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Report No: 25247

IMPLEMENTATION COMPLETION REPORT
(IDA-29260)

ON A

CREDIT

IN THE AMOUNT OF SDRs 51.0 MILLION
(US$80.3 MILLION EQUIVALENT)

TO THE

PEOPLE'S REPUBLIC OF BANGLADESH

FOR A

FOURTH DHAKA WATER SUPPLY PROJECT

December 30, 2002

CURRENCY EQUIVALENTS

(Exchange Rate Effective November 2002)

Currency Unit = Taka
Taka (Tk.) 1.00 = US$ 0.02
US$ 1.00 = Tk. 59

FISCAL YEAR
July 1 to June 30

ABBREVIATIONS AND ACRONYMS

C&AG	-	Controller and Auditor General
DND	-	Dhaka-Narayanganj-Demra
DWASA	-	Dhaka Water Supply and Sewerage Authority
FY	-	Financial Year
GOB	-	Government of Bangladesh
ICB	-	International Competitive Bidding
IDA	-	International Development Association
IRR	-	Internal Rate of Return
LACI	-	Loans Administration Change Initiative
LGD	-	Local Government Division
MGD	-	Million Gallons per Day
MLGRD&C	-	Ministry of Local Government, Rural Development & Cooperatives
NCB	-	National Competitive Bidding
QAG	-	Quality Assurance Group
SAR	-	Staff Appraisal Report
TA	-	Technical Assistance
UFW	-	Unaccounted for Water
WTP	-	Water Treatment Plant

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BANGLADESH
Fourth Dhaka Water Supply Project

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Project ID· P009482	*Project Name.* Fourth Dhaka Water Supply Project
Team Leader Zahed H. Khan	*TL Unit:* SASEI
ICR Type: Core ICR	*Report Date: December 30, 2002*

1. Project Data

Name. Fourth Dhaka Water Supply Project
L/C/TF Number: IDA-29260
Country/Department: BANGLADESH
Region South Asia Regional Office
Sector/subsector: Water supply (88%); Sewerage (6%); Sanitation (6%)

KEY DATES

			Original	*Revised/Actual*
PCD.	09/29/1989	*Effective:*	04/08/1997	07/07/1997
Appraisal·	05/25/1994	*MTR:*	03/31/1999	02/01/1999
Approval.	12/19/1996	*Closing*	12/31/2002	06/30/2002

Borrower/Implementing Agency GOB/DWASA/DWASA
Other Partners· Government of France and Government of Japan

STAFF	Current	At Appraisal ·
Vice President·	Mieko Nishimizu	Joseph Wood
Country Manager.	Frederick Thomas Temple	Mieko Nishimizu
Sector Manager·	Vincent Gouarne	Marie Robinson
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2. Principal Performance Ratings

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

Outcome. U
Sustainability. UN
Institutional Development Impact. M
Bank Performance: U
Borrower Performance· U

	QAG (if available)	ICR
Quality at Entry:		U
Project at Risk at Any Time.	Yes	

The project combined institutional and physical development to strengthen DWASA's services to its customers, and successfully constructed a major surface water treatment plant and improved some of DWASA's operational performance. Nevertheless, as the wholesale institutional change originally envisaged was not achieved, the overall project is rated unsatisfactory against its original objectives.

3. Assessment of Development Objective and Design, and of Quality at Entry

3 1 Original Objective:

The CAS of 2001 notes that Bangladesh's Fifth Five-Year Plan envisions substantial reduction in poverty within a generation, with the number of poor shrinking by roughly 2% a year until the end of the decade, so that by 2010 there is:

- a 50% decline in the number of people below the poverty line;
- universal primary education;
- a reduction of maternal mortality rates by 75% and infants under 5 mortality rates by 65%;
- a reduction in the proportion of malnourished children under 5 by 40%; and
- availability of reproductive health services to all women.

The CAS view of Government's strategy was that, although it was sound, it was limited in scope. It focused primarily on promoting growth, giving less attention to the priorities, sequencing and inter-relationships among government programs and policies to maximize their poverty reduction impact. It noted that strong institutions and improved governance are requisites for accelerated development.

The basic objectives of the project were: (i) to commence a program of institutional reforms that would lead to efficient operation of the water and sanitation sector in Dhaka on a commercial basis and prepare a strategy to enhance private operations and mobilize private finance; (ii) to increase the life of existing assets and reduce water losses through a water loss reduction and rehabilitation program; (iii) to strengthen water resources management for the greater Dhaka area, by optimizing use of available water resources in the most economic and environmentally acceptable way; and (iv) to increase potable water supply in the Dhaka area by effectively utilizing available surface and groundwater resources to expand water supply in the Dhaka metropolitan area.

