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**Government of Bangladesh
Ministry of Local Government,
Rural Development and Cooperatives**

18 DISTRICT TOWNS PROJECT

JOINT REVIEW

April 1998

Md. Akhtaruzzaman
Henk Gijsselhart
Arthur R. Manuel
Haroon Ur Rashid

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Rates of exchange

1 US\$ = Tk. 46.0

1 US\$ = Dfl 2.05

1 Dfl = Tk. 22.4

0. SUMMARY

0.1 Background

0.1.1 The project

Since 1978 the Government of the Netherlands (GoN) provides assistance for the implementation of drinking water supply projects in Bangladesh. The latest project, the 18 District Towns Project (18DTP) was taken up in 1989 with the expectation of being completed by the end of 1995. It integrates water supply, drainage and sanitation with hygiene education and community participation.

In November 1994 Phase I and II of 18DTP were evaluated. Since implementation was far behind schedule and additional works would be required to reach acceptable service levels, the evaluation team recommended to extend the project with three years until December 1998. GoN gave very clear guidelines that no further extensions after this period should be needed to achieve feasible and sustainable results. After a bridging period of 6 months, the 3 year extension period started on 1 July 1996. The extension was named Phase III and will expire by the end of June 1999.

0.1.2 Review procedure

With the Phase III period now more than half passed, the Government of Bangladesh (GoB) and GoN decided to field a joint review team in order to assess the progress and to draw up a realistic plan for the completion before the end of the project on 30 June 1999. A joint GoN - GoB team of four experts was appointed to carry out the review. After perusal of available documents, the work of the team in Bangladesh took place from 1 until 16 March 1998. During this period, team members visited 8 out of the 18 project towns. The main conclusions and recommendations were discussed in a wrap-up meeting in Dhaka on 15 March 1998 chaired by the Secretary Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives.

0.1.3 Organisational and institutional framework

The statutory responsibility for the water supply and sanitation sector is vested in the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C). Several organisations involved in the sector are under the control of MLGRD&D, including:

- a. The Department of Public Health Engineering (DPHE) with a total staff of about 7,500 is the central agency responsible for the development of water supply and sanitation services in rural areas, thana towns and pourashavas. DPHE acts as a development agency: it plans, organizes and supervises the work and channels the required funds. Studies, design work and construction are contracted to private parties. DPHE does not play any role in the functioning of local organisations or systems, neither supervisory nor operational or supporting. It still has a strong technical bias emphasizing "hardware" installation.
- b. The pourashavas are responsible for development and management of social services and physical infrastructure in municipal areas. They collect and dispose solid wastes and have a mandate to maintain a sanitary environment. Provision of water supply is a statutory responsibility of the pourashavas.

0.1.4 Sector policy and planning

Development programs for the sector are based on the national five year plans. The sector planning process is still centralized, and target oriented. The sector projects are prepared by DPHE Planning Circle and then processed through the MLGRD&C and the Planning Commission. Development activities are planned on a project by project basis without reference to a guiding framework. This results in duplication, misplaced priorities and uncoordinated development.

MLGRD&C has recently formulated a draft National Drinking Water Supply and Sanitation Policy which is an important step in the right direction. Following Cabinet approval, the government is expected to formulate a strategy to operationalise the policy principles. The draft policy proposes greater responsibility for the local governments.

0.1.5 Institutional development

Under the current conditions, new facilities are usually more or less dropped in the lap of the local authorities. Little or no support is available from higher levels for running the facilities. Some donor supported projects such as the 18DTP, are initiating project based institutional changes at the local level. Unless these changes are backed-up and formalised from the top with policy support, legal cover and (ultimately) a comprehensive national institutional framework, they are unlikely to sustain long beyond the project period.

0.2 Project approach and implementation

0.2.1 Objectives and targets

The objectives as mentioned in the Administrative Arrangement for Phase III can be summarized as under:

- to improve the health situation of the population in 18 district towns by improving water supply and sanitation systems and providing hygiene education;
- to develop a sustainable institutional capacity at pourashava level;
- to give priority to those areas where the water supply and sanitary conditions do not meet minimum local standards;
- to guarantee a maximum of involvement and participation of the local population (especially the women).

Improvement of health is thus the main objective of the project.

The targets of 18DTP according to the Phase III Project Document include:

- sustainable water supply for 75% of the population in each town;
- house connections for approx. 5 to 20% of the households. Fees to cover O&M of the system;
- stand posts for approx. 30% of the population in poorer areas;
- sufficient hand pumps in fringe areas;
- a latrine coverage of 75% to be achieved (excluding private latrines);
- strengthening pourashava level institutions for water, sanitation and drainage;
- programs for health and hygiene education will form an integral part of the project for which NGOs will be involved.

Physical targets for solid waste disposal have not been set.

By the end of Phase II, nearly half of the allocated Dutch aid was not spent. These remaining funds would no longer be available since for the total expected costs of Phase III new allocations of Dfl. 16.3 million in Refundable Project Aid (RPA) and Dfl 10.6 million in Technical Assistance were made. Due to an administrative error, spending from remaining Phase II funds continued in the Phase III period. About Dfl 4.5 million is estimated to be spent in this manner. Together with the new allocation, in total Dfl 20.8 million of RPA is thus available during the Phase III period.

0.2.2 Project organization

DPHE is the implementing agency of the project, and has set up a temporary Project Office for this purpose. This office is headed by the Project Director. DPHE project

staff under the Project Director numbers about 250, including staff in each of the 18 towns. With a few exceptions the project staff are on a temporary basis.

The Project Office is assisted by an Advisory Team, composed of expatriate and national consultants. At this moment the team has two long term expatriate senior advisors, 21 national consultants and two bilateral associate experts. Short term experts are brought in if and when required.

From the Dutch side the Royal Netherlands Embassy in Dhaka is the party responsible for monitoring and guiding the project.

At the start of Phase III a national level steering committee was set up for the project. This Project Implementation and Coordination Committee (PICC) is chaired by the Secretary Local Government Division. It was foreseen that this committee would meet twice every year.

0.2.3 Approach

At the start of the project a package of activities was agreed with each pourashava. The pourashavas had a strong say in the composition of the package. Subsequently, the packages were translated in annual plans of action. All stakeholders participated in these planning sessions. They were continued in the current Phase III. In Phase III involvement of the pourashavas was further enhanced by making them directly responsible for a substantial part of the physical works. During our field visits, the pourashava chairmen were indeed usually quite familiar with and involved in the project. This is a considerable improvement over the situation found during the 1994 evaluation.

In the previous phase of the project, institutional development was aimed at three sections in the pourashava: the Pourashava Water Supply Section (PWSS), the Pourashava Conservancy Section (PCS) and the Pourashava Health Section (PHS). Based on the results of the 1994 evaluation, the project would concentrate on institutional development of the PWSS and the PCS in Phase III. Hygiene education, for which already NGOs were successfully involved on a limited scale in the previous phase, was broadened to all beneficiaries of the project.

In several places the groundwater used for the piped system requires treatment. In the previous project phase, only in a few towns water treatment plants and overhead tanks were planned. The 1994 evaluation concluded that more strict criteria for the water quality should be applied, since in many towns the customers of the piped system

were not willing to pay the actual cost of water supply unless the water quality met higher standards. Subsequently, in Phase III more towns were given the opportunity to have a treatment plant built, which usually also entails the need for an overhead tank. This has resulted in a relative large number of major physical works.

Recently the magnitude of the problem of arsenic pollution of ground water in Bangladesh has become more clear. Although this poses a new challenge, the project can only address part of the problem in its current final stage.

0.2.4 Project implementation

In Phase III a new approach was followed whereby more physical works were implemented by the pourashavas. The following categories are now distinguished:

- Category A works: major works like treatment plants, overhead tanks and large diameter pipelines are implemented under the responsibility of DPHE.
- Category B works: hand tubewells and latrines. These works are implemented by the pourashava.
- Category C works: water supply rehabilitation and smaller diameter pipelines. Implementation by the pourashava from a budget under the joint control of the pourashava chairman and DPHE.

This increased role of the pourashavas worked out quite well. It is remarked that physical works to be implemented in Phase III to a large extent concern works that were originally planned to be completed in Phase II.

Particularly the implementation of the major physical works like treatment plants, overhead tanks and pipelines is now far behind schedule. In Figure 0.1 the financial progress is shown for the physical works for the Phase III period. By the end of 1997 50% of the project period had elapsed, but financial progress of physical works was less than 30%. The actual pace of progress would mean that the planned works would only be finished by mid 2001;

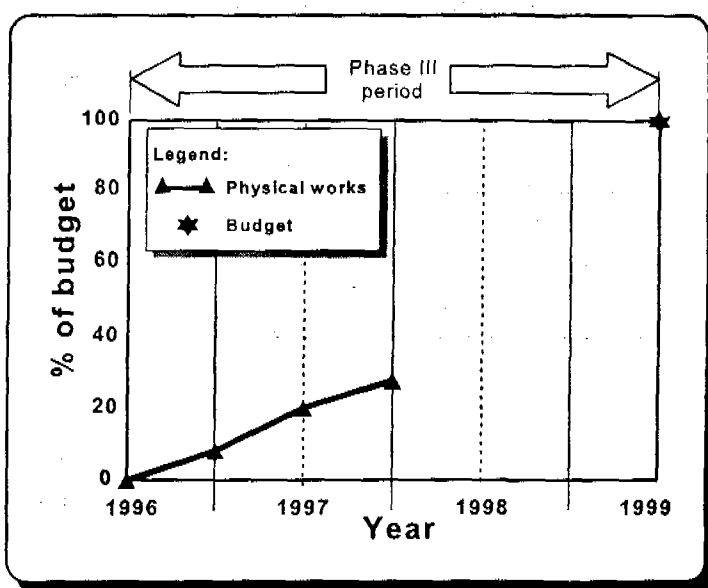


Figure 0.1 Financial progress physical works

a delay of 2 years! Slow progress of major physical works has always characterised the project.

Progress of implementation of the smaller works under the responsibility of the pourashava is generally good.

The non-physical works activities, including hygiene education, training, community participation, drafting of by-laws etc. are carried out under the responsibility of the Advisory Team from Technical Assistance funds. No particular bottlenecks are experienced with these activities.

0.3 Main conclusions

- a. By the end of 1997 (half way Phase III) only about 30% of the RPA budget was absorbed. If the current slow pace of implementation continues, about 40% of the available RPA budget will not be absorbed before the project expires mid 1999. Several major physical works would remain unfinished.
- b. The Project Proforma (PP) is currently under revision. Implementation in accordance with the revised PP would ensure complete absorption of the available RPA budget and achievement of the physical targets of the project.
- c. In most pourashavas visited by us, assets are handed over by DPHE as soon as they are completed. This poses no specific problems. During our field visit we noticed that the quality of the physical works ranged from acceptable to good.
- d. The project was set-up with a strong institutional development component at the pourashava level. This has been quite successful for the piped water supply systems.
- e. The hygiene promoters under the project have succeeded in creating hygiene awareness and to some extent changes in behaviour among the users of latrines, HTWs and piped water supply. An impact assessment is recently being undertaken by the project. The future sustainability of the program is uncertain, since an institutional framework for hygiene education activities was not an objective of the project.
- f. The project provides free latrine components for selected beneficiaries to install. Beneficiaries appreciate the sanitary latrines, which are generally used and are in

reasonable or good condition. Although it always has been the intention of the project to provide material for 2 pits, for practical reasons the project started with direct single pit latrines. The project does not have adequate budget to provide a second pit to all those who received latrines.

- g. The project has now achieved nearly 90% of the target for latrines. With these latrines in place, the average coverage in the project towns with sanitary latrines has reached already about 70%.
- h. The drainage component did not have much impact on the overall cleanliness of the pourashavas. Drains are generally not clean enough for adequate functioning. Some outfalls have not yet been completed. The situation with respect to solid waste collection and disposal in some core areas is not adequate and the subject is not really taken up in the project. Both facts result in continued unhygienic conditions. Provision of sullage connections to drains was not very successful until now.
- i. On average the coverage by piped systems and hand tubewells that will be achieved upon completion of the works as included in the revised PP, will be 94% of the 1995 population on average for the 18 towns. However, the individual towns will have coverages between 73 and 121%. Coverage figures do not take into account the sometimes large numbers of private handpumps.
- j. In 4 of the project towns, the arsenic content of the groundwater used for the piped systems is above the maximum allowable level. In 3 of these towns, treatment plants for the piped systems are expected to reduce the arsenic content to acceptable levels.
- k. Street hydrants are rather neglected by the PWSSs, mostly because they do not generate any income. Upon completion of the works as included in the revised PP they will serve about 7% of the 1995 population.
- l. Financial viability of the piped water systems is already achieved in most of the project towns. We consider this an excellent achievement of the project which could encourage other projects.
- m. We consider an appropriate legal framework to be essential for safeguarding the status of the PWSSs. The by-law as proposed by the project would provide such framework. The draft by-law as issued by the Ministry of Law does not adequately fulfil the requirements.

- n. Community participation was conceptualised as a tool for achieving sustainability of the water supply and sanitation facilities, not as an end in itself. The involvement of the users, especially women, in the preparation, implementation and in the functioning of the facilities contributed to the effectiveness and efficiency of the project. The organisation of the community participation was undertaken by the hygiene promoters and the WSSCs. With the project in its 9th year, still the WSSCs are not functioning well. Also, their activities overlap with those of the hygiene promoters.
- o. The major civil works just started or still to be started, viz. Iron Removal Plants (IRPs) and Overhead Tanks (OHTs), will almost certainly not be completed by the end of the present project period (June 1999). Practical experience shows that construction time is often about 2 years. Also the installation of the planned additional pipelines may not be easy to finalize within the project period.
- p. Ensuring sustainability and effectivity of the outputs of the project, requires a limited input of Technical Assistance to the pourashavas for some time after the project.

0.4 Main recommendations

- a. We recommend to extend hygiene education from now on to all inhabitants of the pourashava. During the remaining period of the project the chairmen should take the lead in establishing linkages between the EPI and the hygiene promoters. The existing school hygiene education programme should continue for the duration of the project, and linkages with programmes such as UNICEF or World Bank sought.
- b. We recommend to discontinue the support of the WSSCs.
- c. As a matter of principle, free delivery of latrine components should be discouraged. The second pit should be available for all those who demand it, whose pits have filled up and are willing to contribute significantly to its cost.
- d. Completion of the outfalls of project drains should be pursued. The project should actively support community involvement in solid waste collection. Sullage connections for households where waste water cannot be disposed on-site should continue to be promoted.

- e. We recommend that the towns with arsenic problems in hand tubewell water, the project continues with its present approach to limit the number of new hand tubewells, and maximise the use of (safe) piped water.
- f. Although additional pipelines would require a contribution of 20% by the pourashavas, we recommend that the 37.5 km additional pipelines to be laid in 1997 / 98 will be fully financed from project funds. However, we strongly recommend that the required contribution by the pourashavas / PWSS is arranged for the 55 km additional pipelines planned to be laid in 1998 / 99.
- g. Street hydrants may have to be particularly promoted in those places where water from the HTWs has too high arsenic content. Possibly they could be adapted and leased out as "water kiosks", where people can buy small quantities of water for drinking and cooking. The application of group taps should still be considered by the project.
- h. Besides the by-law, other possible ways and means should be explored to realize the legal framework required for the sustainability and further development of the PWSSs. We consider this matter to be crucial for the sustainability of the piped water systems and should thus be resolved before the end of the project.
- i. We recommend that the Ministry issues an administrative order stating that depreciation funds now accumulating with several PWSSs may only be used for major repairs and capital investments.
- j. For physical works already started and yet to start, GoB should undertake to finish these works at its own costs to the extent that they are not completed by the end of the project period. During the wrap-up meeting on 14 March 1998 it was decided that the completion period could be extended till the end of December 1999, provided that the DPHE submits a realistic time schedule.
- k. For IRPs and OHTs, planned and budgeted but not yet started, we recommend that these works will only be undertaken provided that the work orders are given before 1 April 1998. During the wrap-up meeting on 14 March 1998 it was decided that the work orders for Borguna and Lalmonirhat could still be given until 1 July next.
- l. We recommend to find a solution for Lalmonirhat without IRP. This would save the community costs that may not be necessary. We recommend that the OHT is constructed because it would enhance the sustainability of the system.

- m. For Narail, Magura and Panchagarh where water quality may not meet minimum standards, solutions should be sought under the World Bank assisted arsenic mitigation project and the coming LGED project respectively. Otherwise, solutions might be sought as part of the post-project activities.
- n. From now on the PICC should meet quarterly to help solve the many constraints the project is facing in the current final stage.
- o. Final approval on the revised PP should be obtained as a matter of urgency, and corresponding modification of the current ADP be made as early as possible.
- p. The advisory team should make sure that by the end of the project all completed assets are handed over to the pourashavas.
- q. At the end of the project a systematic assessment should be made of the methods used in the project and the results achieved. It should be considered to have this done under the responsibility and with the cooperation of an outside party.
- r. Technical Assistance activities should continue for at least 3 months after the end of the project period in order to process reimbursement claims and finalize any outstanding administrative matters. These activities may be packaged with the proposed post-project activities as described below.
- s. We recommend that post-project institutional development activities will have a duration of about 3 years. The main objectives of this new project will be:
 - Ensuring sustainability of the piped water systems by providing institutional support and guidance to the PWSSs.
 - Consolidating the achievements of hygiene education (with special emphasis on the school programme). At the same time permanent positions can be found for the hygiene promoters.
 - Completing the experiment with 24 hours metered supply in Satkhira and Jhalokati.
- t. The staffing during the post-project period would be much reduced compared to the current staffing. The post-project programme should be set up in such a manner that activities taper off towards the end of the period.
- u. Formulation of the post-project activities should be completed before the end of 1998.

1 INTRODUCTION

1.1 Background of review

Since 1978 the Government of the Netherlands (GoN) provides assistance for the implementation of drinking water supply projects in Bangladesh. Gradually sanitation has become a component of these projects. The latest project, the 18 District Towns Project (18DTP) was taken up in 1989 with the expectation of being completed by the end of 1995. It integrates water supply, drainage and sanitation with hygiene education and community participation. The project is implemented by the Department of Public Health Engineering (DPHE) with the support of a technical assistance team. The activities are partly implemented by the Pourashava Water Supply Sections of the towns concerned and by NGOs.

In November 1994 Phase I and II of 18DTP were evaluated. Since implementation was far behind schedule and additional works would be required to reach acceptable service levels, the evaluation team recommended to extend the project with three years until December 1998. Subsequently, early June 1995, the Government of Bangladesh (GoB) and GoN decided to field a formulation mission in order to reach consensus between the parties involved on the objectives, priorities and activities of the extension period. GoN gave very clear guidelines to the formulation team that a realistic work plan was required that could be completed in the envisaged extension with 3 years. No further extensions after this period should be needed to achieve feasible and sustainable results. During the extension period the main emphasis should be on institutional development at the pourashava level, in view of the required sustainability.

After a bridging period of 6 months, the 3 year extension period started on 1 July 1996. The extension was named Phase III and will expire by the end of June 1999. With the Phase III period now more than half passed, GoB and GoN decided to field a joint review team in order "to assess the progress of implementation of the project (Phase II and III) as per the original objectives and to draw up a realistic plan for the completion and handing over of the project activities and products before the end of the project on June 30, 1999." (See Terms of Reference in Appendix 1.)

