities and resources of the PWSS.
- To ensure timely supply of the drinking water in required/planned quality, quantity and service level.
- To ensure operation and maintenance of the PWS system on a no-loss basis; to take all possible measures to manage the PWS System as a profitable entity/centre of the Pourashava.
- To take all possible/necessary measures to ensure maximum possible consumer satisfaction.
- To take all necessary/possible measures to raise the demand for water connections.
- To take all necessary/possible measures to keep the system-loss to a minimum.
- To do/get done any or all other activities that become necessary for managing/operating the PWS System in the desired/most profitable manner.
- To maintain liaison with the other departments/sections of the Pourashava, with DPHE and with other organizations related to his works.
- To maintain close liaison / relationship with the consumers/public, to entertain complaints and to take necessary corrective measures.
- To process the applications for new connections and to arrange for giving the sanctioned connections without any delay.
- To initiate development activities/projects/programmes related to water supply the town through the Chairman of the Pourashava

B. Periodical duties and responsibilities

- Supervision of the preparation of bleaching powder and dosing; collection of water samples and testing for iron and residual chlorine at least once in a week and measurement of turbidity in every three months and recording water quality data.
- To arrange/hold meeting of the Supervisory Board (Chairman, Ward Commissioners, PS Engineer, Superintendent/PWSS, SDE /DPHE, Women's representative or social worker on any day of the last/first week of every month, to review the over-all situation with respect to water supply, revenue (demand, collection and default), new connections and disconnections.
- To prepare/get prepared monthly report on new connections, revenue demand, revenue collection, defaults, arrears, disconnections and notices for disconnections and submit this report before the Management Committee, with comments / suggestions or recommendation.
- To check the log-book of the Pump Operators at least twice a week and ensure that the production activity is being carried out/going on in the desired manner.
- Supervision of the activities of Asstt.Accountant or Bill Clark, Preparation of monthly financial and MIS reports and their submission to Chairman.
- To prepare annual budgets and Performance Reports of the PWSS for submission to the Chairman/Management Committee.

C. Occasional duties and responsibilities

- To arrange for/take necessary corrective measure whenever any staff of the PWSS approaches him/her with any problem or anything that hampers the smooth functioning of the PWSS.
- To talk to the community or members of the households, to note their feelings about the level of the service in regards to water supply.
- To do any other job related to the water supply function, as and when asked by the Chairman of the Pourashava or local higher authority.

D. Administrative Authority

- He/she can sanction leave, if due, to any member of his/her staff.
- He/She can suggest the Chairman / Pourashava for taking disciplinary measures against any of the staff of the PWSS, which will normally be respected by the Chairman.
- He/She cannot employ or dismiss anybody but can serve warning by drawing disciplinary procedures against any of his/her staff.

E. Financial Authority

- Can spend upto Tk.3000/- at his/her own discretion for O & M purpose without prior approval from the Chairman but will have to account for that.
- Will maintain a petty cash of Tk.1000/- without provision of re-imbursment of the amount spent and accounted for

Designation : Accountant
Qualification : B.Com (Bachelor in Commerce)
Experience : 3 years in any accounting/ teaching/similar works
Pay Scale : Tk. 1375-80-1935 EB-85-2870
(ref. Pay Scale/1991)
Report to : Superintendent/ PWSS
Gets reports from : Accounts Assistant
Accountable to : Superintendent/PWSS for developing, maintaining and improving
the PWSS accounts in the desired manner.

Duties and Responsibilities

A. General duties and responsibilities

- To plan, organize, direct and control all the activities related to PWSS Accounts.
- To do or get done all accounting activities of the PWSS
- To operate the bank account
- To maintain or get maintained all necessary books of accounts of the PWSS.
- To ensure that all customer accounts are well maintained in regards to current and arrear payments.
- To direct and supervise the activities of all other staffs of the PWSS.
- To do any other works as required by the Superintendent for the better interest of the PWSS.

B. Periodical duties and responsibilities

- To prepare monthly reports showing current financial position of the PWSS, extent of realization of water bills, defaulters to be taken care of and any other information necessary/helpful for running the PWSS on a no-loss basis.
- To prepare the PWSS budgets annually/bi-annually.
- To submit periodical financial reports and necessary information for MIS to the Poursaha Accounts Section.
- To check all books of the PWSS accounts once in a month.
- To perform any other periodical job as required by the Superintendent.

C. Occasional duties and responsibilities

- To do any work or to prepare any report as may be asked by the Superintendent or Chairman for which he is responsible /accountable to.
- To take the responsibilities of the Superintendent in his absence.