Therefore both the project and recent thinking emphasize the importance of strong institutions. Improving the quality of public expenditure was also given weight in the CAS, and again the project's drive for efficient operations, reduced water losses, and better water management remain highly relevant objectives.

3 2 Revised Objective·

N/A

3 3 Original Components:

These were:

- an institutional reform program;
- capacity additions and service extension;
- loss reduction, sanitation and efficiency improvement activities;
- institutional development technical assistance; and
- project preparation and implementation support technical assistance.

At face value the components were reasonably related to achieving the project objectives, which

in turn remain appropriate given the shortfall in provision of water supply in Dhaka, due to very rapid urban growth, and inadequate operational efficiency and investment in the sector in the past. The shortfall in meeting demand, coupled with the inefficiencies of the distribution network, led to excessive use of groundwater, especially in the old city, which in turn resulted in the aquifer level falling by more than 3 meters annually in that area, escalating the costs of tubewell water and the risks of subsidence (although most recent studies have down-played this latter aspect).

The proposed solutions, moving from groundwater to treating surface water while improving the efficiency of DWASA's services, continue to be valid, but the complexity and scale of Dhaka implies complex solutions, which proved difficult to achieve in a single, comprehensive project.

The institutional reform program included enactment of a WASA Act, placing DWASA in approximately the same circumstances as those facing companies, and thereby gaining greater management autonomy from GOB (although GOB would still own the institution); defining the DWASA Board's role on policy and corporate planning matters, including strengthening professional management by appointment of a Managing Director; requiring DWASA to meet operational performance targets; and introducing the notion of private sector participation in DWASA operations.

Capacity additions mainly consisted of construction of a 50 million gallons per day (MGD) surface water treatment plant, and associated works including transmission and distribution systems rehabilitation and site development. This plant represented a major strategic change for DWASA, away from near exclusive reliance on groundwater for its water supply, to utilizing treated surface water.

Loss reduction, sanitation and efficiency improvements comprised reducing technical water losses through leak detection, system rehabilitation, tertiary distribution and a crash metering program; and for sanitation, preparation of a sanitation master plan for Dhaka and the first stage of investments in low cost sanitation, and system rehabilitation.

Institutional development technical assistance consisted of an extensive twining program (through contracting with a utility/consulting engineer consortium), staff training, support for paying contract staff at prevailing market rates, assistance with contracting-out billing and collection (to help address commercial losses), a study of options for greater private sector participation, and a Water Resource Management Study for Dhaka Region.

Project preparation and implementation support technical assistance included design of ancillary works, drafting the revised WASA Act, construction supervision and a network analysis of the distribution system.

3.4 Revised Components

Due to failure to implement the project's institutional development concepts, the project was suspended in November 2000 for a period of five months. The suspension was lifted after the conditions were met but the Credit closed six months earlier than originally scheduled and, accordingly reduced in size by approximately $15 million equivalent by the cancellation of Phases 2 and 3 of the leak detection program, the tertiary distribution pipeline works and house

connections, some of the meter installation program, the sanitation works, and the tubewell regeneration program. The procurement of vehicles, equipment, and computers and software became so delayed that they could not be completed within the reduced project period, and were eventually dropped. DWASA reports that key elements of these items, such as the rehabilitation of the water supply distribution system and improvement of the sewerage system, are now being undertaken with GOB funding and bilateral funding is also being sought. The component-wise costs at appraisal and ratings are given below:

Component	Cost At Appraisal (US$ million)	Rating
Capacity Addition & Service Extension	134 9	S
Loss Reduction, Sanitation & Efficiency Improvements	18	U
Institutional Development	8.9	U
Project Preparation And Implementation Support	8.1	S

3.5 Quality at Entry·

Although the project was not formally assessed for quality at entry, a QAG review of supervision commented that "from the beginning, the Project was likely to fail because the project (institutional) development objectives were too ambitious and not owned by the client". The review further drew attention to the need for a realistic assessment of the structure and severity of the environment in which DWASA operates, which it considered had not been made, despite the lessons of the earlier three projects with DWASA – hence eliciting the comment in the report that the project had chronic problems at entry. In retrospect, the lack of application of the Government and DWASA in actively adopting and fully implementing the institutional development objectives would suggest that there was a significant lack of ownership on their part of this component. The component, and particularly the move towards involvement of the private sector in public utilities, might well be a reflection of emerging international experience at that time, rather than the aspirations of institutions in Bangladesh.

Certainly, it was a factor influencing the time taken to make the project effective. The original approval of the project's concept in 1989 did not lead directly to appraisal. Rather, this was delayed until 1994 to ensure that the third project was completed, during which time the emerging international evidence of the role of the private sector in utility operations became better known, resulting in Bank-driven interest in including more of this approach in the new project. This was eventually accepted (in the form of initial contracting-out of billing and collection, plus a more detailed study of PSP options for DWASA). Contracting-out of two DWASA revenue zones became a condition of credit effectiveness, which in turn caused delay due to the unions reluctance to accept this concept.