1.2 Review procedure

The joint GoN - GoB team of experts fielded for the review consisted of the following members:

- Mr. Md. Akhtaruzzaman, project co-ordinator and training specialist of International Training Network center, Dhaka Bangladesh;
- Mr. Henk J.J.M. Gijssels, free lance institutional expert of Arnhem, the Netherlands;
- Mr. Arthur R. Manuel, water supply and sanitation specialist of M-Consult, Ouderkerk, the Netherlands (team leader);
- Mr. Haroon Ur Rashid, institutional expert, of the UNDP/World Bank Water and Sanitation Program, Dhaka, Bangladesh.

After perusal of available documents (see Appendix 2), the work of the team in Bangladesh took place from 1 until 16 March 1998. During this period, team members visited 8 out of the 18 project towns. Persons met are listed Appendix 3 while the itinerary is shown in Appendix 4.

The main conclusions and recommendations were discussed in a wrap-up meeting in Dhaka on 15 March 1998 with representatives of all involved parties. The meeting was chaired by the Secretary Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives. Subsequently the final report was prepared in the Netherlands and submitted by mid April 1998.

We wish to express our sincere appreciation to the authorities, organizations and persons met for their untiring efforts to accommodate all our wishes. Their contribution to the results of the review has been invaluable. Nevertheless, only we can be held responsible for the views expressed in this document.

2 ORGANIZATIONAL AND INSTITUTIONAL FRAMEWORK

2.1 Brief country profile

2.1.1 Demography and economy¹

According to the 1995 estimate, the population of Bangladesh was 120 million. With a total area of 144,000 km² (only about three and half times the Netherlands) this makes it one of the most densely populated countries in the world. Population growth has slowed down, but still was at a level of 1.6% over the 1990-1995 period. Bangladesh is one of the poorest countries. With a gross national product of US\$ 240 per capita in 1995, only 12 other, mostly African, countries reported lower incomes. Also other key figures point to a low level of development, such as:

- life expectancy at birth in 1995 was 58 years (the Netherlands 77 years);
- the sex ratio was 94 women on 100 men in 1991;
- the adult illiteracy rate in 1995 was 62%;
- secondary school enrolment was 26% for male and 12% for female in 1995.

The economy is beset by various structural problems. Still, it is encouraging to note that annual growth of gross domestic product in real terms was 4.1% (1990-95) for the country as a whole and 2.1% on a per capita basis over the period 1985-1995. The economy is still predominantly based on agriculture. The origin of gross domestic product in 1995 was nearly 31% from agriculture. By comparison, industry and manufacturing together contributed about 28%. However, the relative importance of agriculture is steadily declining. This goes hand in hand with a strong urbanisation. As recently as 1970 only 8% of the total population lived in urban areas. By 1995 this figure had increased to 18% with an average annual urban growth rate of 5.6%.

The current strong urbanisation trend will continue in the coming years. The urban population is expected to grow over a million per year in the coming years. As a consequence, a strong increase in demand in urban services must be anticipated. This includes water supply, drainage, sanitation and solid waste removal.

2.1.2 Water in Bangladesh

Bangladesh consists mostly of the fertile delta of the Ganges and the Brahmaputra. About 37% of the country is intermittently inundated during the rainy season, posing difficult problems for sanitary latrines and drainage. Flooding, combined with

¹ World Development Report 1997, The World Bank, Washington

abundant rainfall, makes general availability of water high in most of the country. The soil conditions provide for a large reservoir of groundwater that can be relatively easily extracted. With increased abstractions for irrigation, more and more areas suffer from declining water tables in the dry season. This causes shallow wells to run dry in those regions. Groundwater has been free from bacteriological pollution. Chemical pollution too did not pose any problem. It was therefore, logical to favour ground water for drinking and other domestic purpose. The recent detection of arsenic in ground water in Bangladesh is an issue of serious concern. Though the nature and extent of arsenic pollution is not yet clear, around 60 million people are thought to be at potential risk.

2.1.3 Administrative structure

Figure 2.1 shows the administrative structure of the country. Government appointed officials are found down to the Thana level. The union and village administrations have no government representatives. The local government system provides some power and local accountability to the union parishads. The recent Local Government (Gram Parishad) Act 1997

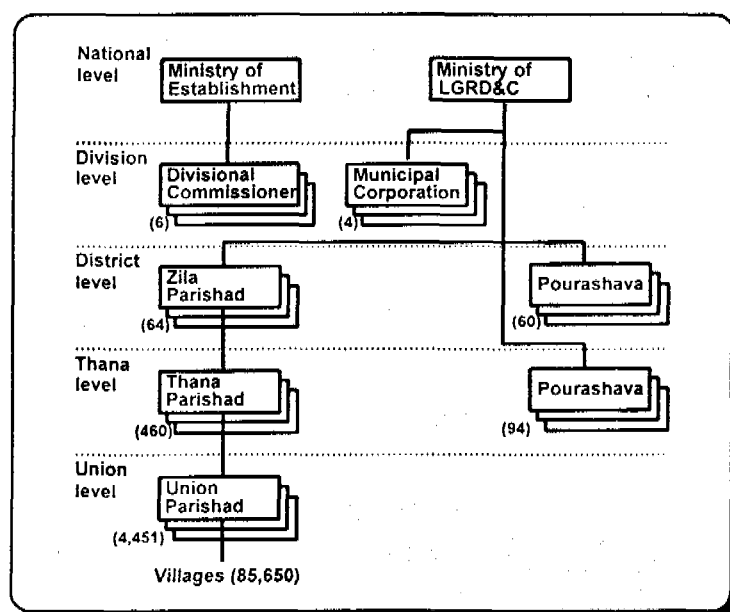


Figure 2.1 Administrative levels

provides another tier of local self government at the village level. In total there are 154 pourashavas and four municipal corporations; 64 of them are district headquarters and the remainder are thana towns. Pourashavas are directly under the Ministry of Local Government, Rural Development & Cooperatives. Pourashavas have some powers to mobilise local financial resources, but they seldom make full use of the provision.

2.1.4 Legal provisions

Legal provisions pertaining to the sector are as yet minimal. There is no national legislation specifically addressing water supply, waste water or groundwater abstractions. For the pourashavas the 1977 ordinance provides some guidance. The

Water Supply and Sewerage Authority Act 1996 empowers the government to set up independent water entities in any urban centre of its choice.

2.2 Main parties involved

2.2.1 Ministry

The statutory responsibility for the water supply and sanitation sector is vested in the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C), which shares with the Planning Commission the tasks of policy decisions, sectoral allocation and funding, as

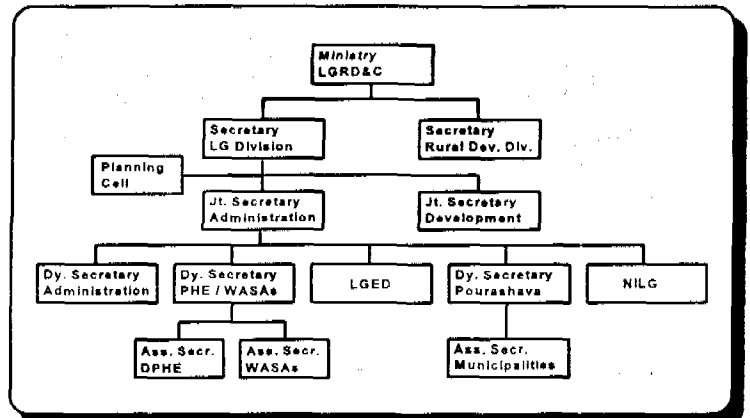


Figure 2.2 Organisation chart MLGRD&C

well as project appraisals, approval, evaluation, and monitoring. The Planning Cell within MLGRD&C is too under-staffed and over-burdened to operationalise national policy guidelines, to frame sector policies or to analyse policy implications in the sector. Figure 2.2 illustrates the organizational structure.

2.2.2 Department of Public Health Engineering

The Department of Public Health Engineering (DPHE) is a central agency responsible for the development of water supply and sanitation services in rural areas, thana towns and pourashavas. DPHE has supervisory staff at district and thana levels and tubewell mechanics and masons at union parishad level. One executive engineer is assigned to each of the district offices and there are also executive engineers responsible for territorial project divisions. For the purpose of the Dutch assisted projects, a temporary Project Office is set up within DPHE. See Chapter 3.

Total staffing is nearly 7,500 of which about 4,600 permanent and the remainder on temporary contract. In the current financial year the DPHE budget is around Tk. 2,500 million (approx. Dfl 100 million), of which about 12% is revenue budget and about 88% development budget. Of the development budget roughly 60% is provided by donors.

DPHE has a strong technical bias emphasizing "hardware" installation. It can effectively deliver hardware, but it does not have sufficient capacity to deal with the "software" issues. Pourashavas have limited capacities in management, technical competence and finance to properly operate water systems or to undertake community development and social mobilization. Without continual national support for change based on concrete plans, the institutional development and capacity building at the pourashava level will remain ad hoc and project based and thus elusive.

2.2.3 Local Government Engineering Department

The Local Government Engineering Department (LGED), also under MLGRD&C, is responsible for infrastructure development in urban and rural areas. LGED is also involved in drainage, solid waste management, rehabilitation of water supply systems, latrine and hand tubewell installation. LGED provides technical guidance to thana parishads and pourashavas on infrastructure development projects. It also has permanent training centres at district level that impart training on technical, administrative and financial management aspects of infrastructure development and maintenance. LGED, despite being an engineering organization, is increasingly aware of social aspects of infrastructure development.

2.2.4 Pourashavas

Under the administrative control of the MLGRD&C, the pourashavas are responsible for development and management of social services and physical infrastructure in municipal areas. They collect and dispose of solid wastes and have a

mandate to maintain a sanitary environment. Provision of water supply is the pourashavas' statutory responsibility. The general organizational structure of pourashavas is shown in Figure 2.3. It is still relatively simple. The decision making power is very much concentrated in the position of the chairman. The authority of the other functionaries is quite limited.

Pourashavas have two main sources of income:

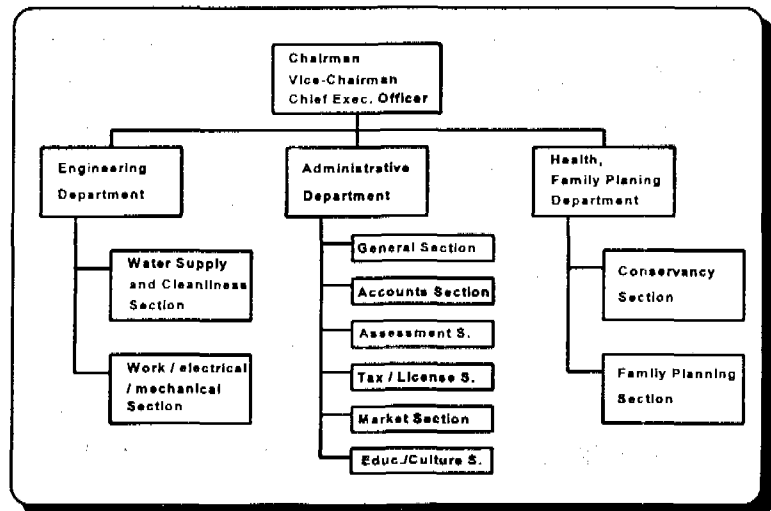


Figure 2.3 General organisation chart pourashava

- a. So called revenue income from taxes, levies, licenses etc. is generated by the pourashavas themselves. The holding tax is among these and may have elements for housing, lighting, conservancy and water supply. Collection efficiency of local taxes etc. is mostly not higher than 60%. Total revenue income of the towns visited by us was on average Tk. 12 million per year.
- b. Annual development grants are provided by the central government. It is not clear on what basis the level of this grant is determined. Apparently there is no relation with the functioning of the pourashava.

All pourashavas are understaffed in the sense that often a substantial number of the sanctioned posts is not filled. Pourashava staff is paid from the revenue income; the development grants cannot be used for this purpose. As such this principle acts as a check on recruitment and as a stimulus for revenue collection.

2.2.5 Non-Governmental Organizations

Bangladesh represents a strong case for NGO involvement especially in community development, behavioural changes, mobilisation and promotion of self management. Generally speaking, NGOs have good access to poorer sections in the communities.

Though the NGOs lean hard on external funding, they have a clear advantage in community based programs. In general the impact of their interventions at users' level is more tangible. The main reason is the intensive participation of target groups and a sense of ownership the process instills.

NGOs can provide cost effective capacity to carry out activities in support of water and sanitation interventions. Their experience in extension strategies, needs assessments and training, can be very usefully used in water and sanitation activities. Furthermore, the support from larger non-governmental organisations, like those specialised on certain fields of interventions, can be very valuable. They can act as umbrella organisations providing professional support to the participating organisations within their ambit.

2.2.6 Netherlands Embassy

Since the profound reorganisation of the Dutch Ministry of Foreign Affairs in 1996, the Royal Netherlands Embassy (RNE) is fully responsible for all aspects of the Dutch input in the project. Frequent missions from the Hague have stopped and the support to 18DTP from the RNE has clearly improved since the pre-1994 period.

Still, we feel that the embassy should take an even more active role in monitoring and guiding the project, particularly since it is now entering its final phase. Many problems remain unresolved, and, in the absence of a clear national framework for the sector, the project is not in the position to solve all of these on its own account. Policy coordination and consultation at higher levels are required.

2.2.7 Consultants

Consultants are involved in the project primarily in an advisory role supporting the implementing agency DPHE. Nevertheless, the consultants clearly take a lead role. This is quite evident from the activities of the Organisational Development Specialists (ODS) at the local level. See further Chapter 3.

2.3 Sector policy and planning

2.3.1 Policy framework

Development programs for the sector are based on the national five year plans. The government recognizes the need for institutional adjustment, orientation and strategies to foster participatory development, to involve women, promote private sector involvement and encourage local level initiatives. Gradual changes are discernable, but the government has not yet established any coherent plan of action to bring about the required changes. It has recently formulated a draft National Drinking Water Supply and Sanitation Policy. The policy awaits Cabinet approval. Though the draft policy leaves much to be desired, it is an important step in the right direction. Following approval, the government is expected to formulate a strategy to operationalise the policy principles.

2.3.2 Supply-driven planning

The sector planning process is still centralized, and target oriented. Development activities are planned on a project by project basis without reference to a guiding framework. This results in duplication, misplaced priorities and uncoordinated development. ADB, Danida and the Dutch are all pursuing the common goal of institutional development and capacity building at the local level. But they all differ from one another in their policies and approaches. Possibly the situation may improve with the adoption of the national policy and the subsequent strategy document.

To a large extent, planning also excludes clients, both municipal and household users. Despite some attempts to bring urban authorities into the planning process, municipal participation in planning and implementation has been passively discouraged by their limited capacity to contribute professional expertise and by their exclusion from central government processes. Urban users of facilities are passive recipients with little sense of belonging to the utility systems they use.

2.3.3 Roles of institutions in planning and implementation

The sector projects are prepared by DPHE Planning Circle and then processed through the MLGRD&C and the Planning Commission. The recent draft policy proposes greater responsibility for local government. It recognises that central agencies should have less of a direct implementation role and more of a supporting and facilitating role limited to effective and efficient technical support and training to local authorities. Such a shift in role means more accountability to local authorities and a major change of attitude on the part of agency staff. Such far reaching reforms cannot be instituted from within government agencies. They must be done through policy decisions and legal measures from high levels within the government.

2.3.4 Institutional development

Under the present framework, new facilities are more or less dropped in the lap of the local authorities, who are then left to their own resources for the upkeep of the same. Little support is available from higher levels for running the facilities. More generally, the institutional framework for the urban water supply and sanitation sector will need quite some development in the coming years, if it is to satisfy the rapidly growing needs. Some donor supported projects such as the 18DTP, are initiating project based institutional changes. Unless these changes are espoused and formalised from the top with policy support and legal cover, they are unlikely to sustain long beyond the project period.

3 MAIN LINES OF PROJECT CONCEPT AND IMPLEMENTATION

3.1 Background

Despite generally adequate access to safe water and a growing access to sanitary latrines, water-related diseases remain a common occurrence in Bangladesh. Although reliable statistics are not available, the common opinion is that the health effects have not been in proportion with the efforts made in water supply and sanitation (see also section 4.1). An indicator for the widespread occurrence of water related diseases is the fact that 25% of all families have at any time a child with diarrhoea². Apparently access to sanitary latrines and particularly hygienic behaviour still need much improvement.

In rural areas and urban fringes, hand tubewells used to be generally an adequate source of safe water. In urban core areas piped water supply systems are needed and justified for various reasons. However, piped systems require a much higher degree of organization and management than hand tubewells. Moreover, the increased quantities of water supplied will create waste water problems, demanding again financial and managerial ways and means. With the rapid increase in urbanisation (see section 2.1.1) solving these problems may become a major challenge³.

Against this background 18DTP was set up as a so called "package type" project. This means that it combines rehabilitation and extension of water supply, drainage and sanitation facilities with supporting hygiene education and community participation activities. The location of the towns is shown in Figure 3.1.

Very recently, arsenic pollution of groundwater was found to threaten the health of, possibly, a substantial part of the population. Solutions are being sought, but will not be easy in all cases. 18DTP, although being in its final stages, is still taking into account this new problem.

² SAFE pilot project, Care International

³ As stated earlier, the urban population of Bangladesh will increase with about 1.2 million per year. This is more than the total population of the 18 towns in the Dutch assisted project.

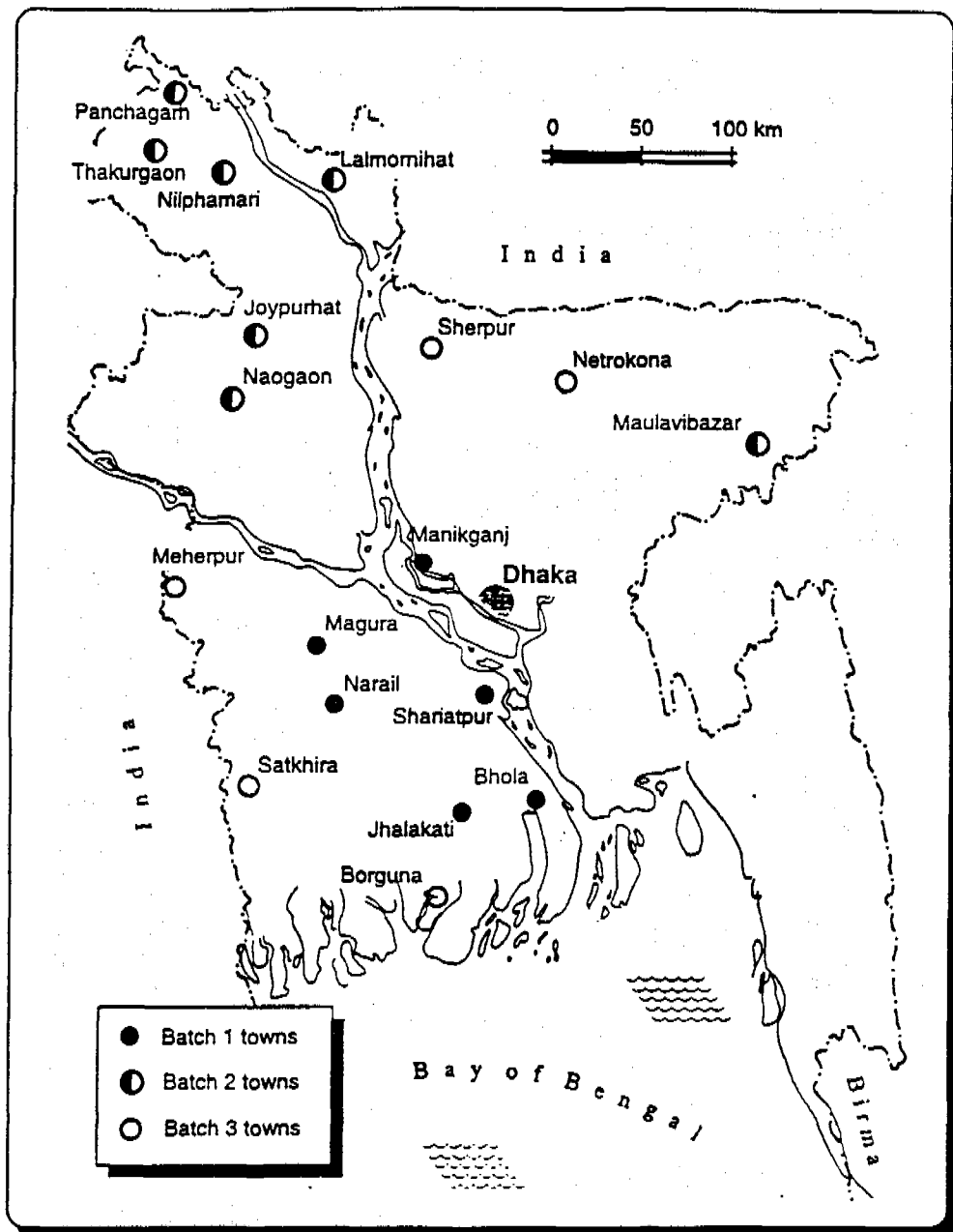


Figure 3.1 Location of 18DTP towns

3.2 Objectives, targets and inputs

3.2.1 Objectives and targets

According to the Administrative Arrangement for Phase III as signed between GoB and GoN, the long term objectives of the project are:

- to improve the health situation of the population in 18 district towns by improving water supply and sanitation systems and providing hygiene education;
- to develop a sustainable institutional capacity at pourashava level.