D. Administrative Authority

- He/She can make required changes in the job responsibility of any other member of the PWSS engaged in accounting.
- He/She can suggest measures to improve the existing accounting system, the collection system, the billing system or any other procedure related to water supply.
- Can recommend leave, further training and disciplinary measures for any other member of the PWSS engaged in accounting.

E. Financial Authority

- To check the bill or voucher against any payment and recommendation for approval of superintendent.

Designation : **Accountants Assistant/Bill Clerk**
Qualification : **HSC (Higher Secondary Certificate in Commerce)**
Experience : **2 years in any accounting/similar works**
Pay Scale : **Tk. 1200-60-1620 EB-65-2335**
(ref. Pay Scale/1991)
Report to : **Accountant/Superintendent**
Accountable to : **Accountant/Superintendent for carrying out his/her duties and responsibilities properly.**

Duties and responsibilities

A. General duties and responsibilities

- To carry out the duties and responsibilities assigned to him/her by the Accountant on a regular, periodical or occasional basis.
- To make payment for any bill or voucher approved by the superintendent
- To maintain the register in connection with cash and bank collection, disbursement and petty cash and others related to accounts section.
- To maintain the customer register/bill register, to send the monthly bills to the customers regularly, to maintain the collection register and any other books of accounts as desired of him/her by the Accountant.
- To make monthly list of defaulters in bill payments and to make a report on that.

B. Periodical duties and responsibilities

- To prepare/to help the Accountant in preparing the periodical reports required by the Accountant.
- To do any other works as and when required by the Superintendent or higher authority.

Designation : **Tubewell Mechanic**
Qualification : **SSC (Secondary School Certificate)**
Experience : **5 years in Tubewell Repair and Maintenance**
Pay Scale : **Tk. 1300-70-1790 EB-75-2615**
(ref. Pay Scale/1991)
Report to : **Superintendent/Accountant**
Accountable to : **Superintendent/Accountant for carrying out his/her duties and responsibilities properly.**

Duties and responsibilities

- Operation & Maintenance of the Pourashava Hand Tube Wells and pumps
- Supervision of the proper functioning of the Tube Wells and Hand Pumps at least once in week.
- Repair or Replacement of any defective parts of Hand Pumps as and when required by the caretaker.
- Maintaining a ready stock of fast consumable spares of Hand Pumps in his possession.
- Submission of requisition for monthly consumable spare parts for Hand Pumps in well advance for procurement.
- Maintaining a register for daily maintenance.
- Preparation of monthly statement on the conditions of Tubewells and Hand Pumps.

Designation : **Peon / MLSS**
Qualification : **Passed Class VIII (minimum)**
Experience : **Nil**
Pay Scale : **Tk. 900-35-1530**
(ref. Pay Scale/1991)
Report to : **Superintendent/Accountant**
Accountable to : **Superintendent/Accountant for carrying out his duties and responsibilities properly.**

Duties and responsibilities

- Carrying out orders of Superintendent/Accountant/Bill clerk in connection with official works.
- Conveying message or any letter to concerned offices.
- Carrying letters or any document or files to concerned officers.
- Handling or shifting of official furniture or store materials.
- Cleaning of office rooms, furniture, etc.
- To do any other works as and when required for the better interest of PWSS by the superintendent or any higher officer.

Designation : **Plumber / Pipe Line Mechanic**
Qualification : **SSC (Secondary School Certificate)**
Experience : **5 years as a Plumber /Pipe line Mechanic in any company or organization**
Pay Scale : **Tk. 1300-70-1790 EB-75-2615 (ref. Pay Scale/1991)**
Report to : **Superintendent/Accountant**
Accountable to : **Superintendent/Accountant for carrying out his/her duties and responsibilities properly.**

Duties and responsibilities

- **Operation & Maintenance of the Pourashava Water Supply System**
- **Installation of house connections**
- **Supervision of the proper functioning of the sluice valves, pipe lines, street hydrants and house connections in accordance with the as built drawing at least once in a week.**
- **Detection of leakage in transmission pipe lines, sluice valves, house connection clamps, joints, street hydrants, etc. and necessary repairing.**
- **Detection of illegal connections and house connections without taps and reporting in writing.**
- **Repair or replacement of any fittings in-house service connection on payment beyond his scheduled duty hours if required by the consumer.**
- **Maintaining a ready stock of fast consumable spares or fittings for maintenance.**
- **Submission of requisition for monthly consumable spare parts or fittings in well advance for procurement.**
- **Maintaining a register for daily maintenance.**
- **Preparation of monthly statement on the conditions of pipe lines, sluice valves, house connections, street hydrants and materials used for maintenance.**