This indication of lack of ownership could have been confirmed sooner had the project's covenants included actions reinforcing the importance of institutional development early on in the project's life. This, together with concentrated supervision effort at the beginning of the project to try and achieve the covenanted goals, would have sent clear signals about the lack of borrower

ownership of the institutional development objective - and may therefore have allowed time to address and sort out the concerns, or failing this to cancel the project, before the major infrastructure contracts had been awarded.

Principally due to it not confirming the strength of the government's commitment to institutional development, the quality at entry for the project is assessed to be unsatisfactory.

4. Achievement of Objective and Outputs

4 1 Outcome/achievement of objective:
The project had four objectives:

a) to start institutional reforms to enhance the efficiency of the water and sanitation sector in Dhaka by putting it on a commercial basis, and preparing a strategy for greater private sector participation;
b) to increase the life of existing assets and reduce water losses;
c) to strengthen water resource management for greater Dhaka by optimizing water use; and
d) to increase potable water supply in Dhaka using surface and groundwater resources.

Overall it is judged that the project was unsatisfactory in achieving its major objective – a program of institutional and policy reforms that would lead to efficient operation of the water and sanitation services in Dhaka on a commercial basis – even though the project's major physical works were completed satisfactorily, below budget and ahead of time, and a number of positive aspects concerning DWASA's institutional development were achieved, which are discussed below.

Underpinning the program of institutional reforms was a plan to increase DWASA's autonomy which was proposed by amending the WASA Ordinance to incorporate more autonomy for DWASA by strengthening its Board, introducing commercial regulations and reducing GOB's role. This was assisted by a policy statement which defined respective roles, and a performance agreement which set targets for DWASA to achieve, to be reviewed annually. In addition, DWASA's management was strengthened by the appointment of a Managing Director from the private sector, backed up by three Deputy Managing Directors, and institutional strengthening was supported by a twinning arrangement, designed to focus upon efficiency and commercial aspects of DWASA's operations.

The targets and achievements are shown in Annex 1. High consumption levels and 24 hours of service are positive factors for raising consumer satisfaction, although consumption levels may arise mainly due to the lack of effective metering / charging policies. Negative features are the amount of unaccounted for water remaining higher than target – an increasingly important factor as the more expensive treated surface water comes on line; the excessive amount of receivables, despite the budgetary agreement which has lowered public sector receivables – which makes DWASA into a net lender of money; and DWASA's failure to earn the anticipated contribution to investment, which is essential for eventual financial autonomy. Nevertheless, DWASA is continuing to pursue its own programs to address the first two of these problem areas, both of which are fundamental shortcomings.

Achieving the objective of increasing the life of assets and reducing water losses was supported by an extensive metering program, some pipeline rehabilitation, and leak detection training through the twinning consultancy. In the event these efforts, despite making initial improvements, were unsuccessful in achieving the objective. The level of unaccounted for water in 2001 stood at 43%, rather than the 30% targeted. Meter coverage was also below target, at 70% rather than the intended 95%. Nevertheless, the concept of contracting out billing and collection has been adopted by DWASA in two of its revenue zones, although using the atypical approach of contracting with an entity formed by its own staff unions. Due to the relative success of this, DWASA are extending the approach, but attempting in so doing to engage private sector firms for the work.

Improving water resource management by optimizing the use of the available resource is embedded in DWASA's changed policy of treating surface water in place of (over)utilizing ground water resources. Use of deep tube wells is reducing, and plans for future growth place much greater emphasis on surface water treatment plants. This is in part due to DWASA establishing that the problems it was experiencing in falling output from tube wells was not due to their becoming encrusted, but rather due to the fall in the water table, which reached 3 meters per year in certain areas.

Increasing potable water supply in Dhaka by effectively using available surface water and groundwater resources was achieved satisfactorily in the project through the completion of the Saidabad Water Treatment Plant, which is capable of adding 225 million litres per day (MLD) to current production, and of expansion by a further 225 MLD.

4.2 Outputs by components:

a) Institutional Reform

As noted, the objectives aimed at institutional development were generally not successful when compared with the original objectives, perhaps as the project did not take sufficient account of the agency's, the sector's and the country's limited capacity to absorb and implement wholesale institutional changes. The proposed program of change was wide-ranging, and implied that fundamentally different approaches of working be adopted by DWASA.

In the event, maybe because the program of change was never fully owned by the Bangladeshi agencies concerned, watered-down compromises were often the best that could be achieved during implementation. The changes introduced failed to put the agency onto a commercial basis, and so far appear unlikely to be fully sustained as they continue frequently to be seen as external impositions which were accepted only as long as the direct costs of them were met from a project, and not by DWASA. Other changes, such as improvements to the accounting and costing system, were designed but have not yet been implemented by DWASA, thereby raising questions about relative priorities.