The same document lists the following **short term objectives**:

- to set up sustainable water supply (piped water supply and hand tubewells) and sanitation systems in 18 towns that will form a sound basis for an improvement of the health situation;
- to set up institutional structures for management, operation and maintenance of water supply and sanitation facilities and provide proper health education facilities within the pourashavas;
- to give priority to those areas where the water supply and sanitary conditions do not meet minimum local standards;
- to guarantee a maximum of involvement and participation of the local population (especially the women).

Improvement of health is thus the main objective of the project, both long term and short term.

The **targets** of 18DTP according to the Phase III Project Document are:

- sustainable water supply for 75% of the population in each town. In towns where the coverage with private hand tubewells exceeds 25%, the target may be reduced proportionally;
- house connections for approx. 5 to 20% of the households. Fees to cover O&M of the system;
- stand posts for approx. 30% of the population in poorer areas with a maximum walking distance of 250 meters;
- the use of yard connections (group taps) will be promoted in areas that are covered by a piped system and where the iron content of the ground water is high;
- sufficient hand pumps in fringe areas;
- drinking water installations will last for a minimum of 20 years and international standard technical design criteria will be applied;
- setting a framework for construction and use of adequate sanitary installations. A latrine coverage of 75% to be achieved (excluding private latrines);
- design and construction of drains will result in evacuation of both rain and waste water from built-up areas;
- strengthening pourashava level institutions for water, sanitation and drainage with adequate administrative, technical and managerial staff;
- planning, design and implementation of the system will be based on active participation of the pourashava, the community and the water users (primarily women);
- programs for health and hygiene education will form an integral part of the project for which NGOs will be involved.

Physical targets for solid waste disposal have not been set. The Project Document states that a desk study of the situation in Bangladesh will be carried out. This would be followed by a field study in 3 representative pourashavas.

The project document gives detailed listings for each town of physical works to be implemented in Phase III. It is noted that to a large extent it concerns works that were originally planned to be completed in Phase II. In Chapters 5 and 6 actual progress is evaluated against planned works.

3.2.2 Budgets and funding

For Phase I and II (mid 1989 till end 1995) a total amount of reimbursable project aid (RPA) of Dfl 35 million was initially made available by GoN. Later this amount was increased to nearly Dfl 40 million. The contribution from GoB was about 10%, excluding duties and taxes. From the Dutch aid, about Dfl 18 million was not spent by the end of 1995. These remaining funds would no longer be available since for the total expected costs of Phase III new allocations of Dfl. 16.3 million in RPA and Dfl 10.6 million in Technical Assistance were made.

Due to an administrative error, spending under Phase II funds continued in the Phase III period. By 1 April 1998, when no more claims under Phase II will be entertained, about Dfl 4.5 million is estimated to be spent in this manner. Together with the new allocation, in total Dfl 20.8 million of RPA is thus available during the Phase III period. We will consider this amount as the RPA budget of the project in our review.

According to the Project Document the GoB contribution to Phase III would be Tk. 211 million, or Dfl 9.0 million at the rate of exchange prevailing at that time. This would represent about 25% of the total estimated costs of Phase III. The GoB contribution consists mainly of staff salary payments to the (temporary) DPHE staff, rent and running costs of the offices and costs of transportation. However, also some physical works in the pourashavas are paid from this budget.

3.3 Project organization

3.3.1 DPHE project organization

As was the case in previous water supply projects, DPHE is the implementing agency of 18DTP. For this purpose a temporary Project Office is set up in DPHE (see Figure 3.2). This office is headed by the Project Director with the status of Superintending Engineer. He is

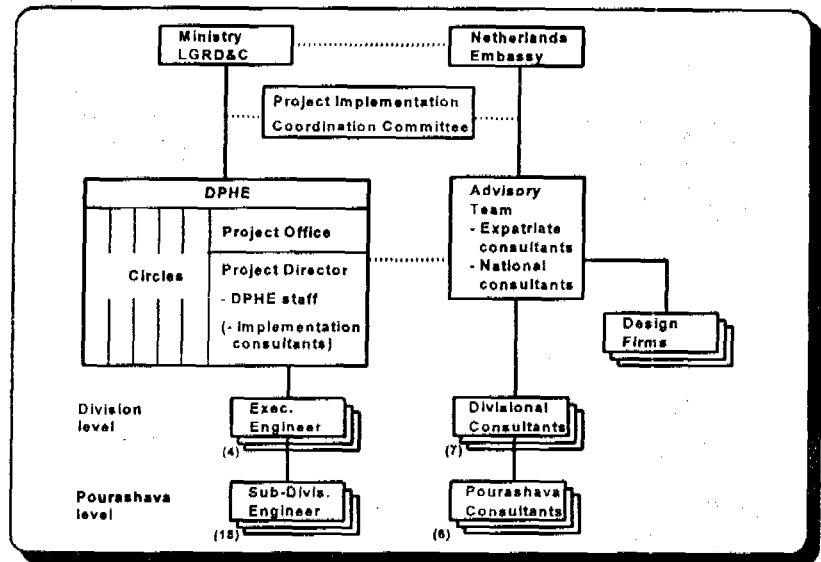


Figure 3.2 Organisation chart 18DTP

assisted by a Planning and Development Division, under an Executive Engineer. The field staff consists of an executive engineer in each of the 4 project divisions and an SDE in each of the 18 towns. With a few exceptions the project staff are on a temporary basis. DPHE has rented office space on 3 floors of a private building for the purpose of the project.

The Project Office has the overall responsibility of the project and is directly responsible for implementation of the major physical water supply works, the so called category A works. Tendering and contracting are done at the central office and the divisional offices. Supervision of work is the responsibility of the field staff.

3.3.2 Advisory Team

The Project Director is assisted by an Advisory Team, composed of expatriate and national consultants. They are assigned for quality and financial control, design and research, project monitoring and institutional development. At this moment the team has two long term expatriate senior advisors, 21 national consultants and two expatriate bilateral associate experts. Short term expert are brought in if and when required.

Among the national consultants are a senior Organisational Development Specialist (ODS), a Community Development and WID specialist, 4 ODSs and 3 Financial

Development Specialists (FDS) at divisional level and 6 ODSs at the pourashava level. They maintain day-to-day contact with the pourashavas and provide assistance if and when required.

Progress reporting is now quarterly in stead of half yearly and is considerably improved compared to the previous project phases. However, the amount of detailed information and (recently) lack of graphical presentation impairs quickly grasping the essentials of the reports. Furthermore, the definitions used are sometimes ambiguous hampering the understanding for outsiders. The reports should be standardized in accordance with the need of the users, particularly RNE. They should clearly indicate the progress both in financial terms and in physical terms against the targets. Targets should be clearly defined being either those of the Project Document, the (revised) Project Proforma or otherwise. Perusal of progress reports should be a fixed item on the agenda of the PICC meetings.

We noted that the progress reports, which are prepared by the Advisory Team, sometimes criticise DPHE in a manner which may not be conducive in achieving the desired improvements.

3.3.3 Implementation consultants

According to the 1987 Operational Guidelines, DPHE would provide for sufficient staff for the project at all levels. As a result of the delays in project implementation, the financial burdens were getting considerably heavier for the Ministry. Moreover, procedural problems keep DPHE from filling all vacancies. Therefore, a group of 4 national consultants was initially working directly under the Project Director complementing the staff contracted by DPHE. They were employed by local consultancy companies, contracted by the leading Dutch partner DHV. Their costs were covered under the Dutch TA-consultancy budget. These "implementation consultants" were formerly called the "3rd floor consultants". Presently, there is no one in the capacity of implementation consultant.

3.3.4 PICC

At the start of the previous phases of the project it was envisaged to set up a national level Steering Committee or Apex Committee for the project. However, GoB was of the opinion that this role could well be played by DPHE and this was at that time accepted by GoN. Nevertheless, at the start of Phase III such committee was set up as yet. Similar to the ADB-supported 9DTP, this committee was named the Project Implementation and Coordination Committee (PICC) and is chaired by the Secretary

Local Government Division. Although it was foreseen that this committee would meet twice every year, so far only one meeting took place, in July 1997.

Given the many constraints the project is facing in the current final stage, notably the slow progress of major physical works and the by-laws, we are of the opinion that the PICC should from now on meet quarterly, preferably on a fixed day in each calendar quarter. Concise and relevant information for these meetings should be prepared jointly by the Project Director and the Advisory Team.

3.4 Project implementation

3.4.1 Project planning, phasing and implementation

Initially the total project period was planned to be about 6½ years and was subdivided in 2 phases:

- Phase I from 1 May 1989 until end June 1990. This contract was extended until the end of October 1990;
- Phase II from 1 November 1990 until the end of December 1995, and extended till 30 June 1996.

In order to complete the works to a sustainable level, a further Phase III was agreed upon which will expire by 30 June 1999. By that time the project will thus have run for over 10 years.

The 18 towns were divided in three batches of respectively 6, 7 and 5 towns. See Figure 3.1. The batches were dealt with successively, in order to allow experiences from one batch to be used in the next. This explains why in some towns the institutional development and physical works show more progress than in others.

18DTP distinguishes itself from previous projects in the sector in its approach to planning and implementation of service provisions. At the start of the project plans and budgets for individual towns were based on a fixed total per capita amount that was equal for all towns. Although this approach did not reflect the different levels of need in the various towns, a realistic need based approach would not have been easy to define. The package of activities as thus agreed upon initially for each pourashava is translated in annual plans of action. All stakeholders participate in these planning sessions. These planning sessions were continued in the current Phase III, but with less guidance from the project. We have the impression that this resulted in unrealistic demands, and thus conflicts with available budgets.

In Phase III involvement of the pourashavas was enhanced by making them directly responsible for a substantial part of the physical works. See also the next section.

This approach should ensure that real demands (felt needs) of the communities are addressed in the project. Also that sustainability can be expected, because the feasibility is studied and consultations with the pourashava take place during the preparatory phase. During our field visits, the pourashava chairmen were indeed usually quite familiar with and involved in the project. This is a considerable improvement over the situation found during the 1994 evaluation.

3.4.2 Implementation of physical works

In Phase III a new approach was followed whereby more works were implemented by the pourashavas. The major works and supply contracts remain the responsibility of DPHE while the smaller works and rehabilitation activities were brought under the control of the pourashavas. The following categories are distinguished:

- Category A works: major works like treatment plants, overhead tanks, large diameter pipelines, production tubewells and large procurement contracts. DPHE handles the tendering, contracting and supervision activities.
- Category B works: hand tubewells and latrines. These works are implemented by the pourashava from a budget under the control of the pourashava chairman. Imprest account procedures are followed.
- Category C works: water supply rehabilitation and smaller diameter pipelines. Implementation by the pourashava (now usually by the PWSS superintendent) from a budget under the joint control of the pourashava chairman and the SDE from DPHE. Imprest account procedures are followed.

As will be seen later in this review, this increased role of the pourashavas worked out quite well.

3.4.3 Institutional development

Institutional development is an important objective of the project. Project interventions are intended for two sections in the pourashava: the pourashava water supply section (PWSS) and the pourashava conservancy section (PCS). Activities for the pourashava health section were discontinued after Phase II. In practice the main effort and focus has been on the strengthening of the PWSS and of the hygiene promoters contracted by the project for the hygiene education.

The conservancy section is responsible for waste disposal and clean environments. The intention was to strengthen this section in the same way as the water section. The staff did receive some training but otherwise remained without much support. Initial attempts to introduce a by-law for the PCS were not pursued further.

Instruments for institutional development include training, the establishment of a management information system (MIS), the introduction of by-laws, the establishment of accounting procedures and the introduction of operation and maintenance manuals and practices. In the following sections we look more closely into these instruments and their contribution to institutional development.

3.4.4 Training and human resources development

The focus of the human resources development is the personnel of the PWSS and PCS, the hygiene promoters, the WSSCs and the schoolteachers.

In Phase II of the project, 186 training activities for 4000 persons were conducted. In the current Phase III, the project continued to organise training on a regular basis both in the regions as well as in Dhaka. In the region training is organized at the local and divisional level. The technical instruction courses like operation and maintenance of hand pumps, hydraulics, meter installation but also orientation courses for pourashava councils are done locally.

For 1996 11 types of courses and for 1997 14 types of courses were planned and executed. The most trained and invited personnel are the superintendents of the PWSSs. Much effort is also given by the FDSs to train the PWSS accountants. The supervisors of the hygiene promoters received regular training on both technical and non technical subjects like performance improvement training. They transfer this knowledge to the hygiene promoters.

The project's training effort is considerable as can be derived from the following estimate of numbers of trainees in the various target groups:

- a. PWSS personnel. Between 8-16 staff per PWSS, on average 12 in 18 towns is in total 216 persons.
- b. Hygiene promoters. On average 10 persons per pourashava makes in total 180 persons.
- c. Key personnel of the PCS. On average 3 persons per pourashava makes in total 54 persons.
- d. Orientation course of pourashava chairmen and council members. On average 10 persons per pourashava, makes in total 180 persons.

- e. Support training for the WSSCs. Each pourashava 9 members from each of the 3 wards makes in total $18 \times 9 \times 3 = 486$ persons.
- f. Schoolteachers. On average 4 in each pourashava makes in total 72 persons.
- g. Caretakers of hand tubewells. These are trained by the hygiene promoters. In total about 5000 persons, depending on the number of handpumps installed.

If we exclude the caretakers who are trained by the hygiene promoters, about 1200 persons are trained directly by the project on a regular basis.

The intensive and repetitive training has certainly made an important contribution to the functioning of the PWSSs and the PCSs. Besides the skills and knowledge transferred to the different cadres, the training also contributes to the motivation and positive working attitudes of the personnel for the delivery of a good service.

During our field trip some PWSS superintendents confirmed their participation in a number of courses and expressed their appreciation of the content. They also said to appreciate further training in financial management and otherwise.

3.4.5 Management information systems

The Management Information System in 18DTP is a carry over of the previous project, 12DTP. The evaluation mission of 1994 found the MIS too big to fit the information needs of the small PWSS organisations and that the PWSS superintendents and pourashava chairmen did not make use of it.

The adapted MIS for the PWSS became operational during 1995. As a result, the latest (8th) quarterly report could produce an overview of the revenues, water sales, expenditure etc. from July 1997 onwards. A MIS was also developed for the PCS, but was not pursued further. Nevertheless, the draft revision of the Project Proforma mentions the MIS for the PCS under the most important institutional procedures.

During our field trip, it was clear that the PWSS superintendents were familiar with the MIS and were also interested in its use, especially the information about collection efficiency and arrears. Actions were initiated to reduce the arrears through interventions of the chairmen.

3.4.6 Community development through WSSCs

For Phase III, the project proposed to continue with two of the previously existing instruments for community development in the field of water supply and sanitation: (i) Water Supply and Sanitation Committees (WSSC) and the local NGOs (or

individual promoters) for hygiene education. In each of the 18 towns WSSCs had previously been established in each of the 3 wards. Each WSSC is composed of 10 members:

- a. the female ward commissioner as chairperson;
- b. the Health Assistant of the pourashava as member-secretary;
- c. a teacher (Imam/Madrassa);
- d. a female primary school teacher;
- e. a female NGO representative;
- f. a women's group representative;
- g. 4 beneficiaries.

All members have to live in the ward and 50% should be women. The member-secretary is responsible for the invitations and recording of the minutes. In practice the memberships were determined by the pourashava chairman and the ward commissioners.

The tasks and responsibilities were as follows:

- to identify the beneficiaries for the hand tubewells and latrines;
- to disseminate hygiene messages (house visits);
- to play a vital role in community campaigns and social mobilisations;
- to act as representative of the community in the areas of water supply, sanitation, drainage and hygiene education;
- to perform an essential task in conveying the community's demands to the pourashava's authorities.

The present WSSCs were founded in February 1993 after the elections. The next elections are expected in June 1998 and will automatically dissolve the present committees.

Already in the previous phase of the project the functioning of the WSSC was found to be less than optimal. The first evaluation by the project took place in 1993 and indicated several factors for the poor performances of the WSSC's:

- no formal authority;
- lack of a clear role;
- the committees are established in a top down manner.

Subsequently the 1994 evaluation reported, among others, the following observations:

- a. The responsibilities and tasks are given on paper by the project. However, they are far from clear to all WSSCs and other relevant actors, as they have not been formulated in operational terms.
- b. The male ward commissioner dominates the WSSC which he uses for political lobbying. Participation of other members remains poor.

- c. The ward commissioner is the only channel with access to the pourashava's council meetings.
- d. No sustainable relationship between the WSSC and the pourashava health section.
- e. WSSCs remain too passive in social mobilisations and health education.

Despite the criticism, the evaluation of 1994 considered the WSSC as an important opportunity for community involvement to be pursued with vigour. Unfortunately we found that the abovementioned observations are still valid at this stage.

Recently (February 1998) the project completed a new study, which is the second effort in the project to evaluate the functioning of the WSSCs. It was done quite thorough and systematic. Some of its observations are summarized as below:

- The WSSCs do hardly report identified problems of users to the PWSS or the pourashava. The high percentage of women and the fact that the selected female commissioner has been made chairperson might be reasons for that.
- The pourashavas do not support the WSSC easily in logistics and in remunerations for travel costs.
- The community does not know the existence of WSSCs.
- The WSSC members are not conscious of their tasks.
- Many members have a low status and are illiterate.
- Relationships with municipal institutions are poor or absent.

In 1997 monitoring forms of the WSSCs have been distributed and returned to the project with the following result. Measured on a scale from A (all criteria fulfilled) to D (unsatisfactory), most WSSCs function on a D or C level, with none of them reaching A level. This means the WSSCs do not fulfill 50% of the criteria set up for their functioning.