One exception is the contracting-out of meter-reading, billing and collection of service charges, which is still being actively undertaken under contract with a cooperative formed by the DWASA staff unions, as described above. (Interestingly, the cooperative has installed computer based

systems, although it still maintains manual records as well.)

Nevertheless, as shown in Annex 1, overall most performance indicators did improve during the life of the project, and DWASA has its own programs set up to deal with many other areas of weakness, so in terms of output the reforms have had some, albeit modest, impact.

b) Capacity Additions and Service Extensions

This component was: "to increase potable water supply in the Dhaka area by effectively utilizing available surface and groundwater resources to expand water supply in the Dhaka metropolitan area."

All planned civil works, and the electro-mechanical works financed by the Government of France, for the surface water treatment plant (WTP) contracts have been completed and are rated satisfactory. Considering the degree of procurement-related delay during the first two years of project implementation, slippages in implementation, inadequate delegation of authority to several project directors, and the suspension of Credit by the Bank due to GOB not meeting its obligations in implementing various agreed actions, the achievement of completing the WTP within the reduced project period and within budget is worthy of praise.

Various components of the water supply system were tested and made operational in June 2002 and the system is functioning.

A summary of the works appears in the table below.

Summary of Physical Works By Component		
Component	**Detail**	**Rating**
A) Water Treatment Plant and Associated Works		Satisfactory
	Sarulia Raw Water Intake Pumping Plant and Twin Culvert	
	DND Canal Rehabilitation and Treatment Plant Site Development	
	Twin Culvert from DND Canal to Saidabad Water Treatment Plant	
	Saidabad Water Treatment Plant – Civil Works	
	Supply and Installation of Electro-Mechanical Equipment for Saidabad Treatment Plant	
	Ancillary Structures at Saidabad Treatment works	
B) New Pipelines	Primary Transmission and Part of Secondary Network for distribution of WTP water supply	Satisfactory
C) Distribution Systems Rehabilitation		
	Leak Detection and System Rehabilitation	Satisfactory
	Tubewell Regeneration	Cancelled
D) Expansion of Service Connections		Unsatisfactory
	Tertiary Distribution and House Connections	(cancelled)
	Crash Metering Installation Program	(cancelled)
	Procurement of Meters	Partially completed
E) Development of Sewerage/Sanitation		Unsatisfactory
	Study on Improved Sanitation	
	Physical Works/ Sewerage Rehabilitation and Latrines: Deferred and then cancelled.	Cancelled

F) Institutional Development Technical Assistance

Institutional Development

Under the project, the following sub-components were planned:

- a Water Resources Management study of the Dhaka region : To obtain comprehensive

knowledge of management of water resources in Dhaka;

- Management and Operational Support (Twining) Program. To assist DWASA improve its operational efficiency;
- contracting out DWASA's billing, collections, meter repair services to the private sector;
- training for DWASA staff to improve their skills in commercial operations;
- appointment of senior staff for management support; and
- a strategy study to asses options for private sector participation including a strategy for mobilizing private financing.

Water Resources Management Study: The study was completed and highlighted the need to protect the environment in the raw water catchment area – which led to the notification of the Environmental Protection Zone, and the strengthening of DWASA's capacity to monitor pollution.

Management & Operational Support (Twining) Program: The twining consultants produced 19 manuals containing 122 specific recommendations, and over half of these have been implemented or adopted, with the balance being mainly in process. They also identified 157 water mains rehabilitation works with an aggregate length of about 200 km. Up till now, a length of around 50 km has been rehabilitated, plus under other projects approximately 40 km of distribution mains have been rehabilitated and orders issued for a further 31 km.

Contracting out of DWASA Services: As described above, the contracting-out of meter reading, billing and collection has taken place in two of DWASA's six revenue zones, and based upon its success DWASA intends to continue to expand the program.

Training (DWASA): Training courses / seminars were held by the twining consultants, but some training, especially foreign training, did not take place due to the late initiation of the program, the Credit suspension and the early Credit closure.

Management Support (Senior Contract Staff): DMDs financed under this section worked up to the Credit closure, but have not been extended beyond by GOB/DWASA. The Managing Director remains, but on contract terms which offer no period of notice, or compensation for, any dismissal and which are therefore unsatisfactory.

Private Sector Participation Options Study: The study recommended a two stage approach to engaging private sector participation in Dhaka; first, two management contracts should be awarded for water supply and sanitation each covering about half of DWASA's area; and second, coinciding with the completion of the water treatment plant, a long term concession should be awarded for the entire city. The study's results were reviewed by DWASA and GOB, and a workshop held to advise and involve stakeholders in consideration of the findings. GOB set up an inter-ministerial working group early in 1999, but its recommendations are awaited.

Overall, although much of this component occurred as planned, the anticipated impacts in terms of major institutional development were not achieved, and instead piecemeal changes have been implemented. While these have had some modest beneficial effects, the change is not on the scale

originally proposed and hence the component is considered unsatisfactory.

G) Project Preparation / Implementation Support Technical Assistance

To assist DWASA to implement the project effectively and efficiently, international consultants in association with local consultants were engaged for:

a) procurement of miscellaneous equipment;
b) design of ancillary works and the drafting of revisions to the WASA Law;
c) design and construction supervision of treatment plant, distribution system, intake structure, ancillary structure and consultancy services for the network analysis; and
d) implementation of the tariff study.

The main elements of this component, design, legal drafting and construction supervision, were successfully executed, and hence the sub-component as a whole can be considered satisfactory.

4.3 Net Present Value/Economic rate of return:

After concluding that the best approach for the much needed expansion of water supply in Dhaka was the Saidabad WTP plus a cautious expansion of deep tubewells, taking into account any possible water abstraction consequences, the economic analysis in the SAR focussed on a cost benefit analysis of the WTP (with associated water mains rehabilitation and leak detection programs), which it determined had an IRR of 22%. These results, which took into account the costs and benefits of the WTP, the improvements to the distribution network, and associated technical assistance, were robust: the project remained economically feasible even if costs almost doubled, or only 50% of the benefits were achieved.

This analysis has not been repeated in detail for the ICR, given that there is no available evidence to indicate a change in the demand curve for water, and that the actual marginal costs for the WTP and associated works (as calculated by DWASA) is Tk. 8.8 per m3, less than the original SAR estimate of Tk.10 per m3, hence implying that, if recalculated, the economic results would be even more satisfactory than originally estimated.

With the increase in water supply capacity from the water treatment plant fully completed, but the construction and rehabilitation of primary and secondary networks under the project coupled with the ongoing system rehabilitation program only partly achieved, the economic returns will not be quite as high as the reasoning above suggests. As UFW remains about 10% higher than originally anticipated, net benefits are reduced by a similar proportion, but still the project produces an IRR greater than 20% when flows are discounted at 12%, which is satisfactory.

Further details appear in Annex 3.

4.4 Financial rate of return.

No financial rate of return was calculated in the SAR. In the ICR a tentative forecast of DWASA's finances, taking account of the project, has been undertaken, which follows.

Opinions differ about whether or not the output from the WTP gives scope for additional sales of water, or whether it is wholly a substitute for groundwater, and as such, shall raise no additional

income despite incurring additional expenditures. The following analysis of DWASA's financial outlook compares different scenarios, combining annual net revenue increases of either 5% or 10% with alternative assumptions about the proportion of WTP water which represents additional sales. The table shows the financial year in which DWASA would achieve a break-even in terms of its surplus/deficit (after interest but before depreciation) and its Net Profit under a variety of such options.

Financial Year of Break-Even

	Surplus/Deficit before Depreciation		**Net Profit**	
Annual Net Revenue Increase	5%	10%	5%	10%
No additional water sales	FY05	FY03	Well After FY06	FY05
25% of WTP output is additional sales	FY03	FY03	After FY06	FY05
50% of WTP output is additional sales	FY03	FY03	FY06	FY04

Although the forecast is very approximate, as it is not based upon a calibrated model, and does not take into account any other investment by DWASA during the period, it indicates that the additional costs of owning and operating the WTP will require DWASA to achieve annual increases in net revenue in order to break even, but that these are of an order which should be within reach. (The annual increase in net revenue could arise from a tariff increase, improved collection performance - and hence lower provision for bad debts - reduced unaccounted for water (UFW), cost efficiencies, or a combination of these. The table merely aggregates all efforts into a single annual percentage increase.)

Achieving a break-even in terms of surplus after interest but before depreciation does not appear too difficult, but once depreciation is included the outlook changes, and with 5% annual increases in net revenues DWASA only manages to achieve a break-even in Net Profit if it is assumed that 50% of the WTP output (or its equivalent in other efficiency gains) provides additional sales. As depreciation is a non-cash accounting entry, in itself this need not be of immediate concern to DWASA's liquidity, but to the extent it mirrors actual repayment of loan principal, liquidity is affected and would make the option of "no additional water sales" unsustainable without annual increases nearer to 10%.

Fortunately for DWASA there appear to be a number of avenues to pursue improved efficiency - leak detection, reduced UFW through contracting-out meter reading, billing and collection, tariff increases (the DWASA management has apparently agreed to target a 10% increase per year for

the next 5 years), and demand management - which shall in part be managed by higher tariffs, provided customers are billed according to their actual consumption through enhanced programs of meter installation and repair.