The study concludes that the WSSC will not result in a sustainable institution when the project ends and can be abandoned if the chairman and the pourashava council decides to do so. The coming election will suspend the existing membership of the committee anyway. However, some form of community participation in the water and sanitation sector is deemed necessary in the future. Therefore, the study proposes two new types of organisations:

- a. A client consultation system linked to the PWSS with the tasks to advise the PWSS on issues related to HTW, sullage connections and house connections. All participants in the meeting should be users of a PWSS facility. The focus will be on existing and prospective customers of the piped water systems living in the core of the cities. Half-yearly meetings are proposed on initiative of the PWSS. The superintendent of the PWSS plays an important role in this approach.

- b. **Creation of community groups guided by community leaders and supported by NGOs.** The main purpose is to form user groups around a hand tubewell caretaker and to create some form of social control to guarantee hygiene practices. The NGO will facilitate the group meetings. The objective of this intervention is to stimulate change in unhygienic behaviour. The most important hygiene messages have been widely spread but some follow-up is necessary to change the practices. The groups will operate in fringe areas. It is assumed that users in the core area are better educated and resist group meetings of this kind. They can be reached through the mass media.

We support the intention of the project to stop further support of the WSSCs. The WSSCs did not gain respect and acceptability from the pourashava authorities nor from the users. The very concept of the WSSC was contradictory. It involved conflicting roles and tasks, especially the roles of executing health promotion (home visits) and promotion of the interests of the users in the pourashava (political). The first type of tasks was already undertaken by the hygiene promoters who were contracted by the project while the political role could better be left to the ward commissioners. The proposed new set-up avoids these tensions by a reduction of the many tasks to only two main activities in two separated institutions.

We note that the recommendations of the study are still subject to discussion in the project. Particularly the scope of the client consultation system for the PWSS should be given consideration, since the PWSS is mainly responsible for the development of the piped system and thus house connections, group taps and street hydrants. Sullage connections are not within the purview of the PWSS.

More than 400 persons were involved in the WSSCs and have been trained and guided by the project in hygiene education and related issues as representatives of the wards. Their capabilities may still be mobilised and play a positive role in the newly proposed institutions.

We are of the opinion that the past experiences with the WSSC are valuable. They have revealed the conservative and authoritarian status of the present pourashava administrations. The very existence of the WSSC formed a challenge to the authoritarian leadership of ward commissioners and the chairmen. Also the fact that more than 50% of the committee members were women challenged the traditional culture of the local governments. The existence of the WSSC may have formed a necessary precedent and stimulus toward a more open and democratic administration. In the present administrative structures of the pourashavas there is a lack of

accountability, openness, checks and balances. The WSSC has demonstrated in certain ways this problem.

3.4.7 Gender aspects

The most tangible results in this field are to be found in the hygiene education and the female caretakers of the handpumps. Women also participate actively in the WSSCs (see previous section).

During the previous phase of the project, women were employed to fabricate latrine components like slabs and rings with the purpose to create income generating activities. This activity has come to an end. In each town the private sector has taken over this role. Several small scale manufactures could be seen in operation in each pourashava town during our field trip. It is unknown whether the women could continue to use their acquired skills somewhere in the private sector.

3.4.8 Financial aspects

The funds for implementation of physical works are allocated annually through the Annual Development Programs (ADP) which are based on the Project Proforma (PP). In the previous project phase the PP was not in line with the Project Document, which was the cause of serious problems. To avoid similar problems in the future, a team was fielded in September 1995 by GoN and GoB to assist in the formulation of Phase III. Special attention was given at that time to match the draft project document and the draft PP. Nevertheless, in the mean time it appears that there are still discrepancies between the final documents. Furthermore, adjustments necessary to match the remaining works and the remaining budget in the tail-end of the project requires a new revision of the PP and is currently in progress.

In Figure 3.3 the financial progress is shown both for the physical works and for the Technical Assistance for the Phase III period. By the end of 1997 50% of the project period had elapsed,

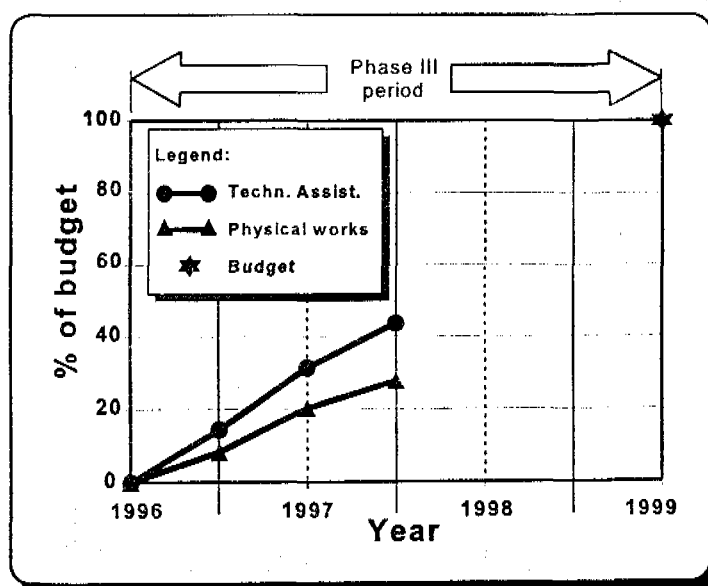


Figure 3.3 Financial Progress

but financial progress of physical works is less than 30%. The actual pace of progress is very worrisome and would result in a delay in the completion with 2 years. This would mean that the planned works would only be finished by mid 2001. Slow progress of major physical works has always characterised the project and measures to speed up the work were either not taken or not effective in the past. In Phase II of the project only about 50% of the budget for physical works was spent by the end of that phase. We have found no indications whatsoever that significant improvements may be expected in the future.

3.4.9 Sustainability

The long term objectives of the project include development of a sustainable institutional capacity at pourashava level. To the extent that this is possible without interventions at other levels, the project has made good progress with the water supply component. It has already become evident that the piped water systems will be financially viable in most cases. This is a very positive development and an important condition, but not sufficient, to ensure sustainability of the PWSSs. As a minimum, the legal status of the PWSS should be established by means of the proposed by-law or otherwise. Even then, supporting and controlling structures would further enhance the long term stability of the PWSSs. As stated in section 2.3.4 there are no indications yet that such structures will be developed anytime soon.

The community based facilities provided under the project are the low cost latrines and the hand tubewells. The communities are able to sustain these services. Once the population has acquired the habit of properly using sanitary latrines, it may be expected that this habit will continue without much external inputs. For the hand tubewells users can successfully mobilize mechanics from the private sector or the PWSS for repairs that are beyond their capabilities. Some clarification may still be required with respect to the ownership and concomitant rights and duties, to be provided by the hygiene promoters.

The project has not succeeded in significant sustainable institutional development of the PCSs, which should take care of the environmental sanitation. However, initiatives are taken to develop a two-tier system of waste collection, where the collection in the neighbourhoods are community based, while the PCS takes care of the transport to the dumping sites.

4 REVIEW OF HYGIENE EDUCATION

4.1 Introduction

In general awareness of the linkage between use of safe water, proper disposal of excreta and practice of personal hygiene on the one hand and good health on the other hand is still low in Bangladesh. In the study conducted by ICDDR⁴ in selected rural and urban areas shows that 95% people drink HTW water but 80% people still use other sources of water for washing, cooking and bathing. The primary reasons for using other sources are ownership, satisfaction of bathing in open water, water quality and tradition. The same study also shows that more than 80% of the housewives who collect water do not wash their containers properly before collecting water. That results in high contaminations at the bottom surface of the container with faecal coliform bacteria. Reduction of ingestion of contaminated water requires interventions for knowledge and behavioural improvements based on integrated environmental health, social and service issues.

Another study conducted by ICDDR⁵ in collaboration with DPHE, DGHS and PROSHIKA shows that the use of sanitary latrines increased from 23% in 1995 to 64% in 1997 in the intervention area and from 21% to 29% in a comparison area. This indicates that for the success of a social mobilisation programme, incorporation of NGOs and the private sector is absolutely essential. People are willing to buy latrines at market price; payment by instalments facilitates latrine acceptance.

4.2 Approach, objectives and targets

The initial objective in the previous phase of the project was to increase the hygiene awareness among the pourashava population and improvement of their general health status. It was recognized that the Pourashava Health Section (PHS) would not be in a position to fulfil the hygiene education requirements for a number of years to come. Lack of staffing and finances being the reasons. No practical alternative being available, the following set-up was adopted:

- a. At national level the Forum for Hygiene Education, consisting of project staff members and resource persons would be formed to guide the Task Forces at pourashava level.

⁴ Source: Intervention update, Volume 5, Number 3, ICDDR, Dhaka

⁵ Source: Intervention update, Volume 5, Number 4, ICDDR, Dhaka.

- b. Task Forces, consisting of pourashava staff, DPHE staff and representatives of organizations involved in the implementation of 18DTP would be formed. The Task Forces would have a coordinating role and guide the PHSs, the ultimate responsible body for the hygiene education program.
- c. In every pourashava a group was formed of health education field workers (HEFW), selected from the pourashava and DPHE staff and from the Civil Surgeon's office EPI and family planning staff.

This set-up was not successful for the following reasons:

- a. The Task Forces and coordinating mechanisms never functioned or were inactive due to numerous constraints.
- b. There was a lack of clear information on the roles of the various parties and actors.
- c. The number of active HEFWs was low. They all worked in different lines of command. Preoccupation with their regular duties did not leave much room for hygiene education activities.
- d. The PHSs were badly understaffed.

As a consequence technical and educational activities could not sufficiently be linked, although this is a prerequisite for successful hygiene related behavioural interventions.

Taking into account the suggestions in the project's 1993 Interim Evaluation Report on the hygiene education program, the project adopted as its main objective for the hygiene education program: "the institutionalisation of hygiene education activities, as related to water supply, sanitation and drainage at pourashava level. An integration of required motivation of the pourashava staff, employment of sufficient personnel, training and assignment of staff in well defined tasks, which in the long run should lead to the achievement of an efficient Pourashava Health Section (PHS)". Subsequently the project focussed on a number of activities to strengthen the PHS. The project prepared a Management Plan for the PHSs in November 1993. The main aim of the paper was to identify the problems and prospects of the existing PHSs and provide suitable arrangements for strengthening them to ensure hygiene education along with other health and hygiene services at the long term.

The 1994 evaluation of the project concluded that "Within the coming years it is not expected that PHS can carry out a full fledged hygiene education program as it is not well equipped for it and does not have sufficient funds." A number of adjustments in the hygiene education program were proposed:

- not to continue with training of the HEFWs;
- to abolish the Task Forces;

- no further activities to be undertaken to strengthen the PHS for hygiene education;
- to assess the training needs of the NGOs and if necessary to support them;
- to adopt a hygiene education approach for the hand tubewell program that is similar to the sanitation program. This means involvement of local NGOs. If possible, the same NGOs already working in the sanitation program should be contracted;
- to involve larger service NGOs for back up services to the local NGOs;
- to assess which community campaigns are feasible, e.g. latrine competition with award for the nicest;
- to promote and guide the school education program to be implemented by the BHE for 18DTP, with a focus on improvement of school latrine facilities and hygiene education.

The proposed adjustments implied a considerable simplification of the hygiene education activities. It meant that effective hygiene education would address new owners and users of latrines and hand tubewells (not the public at large) for the duration of the project. Sustainability of this activity after the end of the project would no longer be pursued, but the impact was expected to be permanent. The school hygiene education program, if implemented properly would endure beyond the project period. The approach for Phase III as now pursued by the project is very much in line with the proposed adjustments.

The project now focusses on a number of activities to organize hygiene education for changing behaviour among the selected target groups. During the past years the target groups were latrine beneficiaries, HTW caretakers and at later stage the users of piped water supply. The primary school children were considered as a special target group under the hygiene education programme. The project also included the community in general for solid waste disposal. It added selection of volunteers for hygiene education among the HTW caretakers and latrine beneficiaries among its target groups.

The institutionalisation of hygiene education activities, as related to water supply, sanitation and drainage at pourashava level was not an objective of the present phase of the project and will most likely not be achieved.

4.3 Organizational framework

The hygiene education programme is now implemented by local level NGOs. Where there is a poor representation of local NGOs, the hygiene promoters are now being directly employed by the chairmen. This is the case in 7 pourashavas. In the remaining 11 towns the NGOs are still continuing to work. The number of hygiene promoters has been reduced to 7 in 11 pourashavas where the target for latrines has already been achieved.

Under the school hygiene education programme two teachers from each of the government primary schools were trained by specialists from NGO Forum. Unfortunately the teachers did not show much interest to continue this activity. The hygiene promoters, however, are now visiting each school once in every month to organize a session on hygiene education in collaboration with the teachers. In most cases all the pupils of the school are brought together into one large session. This programme is continuing successfully.

The hygiene promoters, both engaged by NGOs and by the chairmen have done a very successful education and motivation programme over the years. They were trained by the project on basic management, hygiene education and motivation activities. They worked in the field with specific targets and planned activities which were monitored by the project's consultants.

4.4 Institutional development

The work plan agreed upon in the previous project phase with the pourashava for hygiene education could not be implemented due to the poor status of the PHSs. The pourashavas are still facing difficulties in getting qualified sanitary inspectors and skilled hygiene workers. The existing staff are engaged in conducting EPI programme in association with the Civil Surgeon's office. Although the EPI programme is already well past its period of peak load, all staff remains engaged in the EPI. They do not have any linkage with the project hygiene promoters, even though both types of staff are working under the supervision of the chairmen.

4.5 Program inputs

4.5.1 Materials and methods used

The hygiene promoters use the two sets of flip charts on "safe water use" and on "latrine use" which were made available to them. The key messages are presented in the form of posters, stickers and leaflets. During post latrine installation visits two more types of materials are used, one on the HTWs and the other on sanitary latrines, describing use and maintenance. Both contain a checklist for supervisors comments.

Two large posters were developed for campaign programmes conducted in each town. For school children 4 stickers were developed and distributed on a limited scale during hygiene education sessions. The stickers include messages on HTW water use, latrine use, cleanliness and hand washing.

Two copies of "Guidelines for hygiene education for school children" were provided in each school which was insufficient compared to the number of teachers in the school. Also, the hygiene promoters who ultimately shared the responsibility of school education programme do not have sufficient copies of the guidelines.

Competition among school children regarding hygiene education has been introduced in one town, Meherpur. The chairman arranged some token prizes for the winners.

Group meetings and community meetings are also organized by the hygiene promoters in different towns. The hygiene promoters also initiated to organize solid waste cleaning programme by engaging NGOs through community participation.

Different types of materials are being used under the EPI programme which were distributed by the Health Education Bureau. The messages are mainly on curative measures against diarrhoea, iodine deficiency and child immunization. There is no mention of the use of safe water, sanitary latrines, hand washing and cleanliness.

4.5.2 Training

All the hygiene promoters were trained in at least three courses: a 5-day course covering basic management, hygiene education, communication and motivation, a 3-day refresher course on the same areas and 1-day course on water supply issues. Additionally, the supervisors are being trained quarterly at central level.

Hygiene education messages are incorporated in the caretakers training conducted for 69% of the HTWs installed. Hygiene education is also included in the orientation course for WSSC members. As mentioned earlier, two teachers from each government primary school were trained under the school hygiene education programme. No hygiene education training was given to the PWSS superintendents, PCS and PHS staff.

4.5.3 Monitoring and evaluation

Progress monitoring forms containing information on individual sanitation practices were being used by the project through the hygiene promoters on random basis. Each supervisor is supposed to report 30 responses from her pourashava taking a minimum of 10 from each ward to the project in each month. The reporting was done for a few months and reflected in the progress reports. Subsequently, it was assigned to the WSSC members who failed to continue the monitoring. Recently, the project again started to receive the same monitoring forms duly filled in from the supervisors in the field. It concerns a kind of beneficiaries monitoring covering the use of latrines, HTW water and cleaning of wastes for which households are visited. The results show the level of proper use of facilities by the beneficiaries.

4.6 Implementation and impact

4.6.1 Hygiene education by field workers

The hygiene education is being implemented by the hygiene promoters with different approaches and weighted to different target groups. The first priority was the latrine beneficiaries along with latrine installation. The next priorities were determined on the basis of urgency and availability of promoters in the town among primary school education, HTW caretakers, piped water users. Recently selection and training of volunteers among HTW and latrine users added to the target groups. The population in the core area was targeted for solid waste removal.

The key approaches used are household visits, community meetings and group meetings. Campaign programmes were also made for reduction of water wastage, increase in house connections, sullage connections etc.

The tasks assigned to the hygiene promoters vary widely in terms of volume and diversity. They are conducting visits, educating people, motivating them for installation of latrines including home made ones, digging pits for solid waste,

forming groups, selection of volunteers, training of volunteers, school education, monitoring beneficiaries behavioural changes, educating HTW caretakers, engaging in house connection, wastage control, sullage connection and so on. In most of the towns the hygiene promoters are under heavy pressure to manage all these activities particularly in the towns where the number has been reduced to 7. Even then the promoters are continuing their work successfully.

4.6.2 Hygiene education for the latrine programme

Each of the latrine beneficiaries has been visited six times before installation and four times after installation. Post installation visits are monitored by filling out the checklist handed over to the latrine beneficiaries and HTW caretakers. The programme has been successfully implemented. In almost all cases the beneficiaries were found during our field trip to be using the latrines and maintaining them in good order. The overall household environment was also found very clean.

Introduction of volunteer selection and training them for continuing hygiene education is a good initiative in principle. But the level of commitment for voluntary services was found very poor and in most cases non responsive.

4.6.3 Hygiene education for the water supply programme

Hygiene education is also extended to HTW users and piped water supply customers. For piped water supply, the hygiene education is integrated with a wastage reduction programme. Each house with a connection is visited by the hygiene promoters primarily to help the PWSS for improving service delivery. The hygiene messages include cleaning of reservoirs, use of safe water, sullage connection, solid waste disposal etc.

Group meetings are organised for the caretakers and users of the HTWs. Thereby various aspects of hygiene education are discussed along with maintenance of the HTW, platform cleaning, waste water disposal etc. In most cases the HTW users are also the latrine beneficiaries.

4.6.4 School program

Contacts were made by the project with the Bureau of Health Education (BHE) for the development and implementation of a hygiene education program in selected schools in the project towns. The response from BHE was not adequate to develop a joint programme. Ultimately the project has developed a training guideline for the

school teachers for hygiene education in association with the NGO Forum. The programme incorporated recitation of a poem and role play by the students to learn the different aspects of hygiene. Some children were given 4 stickers with messages on HTW water use, latrine use, hand washing and cleanliness.

Till now the project has conducted 1762 sessions in 244 schools within the project towns. Each school under the project is visited by the hygiene promoters at least once in a month. The programme covers all the government primary schools in the pourashavas. The ultimate success depends on the commitment of the teachers and linkages with the Directorate of Primary Education which controls primary schools. There is no UNICEF assisted school programme currently run in the project area. The issue should be taken up by the Directorate of Primary Education at the national level for re-orientation of school curricula.

4.6.5 Impact

The project's objectives, to increase the hygiene awareness among the target groups and improvement of their general health status have been achieved to a considerable extent, at least in qualitative judgement. There is no quantitative evaluation of the achievement. The fresh demand for sanitary latrines and second pits by the poorer people indicates the change in behaviour to a certain degree. Also, the project's regular monitoring of hygiene practices seem to indicate that hygiene behaviour is much improved. But for actual improvement of health there is no conclusive evidence. The project has started to undertake an impact evaluation. It would be more useful if the study is done by engaging outside consultants with some agreed criteria.