The improved quality and cost of the Saidabad WTP's water provides the opportunity to implement tariff increases, but also makes more urgent the need for improved efficiency by DWASA to ensure the better quality water reaches its customers in good condition.

4.5 Institutional development impact:
There has been modest institutional development impact of the project, and the sustainability of what has been achieved appears doubtful in several cases. Only the contracting-out of the meter reading, billing and collection seems to have taken hold firmly. The new management structure has all but gone, except for the Managing Director whose recently-extended contract terms are considered unsatisfactory. While it may have been too optimistic to expect major institutional change in the context of Bangladesh's public service, the project was designed with this in mind and had corresponding objectives that emphasized institutional change as an expected outcome, despite this being the Bank's fourth attempt to help DWASA achieve such goals.

Nevertheless, as noted above in Section 4.1, a review of the performance indicators given in Annex 1 shows most indicators have shown improvement since the project inception in 1994. But there are major shortcomings in terms of outputs for the level of meter coverage, the extent of UFW, DWASA's contribution to capital expenditure and the level of receivables. Meter coverage, contribution to capital, and receivables have in fact deteriorated over the project period. However, most operational indicators are nearer, or in some cases exceed, target levels and staff productivity is improved, although not as much as planned.

The impact of the project on institutional development of DWASA therefore has not achieved the intended target, but has helped it improve in certain areas. The extent to which DWASA is now capable of continuing to make improvements to its own performance shall show the final outcome. Financial pressures should provide a good incentive to continue such key programs as pipeline rehabilitation, leak detection, and contracting-out of billing and collection, and better service levels should help justify tariff increases - especially if these can be directed at the better-off segments of the community.

5. Major Factors Affecting Implementation and Outcome

5.1 Factors outside the control of government or implementing agency:
Major floods occurred in 1998 in Dhaka city which, although not directly affecting any of the project works, definitely diverted GOB and DWASA's managements' attention away from the project. The complexity of working in a major, densely populated mega-city of course affected laying the new pipelines, but any delays on this count should have been anticipated in project design.

5.2 Factors generally subject to government control:
Greater attention should have been given to implementing the project as agreed – and ensuring that DWASA also followed this approach. This would have avoided much delay, the project's suspension for five months, its early closure and the partial Credit cancellation.

Considerable time was lost at the outset of the project arguing about the use of IDA procurement and financial management guidelines, despite these being obligatory and standard practice. More serious attention to the intended implications of the project during its preparation might have allowed negotiation of a project which more accurately reflected jointly held development interests, rather than ones which were considered to be 'western' biased. Once a project has been officially formulated, however, emphasis should be given to its implementation, not to continued dispute about its contents, and MLGRD&C should have monitored DWASA's performance to ensure this was understood.

5.3 Factors generally subject to implementing agency control:
DWASA chose a disaggregated form of project management, with responsibility for different parts of the project being allocated to respective parts of the organization. While this approach can lead to better all round institutional development, it does require careful coordination and monitoring, and care to ensure that specific skills such as dealing with World Bank procurement guidelines do not become diluted by being spread too thinly (even though, as this is the fourth project with DWASA, these skills are presumably available within the organization). In retrospect, the absence of a main Project Director can be seen to have prevented efficient implementation of several works and consultancy contracts, and led to delays in clearance and approval of other works. DWASA also considers that it neeeded more up-front training in Bank procedures (despite this being the fourth Bank-DWASA project), and it should have lobbied harder for this to be provided. (The Government of Bangladesh has recently undertaken the Public Procurement Reform Project (PPRP), financed by the World Bank. DWASA is strongly advised to take the benefit of the training courses under the PPRP to strengthen their procurement handling capacity.)

5.4 Costs and financing:
Project costs were some 73% of the estimates at appraisal. The main variations were the cost of civil works for the treatment plant and for the new primary pipelines (Contract 6), mainly due to local taxes and duties being much less than originally estimated. Also items which were cancelled during implementation – mainly secondary transmission lines, and components D to F below - contributed to the reduced cost. Taken together the cost of the two components directed towards institutional development and support did not change significantly from the SAR estimate. Project financing was adjusted according to the lower expenditures. Government of Bangladesh's contribution was 70% of the amount expected in the SAR, IDA's was 64% and Government of France's was 89%. Details of these figures appear in Annex 2.

6. Sustainability

6.1 Rationale for sustainability rating:
The sustainability rating given to the project is 'unlikely'.

The improvements in DWASA's management structure are not thought to be sustainable - the Managing Director, although still employed, has been only offered a contract which is less than satisfactory, the Deputy Managing Directorships are not filled by staff from the private sector (two are vacant, and the other is filled by a Civil Servant on deputation), and there are indications

that the Board is not respecting the division between its responsibility for interpreting sector policy, and DWASA's management's responsibility for day-to-day operation.

The concept of contracting out DWASA services does seem to have become accepted, despite the atypical route followed of contracting out to staff union-sponsored entity. DWASA management sees improved performance coming from this arrangement, and the Board is in process of extending the scale of contracted services by adding two more revenue zones, but is aiming this time to attract independent private sector firms.

The sustainability of the main physical plant, the Saidabad WTP, is reasonably assured in the near term, provided that DWASA staff receive additional training in its operation and maintenance. As the Government of France has expressed interest in funding the plant engineer to provide this service, it is assumed that it shall occur and that hence short term concerns are being managed.

In the longer-term, the WTP's viability depends on the quality of the raw water provided for treatment. The problem arises from two areas of concern: first, pollution of the river water upstream of the plant's raw water intake; and second, pollution of the raw water during its transmission from the intake to the plant. A number of solutions are available to resolve the second concern, but the first concern is extremely difficult to manage, as the proposed creation of an Environmental Protection Zone upstream of the intake would require, to be effective, sustained coordination and cooperation between several Government agencies, some at national and some at city level. Given the likely complexities and pressures arising from the inevitable development of the upstream area, this solution appears unlikely to be feasible.

In addition, as discussed in Section 4.4, the project shall present a number of financial challenges for DWASA which if not addressed by improving efficiency or increasing tariffs would push DWASA into deficit. If general cost saving programs are introduced which cut into operation and maintenance, rehabilitation and leak detection programs, the project gains may become eroded.

6.2 Transition arrangement to regular operations:
The transition arrangements comprise the following:

a) DWASA has an approved staffing structure for operating the plant, and key staff are already in place;
b) the engineering consultants shall be asked to extend their assignment to provide additional operational training to DWASA's staff;
c) DWASA shall take over responsibility for other aspects of operation, and has made an allowance for this in its FY03 budget; and
d) DWASA has already acquired a stock of the key spares for the plant which need to be imported.

The status of item (b) above is critical to making the immediate hand-over of the plant a success.

7. Bank and Borrower Performance

Bank

7.1 Lending

The Bank performance on this aspect is rated as unsatisfactory. The project addresses a major problem DWASA faces – its excessive reliance on the use of groundwater causing the level of the groundwater to fall by up to 3 meters per year, and this in turn raising the cost of using groundwater and increasing the chances of subsidence, especially in the old city. The proposed solution, the use of treated surface water, remains a valid option. The design of the project made use of existing assets, such as the DND canal (originally a drainage canal), and the main water treatment plant has been constructed with future growth in mind. To this extent, the project was well conceived and designed.

Where the project has experienced its main problems are the difficult institutional development objectives, despite extensive twining support and TA being provided within the project design. Because this is the fourth project attempting many of the same changes that earlier projects have failed to deliver using much the same incentives, the Bank can be faulted for expecting the proposed approach to work. There may be a lack of ownership of the need for institutional change by the borrower's policy makers, or the Bank may just have underestimated the strength and tenacity of those interests resisting change. But for whatever reason, the drivers of change were not identified in the project's design. Accordingly, when the traditional approach of supplying the means for change was adopted, rather than the more complex and painstaking approach of creating demand for it, the project failed to deliver to the full extent projected. Given this is the fourth project with DWASA, the Bank should have anticipated that there would likely be strong resistance to implementing the institutional development component fully, and designed the project accordingly.

7.2 Supervision

This aspect of Bank performance has also been rated as unsatisfactory. The QAG review drew attention to three main shortcomings in the Bank's supervision, which it attributed mostly to a lack of timely and focused Bank management attention to the project. In summary, the shortcomings are:

a) despite identifying the difficulty the project was experiencing in changing DWASA's institutional attitudes, the mid-term review was not used to drastically scale back the project's expected outcomes;
b) use was not made of a Public Sector Management sector adjustment loan to push through some of the difficult policy changes (despite these being a very effective instrument for this purpose); and
c) the use of the power of credit suspension came too late to achieve any major change in DWASA's approach to the project and capacity for good governance.

It nevertheless commented that the supervision team had been forthright in identifying the project's problems, and therefore considered that Bank management's failure to act on the information was the critical missing factor.

In addition, intensive supervision effort was not made early on, to demonstrate to the borrower the Bank's serious intent concerning the project's institutional development goal.

This is a pre-LACI project, but an FMS was part of the regular supervision team. There are no outstanding financial management concerns relating to the use of project funds. The financial management system of DWASA was strengthened during project implementation and the Accounting Division, responsible for project as well as the overall financial management system of DWASA, carried out project related financial transactions satisfactorily. However, improvement in internal audit functions has not progressed despite repeated Bank recommendations.