The project is of the opinion that continuation of hygiene education for several years is required because change of behaviour and consolidation of this change needs much time. The change of behaviour triggered by hygiene education is believed to be achieved in three stages (Knowledge, Attitude, Practice):

1. bringing the message and create knowledge or awareness of hygiene aspects;
2. changing the attitudes of the users;
3. changing practices and the consolidation thereof.

The project appears to have been successful in disseminating the three most important messages (sanitary disposal of faeces, washing hands, using safe drinking water) and in creating awareness. But as stated earlier for the next stages more time would be required.

We are of the opinion that for further activities to be effective, certain conditions are to be met, such as:

- there should be a clear strategy based findings of the impact study being undertaken;
- appropriate methods and tools like PRRA training modules are identified and used;
- there is a clear interest and demand from the side of the pourashavas;
- links are established with a national level NGO for providing support.

4.7 Sustainability

The hygiene promoters engaged by local NGOs or by the chairmen are paid directly from the project fund. In principle their activities will thus come to an end when the project is over. During our field trip we found that this is indeed the common feeling. Already the number of hygiene promoters had to be reduced in 11 towns. Most of the released hygiene promoters are still to get a job within the pourashava as they were neither retained by the NGOs nor by the pourashavas. Only in Naogaon two promoters were appointed in PCS and three promoters in PWSS. It must thus be feared that the achievements made during the project will be lost if the program is not continued further.

Originally it was considered that the capacity developed among the hygiene promoters might be retained by the local NGOs in providing hygiene education. The promoters engaged by the NGOs are found more efficient and better organized than those employed directly by the Chairmen. Even then the continuity of hygiene education by the local NGOs may not be possible as most of them do not have any linkage with larger NGOs. Thus institutionalisation of the hygiene education programme is still uncertain.

There is no way to link the hygiene education programme to other activities in the pourashava unless the chairman feels the need for it. Since most of the chairmen are eager to have the work of the hygiene promoters continued, it is still possible to link the programme with the EPI programme. The chairmen can employ the promoters in the vacant positions of the PHS and PCS.

Another option is to operate and maintain the Community Sanitation Centres under the supervision of the PWSS as they are located in the same compound. The funding may be arranged by accumulating the sales proceeds of latrine components as revolving fund from which CSC can extend credit to the buyers for latrine components. The buyer can then pay the cost in instalments. The trained promoters may then be able to run the sanitation centre themselves on a no loss basis, even when

the project is over. Possibly, they can also earn some service charge from the PWSS for marketing pipe water supply.

In the primary schools covered by the project some of the teachers trained in hygiene education may continue to provide hygiene education to the children provided they were given sufficient materials and aids. In general, however, it must be assumed that this activity will gradually fade away if it is not supported or promoted by the Directorate of Primary Education.

4.8 Future approach

On the basis of the aforementioned findings we have the following suggestions for the future of the hygiene education program:

- Initiate to establish linkage of hygiene promoters with larger NGOs, viz. NGO Forum, PROSHIKA, BRAC etc.
- Extend the hygiene education to all people irrespective of facilities provided by the project.
- Continue to develop dedicated caretakers and volunteers who can continue the hygiene education in future.
- Support strengthening of the CSCs for starting income generation from selling of latrines to the beneficiaries. The project (after Phase III) should provide a small starting capital to those CSCs that show initiative. These CSCs can then use this as revolving fund from which they provide credit for latrines and HTWs. Buyers will thus be allowed to pay in instalments. In the initial period CSC may get assistance from PWSS in terms of operation and management of the programme.
- The chairmen should initiate to organize meetings among the hygiene promoters and EPI staff for exchange of educational materials and sharing of experiences.
- The chairmen should take initiative to re-employ the trained promoter who are released from the project in the vacant positions of the PHS and PCS of the pourashava.
- Continue the hygiene education programme by the trained hygiene promoters for a further period of about 3 years after the end of the project. The time should be used to consolidate achievements and to find sustainable solutions for hygiene education and possibly continued employment of the current hygiene promoters (see also section 4.6.5).

5 REVIEW OF SANITATION ACTIVITIES

5.1 Objectives and targets

5.1.1 Latrine programme

The long term objective of 18DTP is the improvement of general health of people in the project towns. Access of people to sanitary latrines and their proper use are among the acknowledged factors contributing to the fulfilment of this objective. The project target for Phase III is 75% coverage in each town. After having completed about 13,200 latrines in the previous phase, the physical target for Phase III was 31,900 latrines which would bring the project total at 45,100 latrines. Currently, the total target is being revised to slightly more than 48,000 sanitary latrines. The target for public latrines is two per town making a total of 36 public latrines. The target for school latrines was 65, but is being revised to 97.

5.1.2 Drainage and solid waste

The 1994 evaluation mission discouraged further capital investments in the field of drainage. This was based on several observations. A more comprehensive approach than the current project could undertake would be necessary if the drainage system was to have any meaningful impact on the health conditions in the towns. Furthermore, the functioning of a drainage system depends on a proper and timely cleaning of the drains for which the conservancy sections in the pourashavas are responsible. The pourashavas did not put much priority on this aspect, and consequently the conservancy sections are left without adequate plans and means to clean the drains. Finally, the poor removal of solid waste from the towns appeared to lead to increased dumping in drains which become blocked as a result. At that time it was supposed that a more comprehensive approach to drainage and solid waste could be the objective of a new, future project.

Since the (rather modest) target of 45.6 km of new drains was nearly achieved in the previous phase of the project, the target for Phase III is only to complete the remaining 3.4 km of drains. In the previous phase, the project started with designing drains on the criterion of evacuating storm water from the towns. Particularly in flood prone areas this either leads to very large drains or is even completely impossible. Subsequently, the evacuation of household waste waters (sullage) was adopted as the main design criterion. The resulting smaller drains are called sanitary drains. However, efforts to have the households install sullage connections was not very successful in the previous project phase. In Phase III renewed efforts would be made

to motivate households to make sullage connections, but a target in numbers was not set.

Solid waste removal was not a significant activity in the previous phase of the project. The 1994 evaluation mission recommended that current practices of reuse and recycling through scavenging and rag pickers should be understood before optimum interventions could be undertaken. Indiscriminate collecting and dumping on a remote site may not be this optimum. In accordance with the mission's recommendation, the project document for Phase III mentions a desk study on solid waste removal practices. This would be followed by a field study in 3 representative pourashavas. Furthermore, in Phase III the construction of 194 public dustbins was included. From these collection points the PCS would have to transport the garbage to proper dumping places.

5.2 Implementation of the latrine program

5.2.1 Introduction

The project provides only one type of low cost latrine, despite the fact that the national campaign promotes a range of latrine options which are available in the market. The project aims at providing double pit latrines with water sealed pans. In effect the project promotes two on-set single pits instead of the conventional off-set twin-pit latrine with pipes and a y-junction box. The provision of the second pit latrine and a blind slab is deferred till the filling of the first pit. Superstructures are usually made of light materials such as jute sticks, bamboo or coconut leaves and can be easily moved to the second pit once the first is full.

Latrines allottees have so far been provided with only 5 concrete rings and a slab-cum-pan sufficient for the first pit on the understanding that they will get a second pit and a blind slab when the fist pit is full. However, the project's budget is only sufficient to provide a second pit to 50% of those who received a single pit latrine.

The latrine components are provided free of cost. The allottees are responsible for transport, installation and superstructure. This is at variance with other sanitation projects, which mandate partial or full cost recovery for latrine components. Probably also for his reason the demand for latrines is on the rise and in many cases stronger than can be met by the project.

5.2.2 Implementation of the programme

As per the recommendation of the 1994 mission, construction of latrine components by the project was discontinued. The project gets its supply of sanitary latrine components through competitive bidding from contractors. The project is responsible for installation supervision and quality checks in which the hygiene promoters play an essential role.

Several pourashavas have leased out some of the public latrines that are complete. This is an encouraging initiative which the project should pursue and support.

As part of the sanitary latrine promotion and behavioural development in children, 65 registered primary schools were selected for construction of sanitary latrines. In 59 these have already been completed: for each school 1 latrine for boys and 1 for girls.

The Water and Sanitation Surveillance Committees (WSSCs) were set up in every town for selection of beneficiaries for the latrine program. As shown in Chapter 4, the WSSCs have not functioned very well. Most pourashava chairmen are of the opinion that the WSSCs do not serve a very useful purpose.

The pourashavas and other stakeholders generally appreciate the value the work of the (NGO's) hygiene promoters. They mobilise people, create hygiene awareness, supervise latrine installation and advise people on operation and maintenance of water and sanitation facilities. The involvement of the hygiene promoters has a positive effect.

5.2.3 Progress

After a very slow start in the previous Phase II, progress of latrine installation is now very good. At this moment a little over 41,000 latrines are in place and 33 public latrines are

in different stages of construction. Figure 5.1 shows the physical progress since the start of Phase III. If the current pace of implementation is maintained, the targets will be easily achieved. It is remarked that for the low cost latrines the line in Figure 5.1

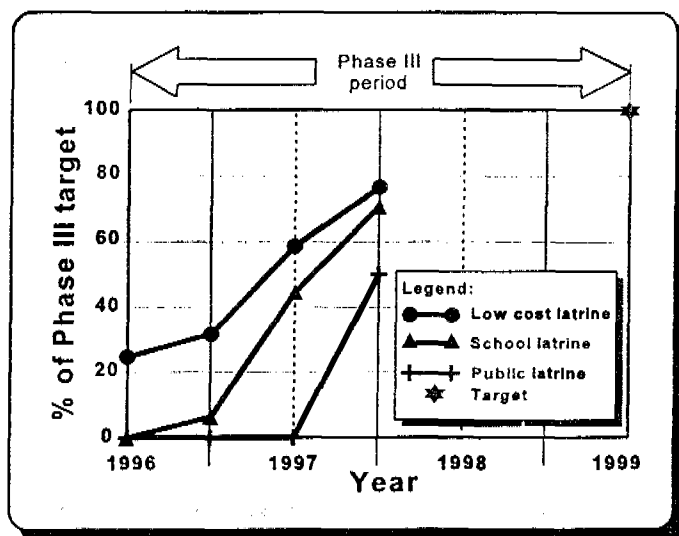


Figure 5.1 Physical progress of latrines

does not start at zero. This is because some latrines were installed during the bridging phase (January through June 1996), which we have added to the achievement of Phase III.

On completion of the project's physical target, the coverage with what the project calls sanitary latrines, will be around 69%. The project only considers water seal latrines as sanitary. However, non-water seal latrines are also sanitary, provided the excreta is confined in a closed space. Since the coverage with non-water seal latrines is about 19%, it may be expected that the target of 75% coverage with sanitary latrines will be achieved by the end of the project.

5.2.4 Use of facilities

Our field visit revealed that the latrines installed in the 18DTP towns are reasonably well maintained and used. This also applies to the school latrines. This is proof enough that the involvement of hygiene promoters has had a positive impact on the program.

Few women appear to use the public latrines despite provisions for them. The design, particularly the entrance, inhibits use of the latrine by women. The entrances for men and women are in close proximity within clear view of each other. This arrangement does not suit the local cultural context well.

Most allottees of latrines start with a single pit latrine. Because of free distribution of latrine components most latrine users expect a second pit from the project. Most of them are not clear on what they would do if the second pit is not provided in time. Sufficient knowledge is not yet available with users and sometimes with the hygiene promoters on the functioning of the pit under various field conditions. This concerns factors that influence pit filling time, methods of emptying and safe disposal or reuse of the pit contents. Furthermore, the hygiene promoters suffer from a "technology fix." They are led to believe that latrines without water seals cannot be sanitary latrines⁶. This runs counter to the national campaign for sanitation that promotes "home-made" latrines as an acceptable sanitary option, thus this fallacious notion has to be dispelled. The "home-made" option comprises a pit, a bamboo platform with a hole and a cover for the hole.

⁶ Any system that prevents or interrupts the feco-oral transmission of diseases can be termed sanitary. By this definition sanplats, VIPs, and the "home-made" latrines are all acceptable sanitation options.

5.3 Drainage and solid waste

5.3.1 Drainage

Apart from the construction of 3.4 km of new drains which was left over from the previous phase of the project, some other unfinished works would be completed. The latter mostly concerned the outlet of the main sewers. In many cases these were supposed to end in stabilization ponds or large water bodies. But due to unavailability of land and, sometimes, budget constraints the waste water was often discharged untreated on agricultural land. In some cases the drains just ended in the middle of nowhere. In the field we noticed quite a few instances of environmental hazardous situations. So far, not much progress has been made in solving these serious problems. The project again mentions budget constraints as one of the problems, although in the budget amounts of Tk. 8.7 million (about Dfl 0.37 million) and Tk. 7.1 million (about Dfl 0.30 million) were included for respectively drain rehabilitation and construction of new drains. We feel that these problems should be finally solved as a matter of priority.

5.3.2 Sullage connections

Initially the number of new sullage connections in Phase III was low. Recently the speed has picked up considerably. The project has reported a total of about 3300 sullage connections that were made in the current Phase III by the end of December 1997. If the current pace continues, the project could achieve a total of about 7000 new sullage connections by the end of Phase III. This would cover roughly 10% of the population of the project towns. Assuming that this mostly concerns dwellings in the core areas where the problem of waste water disposal is the most pressing, this would be a significant achievement.

5.3.3 Solid waste

Initiatives to implement solid waste programmes with community involvement is a positive development. The hygiene promoters try to motivate the households in selected neighbourhoods to cooperate in a two tier system of waste collection. The households assume the responsibility for the waste collection within the neighbourhood by employing sweepers from their own funds, while the PCS collects the waste for disposal outside the towns.

At this moment 165 dustbins out of a target of 194 are constructed. The target will be increased to 284 in the revised Project Proforma.

We did not find any results yet of the promised desk study on solid waste and the subsequent field study. The current opportunity to improve knowledge of this sub-sector should not be lost. It might eventually help in creating or protecting income generating activities and preventing solid waste problems to develop in the same manner as experienced in Western countries.

5.4 Institutional development activities

In Phase III the project would strengthen the position of the PCS towards a higher degree of autonomy similar to the autonomy of the PWSS. This would include a by-law, separate accounting, additional staff, motivation and training of persons involved etc. However, not much has been achieved in this respect so far. No mention is made of the by-law in the recent progress reports. It must be assumed that not much lasting effects will be achieved from the efforts in strengthening the PCSs.

The project does not seek to establish permanent institutions for latrine delivery. It has done a commendable job in engaging and training NGOs and/or hygiene promoters to foster behavioural change for water and sanitation services. The activities of the hygiene promoters have had a positive effect on the sanitation component of the project. Their likely departure after the project will be a loss in very essential "software" capacity that is rare at the pourashava level.

The physical works for the sanitation component were implemented under the responsibility of the pourashavas, with DPHE in an advisory and supporting role. On the whole this new approach was successful and proves that pourashavas are quite capable to implement substantial quantities of work themselves.

6 REVIEW OF WATER SUPPLY ACTIVITIES

6.1 Institutional framework

The overall institutional framework was described in Chapter 2. As stated there, DPHE is responsible for development of water supply and sanitation for rural areas and small towns throughout the country. DPHE acts as a development agency: it plans, organizes and supervises the work. Studies, design work and construction are contracted to private parties. DPHE does not play any role in the functioning of water supply organizations or systems, neither supervisory nor operational or supporting.

In each pourashava the Water Supply and Drainage Section has to "provide or cause to be provided, to the municipality a supply of wholesome water sufficient for public and private purposes" (1977 pourashava ordinance). Under 18DTP, the set-up was modified to suit the needs of a self-supporting section and renamed Pourashava Water Supply Section (PWSS). Although until now the PWSS has not obtained a formal status, it appears that it is increasingly recognized by the major stakeholders as a new entity in the 18 towns of the project.

6.2 Physical works

6.2.1 Objectives and targets

The objectives and targets of the project, including those for water supply were mentioned in section 3.2.1. The number of the various facilities already provided under the previous phase and those to be provided under the current Phase III are shown in Table 6.1.

We remark that the additional 100 km pipeline in this table was included in the Project Document as maximum, provided that 50% of the cost would be financed by the pourashavas from their own sources. However, apparently pourashava could hardly afford this contribution, while additional pipelines are required to provide safe water in towns with arsenic problems. For this reason it was decided in the PICC meeting of July 1997 to reduce the own contribution to 20%.

Description	Unit	Target Phase II	Not completed by end 1995	Additional phase III	Target Phase III	
		(a)	(b)	(c)	Project Document ^{a)}	Proposed revision ^{b)}
					=(b)+(c)	
Rehabilitation:						
Hand tubewells	unit	3,393	1,318	-	1,318	4,124
Production wells	km	35	6	-	6	52
Pipelines	unit	140.4	85.4	-	85.4	114
House connections	unit	7,411	4,918	-	4,918	12,373
New Constructions:						
Hand tubewells	unit	3,625	631	1,784	2,415	5,257
Production wells	unit	42	9	10	19	60
Water treatment plants	unit	6	6	7	13	10
Water reservoirs	unit	6	4.75	7	11.75	11
Pipelines	km	195.5	90.5	100	190.5	276.4
Reticulation systems	km	143.6	96.1	35	131.1	135.2
Service connections ^{c)}	unit	17,114	7,422	7,984	15,406	10,995
PWSS offices	unit	18	5	-	5	18

^{a)} Only Phase III works from Dutch project aid.

^{b)} Total for all project phases from Dutch project aid. GoB also finances some works in addition.

^{c)} Targets for service connections are confusing. The projects aims at a total of about 25,000.

6.2.2 Progress of implementation

Progress in rehabilitation works as reported by 1 January 1998 was as under:

- hand tubewells 72% out of a total of 3,400;
- production tubewells completed by September 1997;
- pipelines 69% of total 140 km;
- service connections 56% of total 7,400 connections.

Apparently, still much work is to be done in the final period of the project.

Physical progress for new hand tubewells is shown in Figure 6.1. It appears that progress is constant and quite good. With the current pace the target will be easily achieved. As was

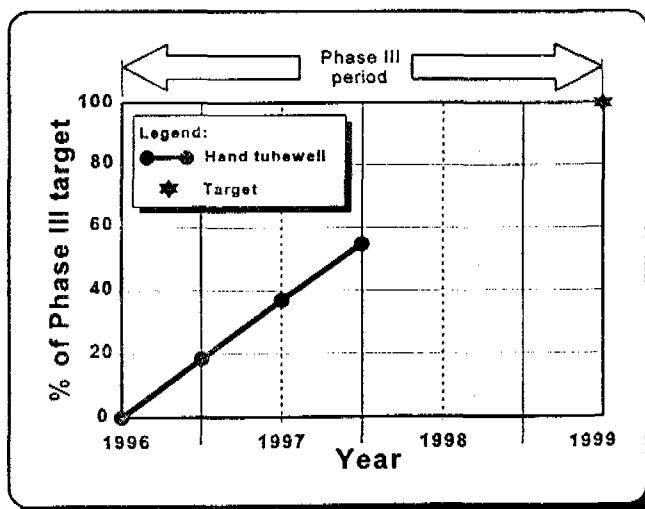


Figure 6.1 Progress of hand tubewells

shown in Table 3.1, the current revision of the Project Proforma will result in a somewhat lower target; the total number of hand tubewells to be installed under the project would thus become 5,100. Together with the hand tubewell already installed under other programmes, this would cover about 58% of the 1995 population.

As is shown in Figure 6.2 the targets for tubewells, main pipelines, and reticulation pipes will not be achieved if the pace of implementation does not substantially increase. The slow progress is a serious threat to the financial viability of the piped water systems. The target for pipelines shown in the figure is based on a total of 295.5 km to be completed in all

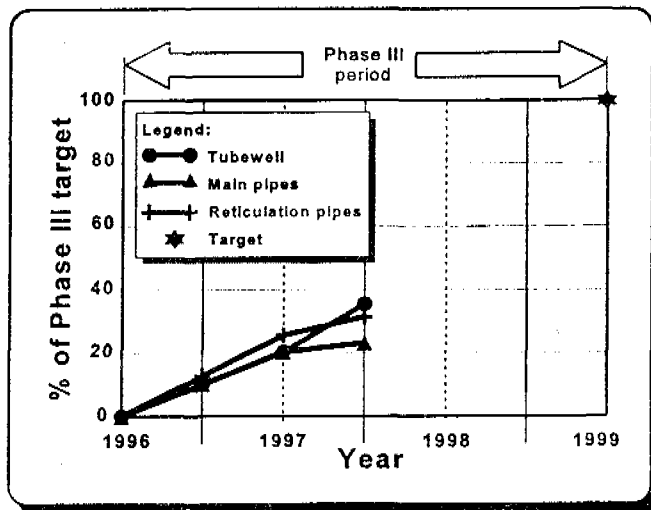


Figure 6.2 Progress of piped systems

phases of the project. In the draft revision of the Project Proforma this figure is reduced to 276.4 km. And this figure includes 55 km for which a contribution of 20% of the pourashavas is required but not yet available. The total length to be reached may thus be much less than assumed in Figure 6.2 and thus be more easily achievable.

Slow progress also characterises the installation of new service connections as can be derived from Figure 6.3. Of course, this is related to delays in the extension of the distribution network and the construction of treatment plants. Currently about 14,300 service connections are present, while the end of project target is 24,500. In case the target for service connections is not achieved, not only the coverage will not be reached. It might also affect the financial viability of the PWSSs.

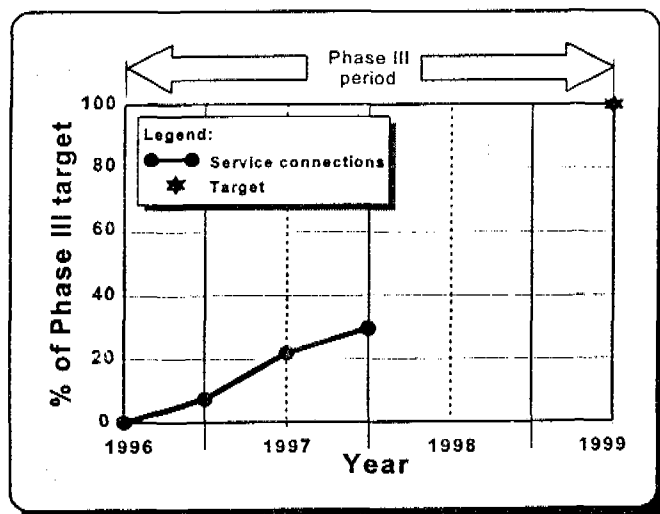


Figure 6.3 Progress of service connections

The target for street hydrants in the Project Document is approx. 30% of the population in the poorer areas. A number is not given. Currently there are in total 180 street hydrants in the 18 towns. The project intends to add another 110 to bring the total at 290. Street hydrants do not generate any income for the PWSS while often much water is wasted at these public facilities. For this reason the project has recently introduced a new design. This consists of a small ground reservoir which is filled from the pipe system through a float valve. On top of the reservoir a normal hand pump is fitted. In this manner, users will only draw the water they actually need.

In Table 6.2 the physical progress of the construction of the various treatment plants is listed.

Table 6.2 Progress implementation treatment plants			
	Physical progress		Remarks
	work started	work completed	
Borguna	-	-	
Joypurhat	-	-	
Lalmonirhat	-	-	Treatment possibly not required.
Manikganj	+	+	Start February 1996. Completed March 1998.
Meherpur	+	-	Work started early 1998.
Moulvibazar	+	-	Work started March 1997.
Naogaon-1	+	-	Start August 1996. About 80% progress.
Naogaon-2	+	-	Start April 1997. About 65% progress.
Satkhira-1	+	+	Start February 1996. Completed end 1997
Satkhira-2	+	-	Start June 1996. About 95% progress.
Sherpur	+	-	Work order issued December 1997

It appears that only 2 plants have been completed so far and that for 3 plants the work has not even started. Furthermore, it can be concluded that the average construction time for a treatment plant is about 2 years. This is in sharp contrast with the work plans which are less than one year. It must thus be assumed that works that have not yet started will not be completed before the end of the Phase III period (before 1 July 1999).

In Table 6.3 the physical progress of the construction of overhead tanks is shown. All overhead tanks have a volume of 450 m³ and so far where of an identical, rather traditional design. Recently the project has adopted a more aesthetic design.

Table 6.3 Progress implementation overhead tanks			
	Physical progress		Remarks
	work started	work completed	
Borguna ^{a)}	-	-	
Jhalokati	+	+	Completed early 1996.
Joypurhat	-	-	
Lalmोनirhat	-	-	
Manikganj	+	+	Start March 1996. Completed December 1997.
Meherpur	+	-	Work started early 1998
Moulvibazar	+	-	Start March 1997. About 25% progress
Naogaon-1	+	+	Start March 1996. Completed end 1997.
Naogaon-2	-	-	Test pile failed. Foundation redesigned.
Nilphamari	-	-	
Satkhira	+	-	Start June 1996. Only testing to be done.
Sherpur	+	-	Work order issued December 1997.

^{a)} Ground reservoir of 200 m³.

It appears that construction of overhead tanks is only slightly faster than treatment plants. Like for the water treatment plants, it must thus be assumed that works that have not yet started will not be completed before the end of the Phase III period. It concerns 4 overhead tanks and one ground reservoir.

6.2.3 Population coverage

In case the targets as set for Phase III and shown in Table 6.1 would be achieved, the water supply coverage would become as shown in Table 6.4. It should be noted that coverage is still expressed as a percentage of the 1995 population. However, the population in most towns has already well exceeded this figure, both as the result of growth of the population within the existing boundaries, and as the result of expansion of the pourashava boundaries.

Town	1995 population	House connections		Street hydrants		Hand tubewells		Total % of pop.
		number	% of pop.	number	% of pop.	number	% of pop.	
1 Borguna	25,900	1256	48	9	7	340	66	121
2 Bhola	40,600	2050	50	45	22	333	33	105
3 Jhalokati	39,700	2066	52	24	12	287	29	93
4 Joypurhat	45,800	700	15	0	0	976	85	101
5 Lalmonirhat	58,400	1231	21	5	2	635	54	77
6 Magura	43,400	636	15	9	4	960	66	85
7 Manikganj	50,800	813	16	17	7	1172	69	92
8 Meherpur	27,500	1273	46	15	11	401	58	116
9 Moulvibazar	40,200	1637	41	13	6	309	38	86
10 Naogaon	124,000	3626	29	34	5	1252	50	85
11 Narail	32,200	250	8	8	5	697	65	78
12 Netrokona	45,200	1653	37	36	16	581	51	104
13 Nilphamari	40,100	703	18	7	3	766	76	97
14 Panchagarh	37,800	645	17	5	3	1047	83	103
15 Satkhira	84,300	3467	41	19	5	1051	62	108
16 Shariatpur	36,400	359	10	15	8	521	72	90
17 Sherpur	68,100	1716	25	16	5	1175	69	99
18 Thakurgaon	43,300	1017	23	13	6	379	44	73
Total / average	883,700	25,098	28	290	7	12,882	59	94

In this table, the percentage of population covered by the various facilities is based on the following assumptions:

- each house connection serves on average 10 persons;
- each street hydrant serves on average 200 persons;
- a hand tubewell serves between 30 and 50 persons.

It is remarked that the numbers of hand tubewells shown include those that were installed under other programmes. Private hand tubewells are not included.

From Table 6.4 it appears that when all planned works are completed, the coverage will be on average 94%, which is well above of the target of 75%. Given the fact that the current population is already considerably larger than shown in the table, this "spare capacity" is probably quite welcome. There are considerable differences between the various towns, with one town remaining just below the target: Thakurgaon. The slight reduction in the number of hand tubewells as foreseen in the draft

revision of the Project Proforma will have only a small effect: the average coverage will reduce from 94% to 93%.

6.2.4 Water quality and water treatment

In nearly all towns adequate quantities of ground water are available for the supply of drinking water. In several cases the quality of the groundwater requires treatment before it is suitable for piped supplies. In the previous project phase it was initially foreseen that in only 3 towns iron removal plants would be required (total 5 plants). However, it appeared that in more towns the iron content caused problems. Even with relatively modest iron contents, the customers of the piped systems complained about the quality and were not prepared to pay a price which would cover the cost of the service. It appeared that improving the quality by installing iron removal plants would improve the service level to the extent that customers were willing to pay the full increased cost. This was considered essential since the aim was to make the PWSSs financially viable.

Therefore, the 1994 evaluation recommended to allow iron removal plants for the piped systems in all towns where the iron content of the groundwater was above 1 mg/l under the condition that pourashavas would meet certain performance criteria. This resulted in a target for Phase III of iron removal plants in a maximum of 10 towns (total maximum 12 plants). More detailed investigations during Phase III have now shown that the iron content of the groundwater in 8 towns is significantly above 1 mg/l.

In Borguna it was already recognized in the previous project phase that depletion of the fresh groundwater would result in salinisation of the aquifer. Therefore it was decided to use surface water during the time of the year that it is suitable for treatment.

By the end of the previous project phase it had become clear that in some places in Bangladesh the arsenic content of the groundwater was too high. The project had already found in one of the project towns (Meherpur) an arsenic level above 50 $\mu\text{g/l}$, which is considered the maximum allowable level. More recently it has become clear that the problem of arsenic pollution in Bangladesh is probably more widespread than originally supposed. Subsequently, extensive tests were carried out of the arsenic content in the groundwater in the project towns. According to the latest information, in 4 project towns the content is above 50 $\mu\text{g/l}$.

Table 6.5 summarizes the water quality problems in the various towns and shows which treatment for the piped water supplies is planned. Since decisions on water treatment were reviewed from time to time, Table 6.5 shows the plans as they were at the time of our review.

Town	Water quality problem				Planned treatment for piped water system
	Salinity	Iron	Arsenic	CO ₂	
1 Borguna	+				Surface water treatment
2 Bhola					
3 Jhalokati					
4 Joypurhat		+			Iron removal
5 Lalmonirhat		+ ^{a)}			Iron removal
6 Magura			^{b)}		
7 Manikganj		+	+		Iron & arsenic removal
8 Meherpur		+	+		Iron & arsenic removal
9 Moulvibazar				+	CO ₂ stripping
10 Naogaon		+			Iron removal (2 plants)
11 Narail		+	+		^{c)}
12 Netrokona					
13 Nilphamari					
14 Panchagarh		+			^{d)}
15 Satkhira		+	+		Iron & arsenic removal (2 plants)
16 Shariatpur					
17 Sherpur		+			Iron removal
18 Thakurgaon					

^{a)} Sites with low iron were found but at locations not acceptable to the project.

^{b)} Excess arsenic was found in hand tubewells.

^{c)} No provisions were made in the Project Proforma for treatment.

^{d)} Water with low iron content was not found. The Project Proforma has no provision for treatment.

Arsenic removal is expected to be achieved by the plants that were initially designed for iron removal. First results show that about 70% removal of arsenic may be possible. Since the sludge from filter backwashing contains dangerous levels of arsenic, provisions are made to store the sludge until ways and means for safe disposal are found. With time and budget running out, the project has not been able to find solutions for the water quality problems in Narail and Panchagarh. Also in Magura the ground water quality may make treatment of the piped water desirable.

For hand tubewells giving water with high arsenic content, no easy solution is available. In those areas where the pipe network is available or which can be easily reached by the network, the use of street hydrants and house connections can be

promoted. For this reason the project now slows down the installation of hand tubewells in the five towns with arsenic problems. In the mean time a large scale national project for arsenic mitigation is launched with assistance of the World Bank. The project is expected to adopt a two-pronged strategy to alleviate the impact of arsenic contamination: (i) collection of basic information and emergency actions in rural areas and (ii) development of institutional capacity and implementation of sustainable solutions.

6.3 Institutional development activities

6.3.1 Objectives and targets

Development of a sustainable institutional capacity is one of the long term objectives of the project. The short term objectives include the setting up of institutional structures for water supply within the pourashava. According to the Project Document for Phase III this would be mainly pursued through strengthening of the PWSSs, organizationally, financially and legally.

6.3.2 Organization and staffing of the PWSS

The project has defined the organizational structure and staffing of the PWSSs in the proposed draft by-law. Most PWSSs are now staffed accordingly. However, without the status of the PWSSs being officially recognized, most of the current staff does not have a permanent position; many are employed on a daily basis. The present situation is an impediment for sustainability.

We noticed during our field visit that Supervisory Boards are set up in accordance with the proposed by-law. They meet regularly, with the pourashava chairman having a dominant position.

We found that the functioning of the PWSSs was much stimulated by the competition organised by the project. Every two months (previously monthly) the performances of the 18 PWSSs are compared based on a number of indicators. The scoring is made public and the winner is rewarded. During our field visit we noticed that this competition was taken quite serious by the staff of the PWSSs.

6.3.3 Legal position of the PWSS

Already early in the previous phase of the project, a start was made with drafting a by-law for the PWSS and getting the same approved. The by-law would confirm the status of the PWSS as a new entity within the pourashava structure and make it independent in terms of financial management, staffing and its relations with its customers. The PWSS would be fully responsible for the piped water supply and would also take care of the repair of hand tubewells to the extent that the users are not able to do this. Installation of new hand tubewells and replacement of existing hand tubewells would remain the responsibility of the pourashava.

In the current Phase III, the project succeeded in having draft by-laws accepted by all pourashava councils and having these submitted to the Ministry of Local Government, Rural Development and Cooperatives for approval. From there they went to the Ministry of Law Affairs for vetting. From a first, unofficial reaction it is understood, that the Ministry of Law Affairs would revise the draft in a manner that much of the essential aspects would be lost. The project will now attempt to get into direct contact with the Ministry of Law, in order to find ways to reach an acceptable solution. In this it finds support from Danida that is pursuing a similar course.

We consider the confirmation of the position of the PWSSs of crucial importance for the sustainability of these organizations. However, in case full confirmation of this position by means of a by-law is not achievable, the project should try to find other, feasible means to cover (parts) of the requirements such as rules, administrative orders etc.

6.3.4 Financial management

Already in the previous project phase, separate accounts were set up for the PWSSs which were operated jointly by the pourashava chairman and DPHE. At that time it was expected that the water part of the holding tax received by the pourashava would be deposited in this account. Since this approach did not really work, it was discontinued in the current Phase III. Although the PWSS would continue to do the minimum needed repair work on hand tubewells from money earned from the piped water system, investments in hand pumps now have to be borne by the pourashava. The account is used for the implementation of category C works.

Recently it was decided that the PWSSs should have their own accounts for the recurrent income and expenditures of the piped water systems. These accounts are

now opened in nearly all towns and are operated jointly by the PWSS superintendent and the pourashava chairman.

A number of PWSSs now also cover the cost of depreciation of assets in part or in full. This surplus money is deposited in a special account until such times that it is needed for major repairs, replacements or investments in extensions. Separate depreciation accounts are now opened in 8 towns and are jointly operated by PWSS superintendent and the pourashava chairman. In the mean time, there is a risk that this money, seemingly laying idle in the bank, is used for other purposes in the always cash-strapped pourashavas⁷. Measures should be taken to avoid this. Furthermore, the project should train and guide the PWSSs in the proper use of this money.

The project has introduced double entry bookkeeping system for the PWSS. Although this deviates from the single entry system used throughout the government organization, it appears to function well. This is partly because the PWSS accountants were well trained by the project, both off the job and on the job. But also because candidates educated in commercial accounting methods are rather easy to find for these jobs. In any case, the accounting systems chosen by the project clearly supports the commercial approach of the PWSSs.

The collection efficiency of bills is a suitable indicator for the quality of the financial management of a PWSS. In the FY 96/97 the collection efficiency of the individual PWSSs ranged from 70% to 126%, with the average being 92%. Although this is quite a positive achievement, accounts receivable thus keep increasing. By the end of FY 96/97 collective accounts receivable were Tk. 7.3 million, or about 6 months worth of billing. Particularly government organizations appear to have poor payment discipline. Also, it is not always easy to enforce private consumers to pay their bills. The ultimate measure would be disconnection which can be politically sensitive.

6.3.5 Financial situation of the PWSS

The future sustainability of the PWSSs depends to a large extent on their financial viability. The project has always put a strong emphasis on this aspect and many of its activities were aimed at improving the financial position of the PWSSs. For this the term no loss operation was introduced. As stated earlier, the idea of generating income from the holding tax was given up in Phase III. The income of the PWSSs now depends solely on the sale of water from the piped systems. This results in a commercially sound situation that the PWSSs have to offer a marketable product, i.e.

⁷ During our field trip we found instances where the depreciation account holds Tk. 0.8 million and Tk. 1.0 million. These are substantial amounts for towns that typically have annual development budgets of about Tk 20 million.

water of good quality with adequate pressure, for which the consumers who can afford it are willing to pay a reasonable price. We note that the commercial approach may have a negative effect on the motivation of the PWSS to keep street hydrants in operation, let alone to increase their numbers.

The income depends on the number of house connections and other service connections and the level of the monthly flat rate that is charged for these connections. For the latter the monthly rate for a ½" house connection is usually taken as an indicator. This rate currently varies between Tk. 40 and Tk. 100 per month, which is a considerable increase compared with the situation only a few years ago. For larger diameter connections and for non-domestic connections the rates are progressively higher. At this moment nearly all towns are able to recover operation and maintenance costs. However, in the near future in many towns treatment plants with high operational costs will start functioning. Furthermore, the project aims at also covering (part of) the depreciation costs. At this moment already 8 towns are able to generate surplus income for this purpose.

More private connections will thus have to be "sold". At the same time, the average rate for ½" house connections would have to increase from the present Tk. 102 per month to Tk. 125 per month to cover operation and maintenance costs according to estimates of the project. To cover the full depreciation costs, the average rate for ½" connections would have to increase to Tk. 164 per month. In Table 6.6 the progress in the number of service connections and rates is shown for the individual towns in comparison with targets of the project.

Town	Number of connections			Rate for ½" domestic connection				
	Actual ¹⁾	Target	% achieved	Actual ¹⁾ (Tk. per month)	Target (Tk. per month)		% achieved	
					O&M coverage	full coverage	O&M coverage	full coverage
1 Borguna	413	1500	28	80	105	165	76	48
2 Bhola	1298	1600	81	100	100	100	100	100
3 Jhalokati	1541	1900	81	100	100	100	100	100
4 Joypurhat	455	800	57	75	150	210	50	36
5 Lalmonirhat	758	1000	76	60	130	200	46	30
6 Magura	1092	1500	73	100	100	100	100	100
7 Manikganj	1059	1600	66	40	80	110	50	36
8 Meherpur	746	1500	50	60	85	130	71	46
9 Moulvibazar	666	1200	56	100	100	130	100	77
10 Naogaon	2042	3000	68	85	85	100	100	85
11 Narail	477	600	80	100	100	130	100	77
12 Netrokona	727	1300	56	40	65	80	62	50
13 Nilphamari	331	600	55	100	130	210	77	48
14 Panchagarh	25	500	5	100	180	225	56	44
15 Satkhira	895	1700	53	90	90	130	100	69
16 Shariatpur	364	800	46	100	100	130	100	77
17 Sherpur	434	1300	33	100	130	190	77	53
18 Thakurgaon	906	1500	60	80	80	80	100	100
Total / average	14229	23900	60	84	106	140	79	60

¹⁾ Per 1 January 1998.

It is expected that in all towns but one the operation and maintenance costs can eventually be recovered as a minimum. Covering (a substantial part of) the cost of depreciation may eventually not be possible in about one-third of the towns. Nevertheless, we are of the opinion that the project has made excellent progress in establishing the financial viability of the piped water systems in general. With further improvements in service levels (water quality, pressure, coverage of the piped system) still being realised, there is a realistic possibility that the targeted substantial increases in the number of connections and in rates will prove feasible.

The project has not yet made provisions or arrangements for the situation where the operation and maintenance costs cannot be paid from the income generated by the PWSS. Furthermore, the project should eventually develop ideas about the way in

which towns that cannot earn surplus money, will finance future replacements or new investments.

6.3.6 Service hours

The target of the project is 12 supply hours per day for all piped systems. In the majority of the towns this is already achieved. Two towns were selected in Phase III as a pilot for 24 hours supply: Jhalokati and Satkhira. In both towns water meters are installed in the service connections after the pipes are cleaned. Installation of water meters is done in Jhalokati and 24 hours supply has recently started. The flat rate billing system is modified to a consumption based tariff system. The remaining time in the project is not sufficient for the 2 year envisaged test period.

7 PHASING OUT OF TECHNICAL AND FINANCIAL ASSISTANCE ACTIVITIES

7.1 introduction

The Terms of Reference for the review required us to assess which activities could still be undertaken before the end of the project on 30 June 1999 and which follow-up activities, if any, would be needed thereafter. We noted that the minutes of the PICC meeting of July 1997 state that "the PP for this project shall not be extended beyond June 1999 under any circumstances."

7.2 Summary of required remaining activities

In order to achieve adequate coverage and acceptable service levels the following physical works would still be required:

1. Increasing the number of latrines from the current 41,000 to the (new) target of 48,000.
2. Installation of a further 944 hand tubewells to reach the (new) target of 5,101.
3. Installation of 24 production tubewells to reach the (new) target of 60.
4. Completion of the planned rehabilitation of existing pipelines and the installation of new main pipelines and reticulation pipes. This will enable the target for private connections to be achieved and is particularly important in the towns with arsenic problems.
5. Completion of all 11 treatment plants as planned (see Table 6.3). These are required to provide an adequate service level in terms of water quality. An adequate service level is considered an essential pre-condition for the financial viability of the piped water systems. A possible exception is the treatment plant of Lalmonirhat where acceptable locations with good groundwater can probably still be found.
6. Completion of the planned overhead tanks. Where these are combined with treatment plants they are essential for providing back-wash water. In the few remaining cases they are less critical, but could enhance the service level since they would enable longer uninterrupted service hours.
7. Achieving the target of about 24,500 service connections on the piped systems, which requires an additional 10,000 still to be made. This will enhance the financial viability of the piped systems and has now become even more important in those towns with arsenic problems. However, achieving this target requires good service levels, i.e. completion of the treatment plants.

8. Achieving the modest target of 290 street hydrants. Particularly in towns with arsenic problems these would provide a safe source for those who cannot afford a house connection. In those towns the current target should be considered as a minimum.

New physical works will require assistance of the project in recruitment and training of new staff for operation and maintenance. Furthermore, provision of a legal framework, possibly by means of the proposed by-law, is required as a critical pre-condition for sustainability of the PWSSs.

It is now becoming clear that the water quality Narail and Panchagarh (and possibly Magura) may not meet minimum standards without treatment. Unfortunately, the remaining time and budget preclude the solving these problems within the current project. Possibly, Panchagarh can be taken up in the coming LGED project, while Narail and Magura might be included in the World Bank assisted mitigation project. Otherwise these problems could be taken up as an element of the post-project activities (see section 7.5).

Many pourashavas are developing rapidly, and often show considerable growth in population. This creates new demand for water supply, sanitary latrines and hygiene education. It is neither possible nor necessary for the project to address these continued new demands. The pourashavas should continue the low cost latrine programmes and construction of HTWs with financial contributions of the users according to their ability. Hygiene education to the poorer sections of the communities should continue to be provided. Extension of the piped systems can in many cases be undertaken by the PWSSs with their own means.

7.3 Realisation of required activities

A third revision of the Project Proforma is currently under preparation. The draft document which was available during our review, includes the required physical works as mentioned in the previous section. The remaining RPA funds would be completely absorbed by these works according to estimates by the Advisory Team. We are satisfied that the Advisory Team has a good grasp of the current financial situation and of commitments already made.

Reaching the targets for latrines and hand tubewells before the end of the Phase III period should not pose problems. Also achieving the targets for installation of new production tubewells and for rehabilitation and installation of new pipes are

considered possible, be it with less certainty. It requires speeding up of the current pace of implementation.

However, the time till the end of the project will almost certainly be too short to complete the treatment plants of which the construction has just started (Meherpur and Sherpur), or is still to start (Borguna, Joypurhat and possibly Lalmonirhat). The same applies to the overhead tanks for which construction still has to start (Joypurhat, Lalmonirhat, Naogaon-2 and Nilphamari). It must be assumed that these works will not be completed by the end of the current project period.

Non-completion of these works will have a negative effect on the financial viability of the piped water systems in the towns concerned, and thus their sustainability. Therefore, the project should make every effort to speed up the in order to maximise achievements in the remaining period. However, past experience has shown that efforts to speed up the work of DPHE have not been successful. Therefore, we suggest that the PICC is mobilized to play a more active role in the coming period to remove bottlenecks and to take critical decisions. The Project Director and Team Leader will have the challenging task to provide the PICC with the concise information needed for its members to function effectively.

7.4 Transfer of assets

All assets created under the project should be transferred to the pourashava or the PWSS before the end of the project. This was confirmed in the PICC meeting of July 1997. This is not expected to create particular problems.

7.5 Proposed post-project activities

Sustainability and effectivity of the outputs of the project would be enhanced with a limited input of Technical Assistance to the pourashavas for some time after the project. It would concern institutional development activities with a duration of about 3 years. The main objectives of these activities will be:

- a. Ensuring sustainability of the piped water systems by providing institutional support and guidance to the PWSSs. Assistance in setting up regional networks or a national association of PWSSs could be part of this activity. Furthermore, promotion for service connections might be stimulated.

- b. Consolidating the achievements of hygiene education (with special emphasis on the school programme). At the same time permanent positions can be sought for the hygiene promoters.
- c. Completing the experiment with 24 hours metered supply in Satkhira and Jhalokati.
- d. Possibly assisting in finding solutions for the water quality problems in Narail, Panchagarh and Magura.
- e. Monitoring the impact and performance of the various project components.
- f. Supporting and guiding possible privatization initiatives in the water supply and sanitation sector in the pourashavas.

The staffing during the post-project period would be much reduced compared to the current staffing. Where identical positions are retained, we recommend that continuity in staffing will be ensured as much as possible in order to prevent "re-inventing the wheel". The post-project programme should be set up in such a manner that activities taper off towards the end of the period.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 introduction

Support to the 18 District Towns Project (18DTP) by the Government of the Netherlands started in 1989. Currently Phase III, which started in July 1996 and will expire in June 1999, is more than half way. This is the final phase of the project, which, at the time it expires, will have run for 10 years.

This chapter presents our conclusions and recommendations concerning the review of the 18DTP.

8.2 General

C The total available budget of Reimbursable Project Aid (RPA) for Phase III is Dfl 20.8 million (about Tk. 490 million). This includes Dfl 4.5 million which is still being spent from Phase II funds, which was not the intention. By the end of 1997 (half way Phase III) only about 30% of the RPA budget was absorbed. If the current slow pace of implementation continues, about 40% of the available RPA budget will not be absorbed before the project expires mid 1999.

C The Project Proforma (PP) is currently under revision. The revised PP would ensure complete absorption of the available RPA budget and achievement of the physical targets of the project. The following issues still need to be arranged:

- A solution is still to be found for the contribution by the pourashavas for part of the additional distribution pipelines (see section 6 on water supply below);
- We propose not to construct an iron removal plant in Lalmonirhat. The funds that would have been required for this iron removal plant can now be used for completion of drains in several towns, including Lalmonirhat.

R Final approval on the revised PP should be obtained as a matter of urgency, and corresponding modification of the current ADP be made as early as possible.

C In most pourashavas visited by us, assets are handed over by DPHE as soon as they are completed. This is done through an exchange of notes, and poses no specific problems.

R The advisory team should make sure that by the end of the project all completed assets are handed over to the pourashavas. A complete set of

copies of the relevant documents should be annexed to the end of project report.

C Users now perceive the HTWs and latrines installed under the project to be owned by the pourashava. However, the latter should not be seen anymore by the users as the institute responsible for the maintenance of these facilities.

R The pourashavas should officially transfer the ownership of latrines and HTWs to the users. Since the new owners will mostly be women, this will enhance their empowerment. A special ceremony may be useful to symbolize this transfer and to clarify the rights and responsibilities of the owners for maintenance and repair.

C During our field visit we noticed that the quality of the physical works ranged from acceptable to good. We are of the opinion that the current procedures for quality control are adequate.

C The project was set-up with a strong institutional development component at the pourashava level. This has been quite successful for the piped water supply systems.

R At the end of the project a systematic assessment should be made of the methods used in the project and the results achieved. Lessons learned should be documented and the replicability evaluated. It should be considered to have this done under the responsibility and with the cooperation of an outside party. The UNDP / World Bank Water and Sanitation Program would be an logical candidate for such an assignment. It has tentatively expressed its willingness to undertake the job when requested.

8.3 Hygiene education

C The objectives of the hygiene education program of the project are being achieved to a large extent. The hygiene promoters under the project have succeeded in creating hygiene awareness and to some extent changes in behaviour among the users of latrines, HTWs and piped water supply. Since most of the targeted latrines have been installed, the hygiene promoters are now mainly engaged in post installation visits.

R It is recommended to provide hygiene education to all inhabitants of the pourashava.

- C The hygiene promoters are not always engaged by an NGO; in many towns they are now working directly under the chairman. Due to the absence of established NGOs in the hygiene education program, future sustainability of the program is uncertain. An institutional framework for effective hygiene education activities was not part of the project and was thus not developed. Continued support by the chairmen of the hygiene promoters is important.
- C The primary school hygiene education program was developed and successfully conducted by the project for the 18 towns. Linkages with national level organizations involved in school hygiene education could not be made. Further efforts to seek co-operation with the Bureau of Health Education, Family Planning Health project are not useful.
 - R The existing school education programme should continue for the duration of the project, and linkages with programmes such as UNICEF or World Bank sought.
- C There is no educational material to be given to the children in the school hygiene education programmes. Sufficient educational materials are not available for the teachers and the hygiene workers.
 - R More educational materials should be distributed to the children (e.g. stickers) and teachers (course books). Such materials may also be obtained from non-project sources (e.g. NGO-Forum, UNICEF etc.).
- C All the pourashavas are maintaining the EPI programme and incur some costs. There is no linkage between the EPI workers and the hygiene promoters of the project, although some messages are complementary.
 - R During the remaining period of the project the chairmen should take the lead in establishing linkages between the EPI and hygiene promoters. Linkages could be established by exchanging educational materials, joining in different educational and motivational programmes and meetings and sharing experiences.
- C Until now there was no impact assessment done from the project of the change in behaviour among the target groups regarding hygiene education. Such assessment is recently being undertaken by the project.

8.4 Sanitation

- C The project provides free latrine components for selected beneficiaries to install. Beneficiaries generally appreciate the sanitary latrines. The project has delivered only one type of pit latrine despite the fact that the national campaign promotes a range of latrine options which are available in the market.
- C Although it always has been the intention of the project to provide material for 2 pits, for practical reasons the project started with direct single pit latrines, for which 5 rings and the slab-cum-pan are provided. The project gives an understanding that a second set of 5 rings and a blind slab will be available when the first pit fills up. The project does not have adequate budget to provide a second pit to all those who received latrines earlier. Neither does the site of the first pit always allow installation of a second pit.
- R Free delivery of latrine components should be discouraged. The second pit should go only to those who demand it, whose pits have filled up and are willing to contribute significantly to its cost, for example Tk. 200 per family if they can afford it. The project should allocate sufficient funds to fully cover this demand during the remainder of the project period. The income from the contribution should be set aside in a separate account for future hygiene promotion activities.
- C Sanitary latrines built under the project are generally used and are in reasonable or good condition. The project has completed nearly 90% of the latrines planned. With these latrines in place, the average coverage in the project towns with sanitary latrines has reached already about 70%. We assume that half of the latrines that the project considers unsanitary, may be considered sanitary according to more usual definitions⁸. The pourashava chairmen and hygiene promoters still report a high demand for free latrines.
- R The project should complete its target of 48,000 latrines but not more.
- C The project's latrine users expect the second pit to be provided by project. Many of the latrine users do not have sufficient knowledge on the functioning of the pit and what to do in the absence of a second pit.
- R The project's hygiene promoters should give the prospective and current owners of project latrines a clear idea on the range of alternatives in the absence of a second pit.

⁸

The project only considers latrines with water seals sanitary. However, usually also other types are considered sanitary. Thus the coverage with sanitary latrines will easily reach the target.

- C The hygiene promoters are hard working and dedicated. They, however, do not have a clear conception of a sanitary latrine. They are trapped in a "technology fix" and are unable to improvise in response to specific site conditions.
- R The project should re-orient the hygiene promoters:
- to dispel the "technology fix";
 - acquaint them on the total range of technology options and their availability in the market;
 - give them sufficient knowledge on functioning of the pit under various site conditions and improvisations as necessary.
- C It is commendable that pourashavas lease out public latrines. However, the designs of the latrines inhibit women from using the facilities since the entries do not provide sufficient privacy.
- R The project should continue to encourage pourashavas to develop commercially run public latrines.
- R The project should ensure that the design facilitates access for women.
- C Drains are generally not clean enough for adequate functioning. The situation with respect to solid waste collection and disposal in some core areas is not adequate and the subject is not really taken up in the project. Both facts result in continued unhygienic conditions. This is partly due to the fact that less emphasis was given to hygiene education programmes in the core areas.
- R We recommend that the project continues to emphasize the importance of cleaning drains and removing solid waste.
- R More campaigns and target group based hygiene education programmes are to be conducted in the core area with full participation of the chairman. Subjects should include uncontrolled waste dumping resulting in clogging of drains.
- C The drainage component did not have much impact on the overall cleanliness of the pourashavas. Some outfalls have not yet been completed. Some pourashavas are trying to involve communities in primary collection of solid wastes. Solid waste disposal is an insignificant component of the project, though the subject is important for achieving health improvement.
- R The drainage outfall completion should be pursued.
- R The project should actively support community involvement in solid waste collection and encourage further pourashava-community-private partnerships in solid waste management.
- C Provision of sullage connections to drains was not very successful.

- R Sullage connections for households where waste water cannot be disposed on-site should continue to be promoted.

8.5 Water supply

- C On average the coverage by piped systems and hand tubewells that will be achieved upon completion of the works as included in the revised PP, will be 94% of the 1995 population on average for the 18 towns. However, the individual towns will have coverages between 73% and 121%. Coverage figures do not take into account the sometimes large numbers of private handpumps.
- C Arsenic pollution of ground water in Bangladesh is seems to be on the rise and is possibly already threatening the health of a large number of inhabitants of the country. A large scale national project for arsenic mitigation is launched with assistance of the World Bank.
- C In 4 of the project towns (Manikganj, Meherpur, Narail and Satkhira), the arsenic content of the groundwater used for the piped systems is above the maximum allowable level 50 $\mu\text{g/l}$. In 3 of these towns, treatment plants for the piped systems are expected to reduce the arsenic content to acceptable levels. However, in Narail no treatment is planned. Also in Magura, where the arsenic content is quite elevated but still below the maximum allowable limit, no treatment plant is planned. In Panchagarh ground water with a low iron content could not be found. However, the project has no provisions for an iron removal plant in this town. Unfortunately, the remaining time and budget do not allow to find solutions for the water quality problems in these towns. Narail and Magura could be included in the World Bank assisted arsenic mitigation project. For Panchagarh, the project has already brought the problem to the attention of the consultant involved in the coming LGED project that will cover the town.
 - R We recommend to consider the water quality problems in Narail, Magura and Panchagarh as an element of the proposed post-project in case no other solution is already found (see also section 8.8).
 - R We recommend in that the towns with arsenic problems in hand tubewell water, the project continues with its present approach to limit the number of new hand tubewells, and maximise the use of (safe) piped water.
- C The proposed revision of the Project Proforma includes laying of 80 km of pipelines above the original target of the project, without any contribution by the pourashavas. However, according to the Project Document this additional work

would require a contribution of 50% by the pourashavas. In the PICC meeting of July 1997 it was decided to reduce this contribution to 20%.

R We recommend that the 37.5 km pipelines to be laid in 1997 / 98 will be fully financed from project funds.

R We strongly recommend that the agreed contribution by the pourashavas / PWSS is arranged for the 55 km additional pipelines planned to be laid in 1998 / 99, before laying of additional distribution pipelines is allowed.

C Street hydrants are rather neglected by the PWSSs, mostly because they do not generate any income. They now only serve about 4% of the population. Given the emphasis on profitable operation of the PWSSs, this situation is not expected to improve without external pressure. Group taps, which would at least generate some income while serving the poorer sections of the community, seemed not to be much in demand. However, in the Danida project they appeared to be rather successful.

R The project should continue to promote street hydrants. The "modified design" appears to be more acceptable, since it will show little wastage. (We note that the design of the reservoir with a brick wall has the risk of intrusion of polluted ground or surface water in case the reservoir is placed partly underground.)

R Street hydrants may have to be particularly promoted in those places where water from the HTWs has too high arsenic content. Possibly they could be adapted and leased out as "water kiosks", where people can buy small quantities of water for drinking and cooking.

R The application of group taps should still be considered by the project.

C We consider an appropriate legal framework to be essential for safeguarding the status as already achieved and for enabling the further development of the PWSSs within the pourashava structure. The by-law as proposed by the project would provide such framework. However, also other means, such as rules, administrative orders etc., could be applied for this purpose. The draft by-law as issued by the Ministry of Law does not adequately fulfil the requirements.

R The following aspects should be covered by the legal framework as a minimum:

- Organization and status of the PWSS;
- Supervisory Board as policy making body without executive powers;
- Responsibilities and powers of PWSS superintendent;
- Separate commercial accounting system with assets and liabilities, and (annual) budgets;

- Staffing according to work load, and remuneration as per qualification and skill;
 - Customer oriented approach;
 - No loss operation.
- R Ways and means should be explored to realize such legal framework. This should preferably be done in a workshop attended by all parties involved. Additionally, it should be considered whether an informal discussion between the project and the Ministry of Law would help to clarify whether further improvements of the draft by-law are feasible.
- R The by-law and possible other means should be finalized at the shortest possible notice. We consider this matter to be crucial for the sustainability of the piped water systems and should thus be resolved before the end of the project. The Royal Netherlands Embassy should support this effort, in cooperation with other donors with similar interest, such as Danida.
- C We feel that in most cases the chairman would not object to the delegation of authority to the supervisory board and superintendent of the PWSS that the by-law as proposed by the project entails.
- C The need for the PWSSs to reserve money for future investments is now generally accepted and such funds now start to accumulate. There is a risk that depreciation funds accumulated in the account of the PWSS will be diverted for other purposes.
- R We recommend that the Ministry issues an administrative order stating that depreciation funds may only be used for major repairs and capital investments.
- C Currently the position of the accountant in the PWSS is not a sanctioned post in the pourashava structure. In the pourashavas only the PWSSs are found to be earning a surplus. No pourashava has yet introduced a double entry accounting system in any other functional area, nor prepared annual financial statements based on commercial principles.
- R The position of the accountant in the PWSS should be sanctioned by the Ministry, so that the commercial accounting system is maintained.
- C Currently the situation with respect to construction and maintenance / repair of HTWs is different in the various pourashavas that we visited.
- R Construction of new HTWs should not be the task of the PWSS. We recommend that major repairs are undertaken by the PWSS (against a fee) to the extent that the caretakers are not able to do this. Spare parts should be

provided by the users; where this is not possible, the pourashava should provide them.

C The experiment with 24 hours metered supply in Satkhira and Jhalokati has only just started, but already looks promising.

R The experiment should be continued as originally planned. Eventually, the results should be carefully assessed and reported.

C Financial viability of the piped water systems is already achieved in most of the project towns, and will likely be proven in the remainder of the project period for nearly all project towns. We consider this an excellent achievement of the project which could encourage other projects.

R We recommend that the project produces an article on the subject of financial viability with audited / certified financial data. The article to be published in a recognized international publication.

8.6 Community participation

C Community participation in the 18DTP was conceptualised as a tool for achieving sustainability of the water supply and sanitation facilities, not as an end in itself. The involvement of the users, especially women, in the preparation, implementation and in the functioning of the facilities was realized and effective. It contributed to the effectiveness and efficiency of the project.

R The pourashava should continue this type of activity as a permanent task within their organization. For this purpose they could employ the trained female health promoters (see also section 8.8 below).

C The nature of community participation in the towns is different for the community based facilities such as latrines, handpumps on the one hand and for the contractor-built piped water systems on the other hand. In the case of community based facilities, users are involved in all stages of the project cycle especially during implementation. In the piped water systems, the role of the user is limited to one of consumer. In the latter case, the hygiene promoters act more as marketing and public relation agents with the objectives to create demand for domestic connections and to prevent wastage of water. In both cases, the need for community participation remains important.

R For the further organizational development of the pourashavas, a distinction can be made in the job definition and job requirement for the "hygiene promoters" for the community based facilities and the "hygiene promoters"

for the piped water systems. Job orientation and training for these functions are also different.

C The organization of the community participation was undertaken by the NGOs and the WSSCs. The NGOs were paid for this activity by the project while the WSSC is basically a voluntary activity and do not have any facilities. With the project in its 9th year, still the WSSCs are not functioning well. They do not follow any work plans, often meet irregularly and usually do not have a clear understanding of their tasks. Also, their activities overlap with those of the health promoters.

R We recommend to discontinue the support of the WSSCs due to their low performance which is caused by their unclear task, a mixture of representative, supervisory and executing activities in the field of hygiene education.

8.7 Phasing out of technical and financial assistance

C The planned works will probably not be completed by the end of the present project period (June 1999). This concerns particularly the major civil works just started or still to be started, viz. Iron Removal Plants (IRPs) and Overhead Tanks (OHTs). Although the tender documents usually prescribe implementation within one year, practical experience shows that construction time is often about 2 years. But also the installation of the planned additional pipelines may not be easy to finalize within the project period.

R For works already started, GoB should undertake to finish these works at its own costs to the extent that they are not completed by the end of the project period. During the wrap-up meeting on 14 March 1998 it was decided that the completion period for the physical works could be extended till the end of December 1999, provided that the project submits a realistic time schedule.

R For IRPs and OHTs, planned and budgeted but not yet started, we recommend that these works will only be undertaken provided that the work orders are given before 1 April 1998 and that GoB undertakes to finish these works at its own costs to the extent that they are not completed by the end of the project period. During the wrap-up meeting on 14 March 1998 it was decided that the work orders for Borguna and Lalmonirhat could still be given until 1 July next.

R In case GoN is not prepared to take the risk of leaving works unfinished at the end of the project period, it should consider not to finance new IRPs and

OHTs at all. This would apply anyway in case GoB does not ensure financing unfinished works.

- R Technical Assistance activities should continue for at least 3 months after the end of the project period in order to process reimbursement claims and finalize any outstanding administrative matters. These activities may be packaged with the proposed post-project activities as described below.
- C It will probably not be possible to start the construction of the IRP in Lalmonirhat in time. Also, there is a distinct possibility to find suitable locations where the iron content of the ground water is low. In case no IRP is constructed, the piped water supply system could function without OHT.
- R We recommend to find a solution for Lalmonirhat without IRP. This would save the community costs that may not be necessary. We recommend that the OHT is constructed because it would enhance the sustainability of the system.
- C Given the many constraints the project is facing in the current final stage, notably the slow progress of major physical works and the by-laws, the Project Implementation Coordination Committee (PICC) should play an active role. Similarly, pro-active support by the Royal Netherlands Embassy is required.
- R From now on the PICC should meet quarterly. Concise and relevant information for these meetings should be prepared jointly by the Project Director and the Advisory Team.

8.8 Post-project activities

- C Ensuring sustainability and effectivity of the outputs of the project, requires a limited input of Technical Assistance to the pourashavas for some time after the project. During the same time support will be required for the pourashavas where treatment plants may yet be built (Narail, Magura and Panchagarh).
- R We recommend that post-project institutional development activities will have a duration of about 3 years. The main objectives of this new project will be:
- Ensuring sustainability of the piped water systems by providing institutional support and guidance to the PWSSs. Assistance in setting up regional networks or a national association of PWSSs could be part of this activity. Furthermore, promotion for service connections might be stimulated.

- Consolidating the achievements of hygiene education (with special emphasis on the school programme). At the same time permanent positions can be found for the hygiene promoters.
 - Assisting in finding solutions for the water quality problems in Narail, Magura and Panchagarh.
 - Supporting and guiding possible privatization initiatives in the water supply and sanitation sector in the pourashavas.
 - Completing the experiment with 24 hours metered supply in Satkhira and Jhalokati.
 - Monitoring the impact and performance of the various project components.
- R The post-project programme should be set up in such a manner that activities taper off towards the end of the period.
- R The staffing during the post-project period would be much reduced compared to the current staffing. Where identical positions are retained, we recommend that continuity in staffing will be ensured as much as possible in order to prevent "re-inventing the wheel".
- R Formulation of the post-project activities should be completed before the end of 1998.
- C Many pourashavas are developing rapidly, and often show considerable growth in population. This creates new demand for water supply, sanitary latrines and hygiene education. It is neither possible nor necessary for the project to address these continued new demands.
- R The pourashavas should continue the low cost latrine programmes and construction of HTWs with financial contributions of the users according to their ability. In no case should such services be provided completely free of cost. Hygiene education to the poorer sections of the communities should continue to be provided.
- R Extension of the piped systems can in many cases be undertaken by the PWSS with their own means.
- C After the end of the project the hygiene promoters will not be able to continue on their own account. We consider it important that ways and means are found to continue their activities to the maximum extent.
- R We recommend that during the post-project activities, possibilities are explored for an organizational or economic base for continued activities of the hygiene promoters. This should include the possibility of retaining some of the trained and efficient hygiene promoters by the pourashava. They may be engaged in the health section, the conservancy section and the PWSS.

APPENDICES

Terms of Reference for the Joint Review Mission of the 18 District Town Project

1. Background

Since 1978 the Governments of Bangla Desh and the Netherlands have collaborated in the improvement of water supply, drainage and sanitation in the district towns of Bangla Desh. At present the third and final phase of the 18 District Town Project is being implemented (June 1996-June 1999) while a number of (uncompleted) works of phase II of the project are still under construction.

The present project phase integrates water supply, drainage and sanitation with hygiene education and community participation and is implemented by the Department of Public Health Engineering with the support of a technical assistance team. Part of the activities of the project are being implemented by the Pourashava Water Supply Sections of the district towns concerned and by NGOs. It is anticipated that all assets created by the project will be handed over to the Pourashava Water Supply Sections before the end of the project and that the concerned water supply infrastructure will be operated and maintained by the PWSS.

2. Objectives of the Mission:

The mission will have as its main objective to assess the progress in the implementation of the project (phase II and III) as per the original project objectives and to draw up a realistic plan for the completion and handing over of the project activities and products before the end of the project on June 30 1999.

The specific tasks of the mission in this context will be

1. To evaluate the proposed revision of the Project Pro Forma in respect of the original project objectives, changed circumstances and the limited remaining time and budget.

2. To evaluate in which degree the 18 pourashavas will be in position to take over the management of the water supply facilities and which activities should be developed or intensified by the DPHE, Pourashavas and the project in order to complete such a transfer on a realistic basis. In particular the following issues will be given attention:

- the process of transfer of assets from DPHE to the Pourashavas
- the organisational strength of the PWSS
- the expected completion of certain physical works (water treatment plants, overhead tanks) at the end of the project period only
- the institutional framework for the drinking water supply sector in Bangla Desh

3. To draw up a plan for the implementing and phasing out of Technical and Financial Assistance activities during the remaining time period of the project and assess the need for any follow-up activities at the completion of the project in June 1999.

3. Methodology.

The mission will review the available progress, technical and mission reports, the original plan of operation, PP and revisions of it as well as the position paper which will be produced by the Project before the arrival of the mission. The mission will meet representatives of the Ministry of Local Government (Local Government Division), DPHE, a number of Pourashavas and PWSS as well as of the Royal Netherlands Embassy and relevant donor agencies and development projects.

4. Composition of the mission.

The mission will include

1. Team Leader, Mr A. Manuel (civil engineer, water supply and sanitation specialist); (on behalf of the Netherlands government)
2. Institutional expert Mr. H. Gijsselhart (on behalf of the Netherlands government)
3. Civil Engineer (on behalf of the Bangla Desh government)
4. Institutional expert, Mr H.U. Rashid

5. Programme of the mission

The mission will take place from 1 to 16 March 1998. A wrap-up meeting will be held towards the end of the mission where a summary of conclusions and recommendations is to be presented.

Within three weeks after the wrap-up meeting a draft-final report will be presented by the team for final approval by both governments.

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Jennie van de Weerd, DPHE - 18DTP, WSSC review, Part I - Report (Draft), February 1998.

PERSONS MET

1. THE NETHERLANDS

Mr. Jan H.C.M. Oomen DHV

2. BANGLADESH - DHAKA

Royal Netherlands Embassy

Mr. Dick C.B den Haas Ambassador
 Mr. Peter de Vries First Secretary Development (Water Sector)
 Mr. Arthur den Hartog Second Secretary (Development)
 Mr. Zahir Uddin Ahmad Advisor Development Aid (Water and Environmental Sector)

MLGRD&C

Mr. Hasanat Abdul Hye Secretary Local Government Division

DPHE

Mr. S.A.K.M Shafique Chief Engineer
 Mr. Quadir-uz-Zaman Additional Chief Engineer

Project Office

Mr. Kurshed Alam Project Director
 Mr. Md. Abdul Monnaf SDE

Advisory Team 18DTP

Mr. Rik Dierx Team Leader
 Mr. Gellius Cremers Organisation Development Expert
 Mr. Alan Spencer Human Resources Development Specialist
 Mr. Abul Basher Khan Senior Organisation Development Specialist
 Mr. A.M. Chowdhury Management Specialist
 Mr. Moazzem Hossain Organizational Development Expert
 Mrs. Qumrun Nahar Social mobilization / hygiene education expert
 Mrs. Suzanne Hanchett Hygiene education / WID / community participation expert
 Mr. Daniel Scheepstra 24-hour supply specialist
 Mrs Jennie van de Weerd Bilateral associate expert
 Mrs Astrid van Agthoven Bilateral associate expert

NGO Forum on WSS

Mr. S.M.A. Rashid Director

Royal Danish Embassy

Mrs. Mohsena Islam Programme Officer (Water & Sanitation)

UNDP/World Bank Water and Sanitation Program

Mr. Babar N Kabir Country Sector Leader

World Health Organization

Mr. Alex Redekopp Environmental Health Advisor & Team Leader

Asian Development Bank

Mr. Narhari Rao Senior Economist

International Training Network Center

Mr. M. Feroze Ahmed Project Director

Consultants

Mr. M.N. Hoque Director Aqua Consultants

Mr. Hans Anderskov DHPE-Danida Water and Sanitation Project

Mr. Caspar Lambrechtsen ADB Second Water Supply and Sanitation Project (9DTP)

3. BANGLADESH - FIELD

During our visit to 8 towns, many persons were met. These included:

- the Chairmen;
- Hygiene promoters (NGOs);
- Ward Commissioners;
- members of the WSSCs;
- the Superintendents of the PWSS;
- the EEs at divisional level;
- the SDEs town level;

ITINERARY

- 20 February 1998 Meeting with Mr. Oomen of DHV (Gijsselhart, Manuel)
- 1 March 1998 **Start of team activities in Bangladesh**
 Briefing meeting at RNE with Mr. De Vries, Mr. Den Hartog and Mr. Ahmad (Gijsselhart, Manuel, Rashid).
 Meeting at Project Office with Mr. Dierx, Mr. Cremers and Mr. Basher (Gijsselhart, Manuel, Rashid).
 Meeting at Project Office with Mr. Kurshed Alam and staff, Mr Dierx and Mr. Basher (Gijsselhart, Manuel, Rashid).
- 2 March Meeting with Mr. Anderskouv of DPHE-Danida Urban Water Supply and Sanitation Project (Gijsselhart, Manuel, Rashid).
 Meeting with Mr. Redekopp of World Health Organization (Gijsselhart, Manuel, Rashid).
 Meeting with Mr. Lambrechtsen of ADB financed 9DTP (Gijsselhart, Manuel, Rashid).
 Meeting at Project Office with Mr. Dierx (Gijsselhart, Manuel, Rashid).
 Meeting at DPHE with Chief Engineer and staff, Project Director and Team Leader (Gijsselhart, Manuel, Rashid).
- 3 March Meeting with Mr. Rao of Asian Development Bank (Gijsselhart, Manuel, Rashid).
 Meeting with Mrs. Islam of Danida (Gijsselhart, Manuel, Rashid).
 Meeting at Project Office with Mr. Kurshed Alam and staff (Gijsselhart, Manuel, Rashid).
 Meeting at RNE with Mr. De Vries and Mr. Ahmad (Gijsselhart, Manuel, Rashid).

Field trip to 8 towns

- | | | |
|---------|--|--|
| | Group A: Gijsselhart Rashid with a.o. Mr. Cremers, Mr. Basher, Mrs. Suzanne Hanchett, Mrs. Qumrun, Mr. Mahbubul Alam | Group B: Akhtaruzzaman and Manue' with a.o. Mr. Kurshed Alam, Mr. Dierx, Mr. Moazzem Hossain, Mr Abdul Monnaf. |
| 4 March | Visit to Manikganj attended by Mr. Zahir Uddin Ahmad | |
| | Transfer by ferry and car to Magura | Transfer by ferry and car to Bogra |
| 5 March | Visit to Magura
Transfer by car to Satkhira | Visit to Nagoan
Return by car to Bogra |
| 6 March | Visit to Satkhira
Transfer by car to Khulna | Visit to Joypurhat
Transfer by car to Rangpur |
| 7 March | Transfer by car to Jhalokati | Visit to Lalmonirhat
Return by car to Rangpur |
| 8 March | Visit to Jhalokati
Departure by launch from Barisal | Visit to Thakurgaon
Transfer to Dhaka by plane |
| 9 March | Arrival at Dhaka | |
| 9 March | Working out results of field visit
Team meeting at ITN (team). | |

- 10 March Team meeting at ITN (team).
Meeting at Project Office with Mr. Dierx (team).
Meeting at RNE with Mr. De Vries, Mr. Den Hartog and Mr. Ahmad (team).
- 11 March Team meeting at ITN (team).
Meeting at DPHE with Chief Engineer and staff, Project Director and Team Leader (team).
- 12 March Meeting at Project Office with Mr. Dierx and Mr. Basher (Manuel).
Meeting at Project Office with Mrs. Hanchett, Mr. De Weerd and Mrs. Qumrun (Akhteruzzaman, Gijsselhart).
Meeting at Project Office with Mr Kurshed Alam and staff, Mr. Dierx and Mr. Basher (Manuel).
Brainstorm session with Project Director, Team Leader and project staff (team).
- 13 March Report writing
Team meeting (team)
- 14 March Meeting at RNE with Mr. De Vries, Mr. Den Hartog and Mr. Dierx (team).
Report writing.
Meeting with Mr. Nurul Hoque (Gijsselhart, Manuel)
- 15 March Wrap-up meeting chaired by the Secretary Local Government (team).
Meeting with Mr. Babar N Kabir of UNDP / World Bank Water and Sanitation Programme (Gijsselhart, Manuel, Rashid).
Evening: dinner hosted by DPHE.
- 16 March De-briefing meeting at RNE with Mr. Den Haas, Mr. De Vries and Mr. Den Hartog (team).
Meeting at Project Office with Mr. Dierx and Mr. Cremers (Gijsselhart, Manuel, Rashid).
Meeting at Project Office with Project Director and staff, Mr. Dierx and Mr. Basher (Gijsselhart, Manuel, Rashid).
End of team activities in Bangladesh
- 17 April Submission of final report to RNE

ABBREVIATIONS

18DTP	18 District Towns (water supply and sanitation) Project
ADB	Asian Development Bank
ADP	Annual Development Program
BAD	Bilateral Associate Expert
BRAC	Bangladesh Rural Advancement Committee
CSC	Community Sanitation Centre
DANIDA	Danish development organization
Dfl	Dutch guilder
DGHS	Director General of Health Services
DPHE	Department of Public Health Engineering
EPI	Extended Programme for Immunization
ERD	Economic Relations Division or External Relations Division?
FDS	Finance Development Specialist
FY	Financial Year
GoB	Government of Bangladesh
GoN	Government of the Netherlands
HTW	Hand(pump) TubeWell
ICDDRB	International Centre for Diarrhoeal Disease Research, Bangladesh
IRP	Iron Removal Plant
LGED	Local Government Engineering Department
MLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MIS	Management Information System
NGO	Non-Governmental Organisation
O&M	Operation and Maintenance
ODS	Organisation Development Specialist
OHT	OverHead Tank
PCS	Pourashava Conservancy Section
PHS	Pourashava Health Section
PICC	Project Implementation Coordination Committee
PP	Project Proforma
PROSHIKA	Proshika Hanabik Unnyan Kendra
PTW	Production Tube Well
PWSS	Pourashava Water Supply Section
PWSS	Pourashava Water Supply Section
RNE	Royal Netherlands Embassy (in Dhaka)
RPA	Refundable Project Aid

SDE	Sub-Divisional Engineer
TA	Technical Assistance
Tk.	Taka
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WID	Women In Development
WSSC	Water and Sanitation Surveillance Committee