7.3 Overall Bank performance.
This rating is also unsatisfactory. Although a major water supply infrastructure has been added to Dhaka's city assets, along with some ancillary works to deliver better services to customers, the institutional development of DWASA is the aspect of the project which remains elusive. Nevertheless, the project has prompted sustainable change in the area of contracting-out services, which may act as a model for other parts of its operations.

In retrospect, the Bank's performance cannot be considered adequate, and the project was not designed sufficiently clearly to bring to the front delays and lack of commitment related to institutional development. Nevertheless, if GOB and DWASA now take the steps necessary to operate and maintain the water treatment plant the project can still achieve some success.

Borrower
7.4 Preparation:
The ratings for borrower performance is unsatisfactory for all aspects, including preparation. Beginning with initial project preparation, Government ownership was insufficient, reflected in delays and half-hearted efforts in following up on various requirements at appraisal and for Board presentation. The institutional reform targets envisaged under the project were generally not owned by parts of Government and other stakeholders in DWASA, even as a dialog continued with the Bank to secure IDA financing. In retrospect, some of the agreed actions and targets were over-ambitious given the general operating environment in DWASA and the Government. Some actions (such as the contracting out of meter-reading, billing and collection) were agreed, but were constrained in their timely implementation which contributed to the delay between appraisal and Board approval. As a result, project implementation encountered difficulties from the start.

7 5 Government implementation performance:
The rating for this aspect is unsatisfactory; throughout project implementation, the Government's Local Government Division (LGD) failed to be diligent in monitoring the requirements of the Project Agreement between itself and DWASA. Following effectiveness, the project faced delays mainly due to procurement-related problems arising from failure to diligently follow Bank procurement guidelines at various stages. In most situations, the LGD did not play a pro-active role in project implementation or in coordinating required actions with other government ministries and agencies (such as on the Environmental Protection Zone or on the issues of public sector arrears). Only when IDA had flagged issues with impending deadlines, to the point of threatening suspension of credit disbursements, did the LGD act. Even later, the LGD has not

followed up on agreed actions with the relevant ministries for example, the implementation of the Environmental Protection Zone or the DWASA Staff Rationalization Program, which were conditions for lifting the suspension on Credit disbursements in April 2001.

7.6 Implementing Agency:

The performance of DWASA, the implementing agency, has been rated unsatisfactory. Given that DWASA had implemented three previous IDA-financed projects, most aspects of its administrative performance during implementation of this project have been disappointing. While DWASA strove to complete the physical works under the project, notwithstanding difficulties in procurement, especially of goods, the same level of effort was not applied to the institutional reform/development measures. In some cases, the implementation constraints were beyond DWASA's control, such as the DWASA staff rationalization program and the further revision of the WASA Act 1996, which have stalled in Government ministries.

A disaggregated form of project management, where different 'Project Directors' for various project components reported to the Managing Director of DWASA, rather than to a dedicated Project Manager responsible for project coordination and implementation monitoring, may have caused delays and inconsistencies during implementation of several contracts (including subsequent cancellation of some procurement) as well as in processing of withdrawal applications for disbursement.

DWASA's performance in carrying out procurement activities were not altogether satisfactory. Although the procurement of works and services were carried out satisfactorily, most of the problems were related to goods procurement. Out of six goods contract-packages, one (for procurement of 15,000 water meters) was declared misprocurement by the Bank. Procurements of double cabin pick-ups, a fork-lift and a crane were initiated but could not be finalized as there was not adequate time for processing these contracts before the Credit Closing Date. The procurement of computers and software could possibly have been completed had DWASA more diligently adhered to the Bank's procurement procedures and guidelines in evaluating the bids for this procurement.

In general, though, even without adequate achievement of the institutional development objectives under the project, DWASA should be credited with managing the completion of most physical works related to the Saidabad Water Treatment Plant within time and without cost overruns.

The Bank did not receive DWASA's audit reports on time for FY2000 and FY2001, although these were made available by DWASA for the ICR mission. Despite repeated requests, DWASA's management paid little attention to the non-compliance of the finance covenant of the DCA at the time, perhaps because the project was already suspended for other reasons.

The audit report from the C&AG was received on time and DWASA responded satisfactorily to all material audit observations that needed further clarification from the Bank's point of view. However, there are several pending audit observations relating to Government policies and procedures, which remain to be resolved.

7 7 Overall Borrower performance:

In summary, the performance of the Borrower at most stages of the project cycle were unsatisfactory, as indicated in Annex 6. While DWASA seemed to focus on the completion of the physical works under the project, there was only sporadic support from the concerned Government ministry to follow up on the implementation of various institutional development and policy objectives of the project. Given the experience so far, the main problems in project implementation have been the failure of the borrower to pursue and accomplish the reform objectives, notwithstanding technical assistance provided under the project. What would be crucial in the future is the sustained improvement of institutional and financial performances of DWASA, including the efficient operation and maintenance of the Saidabad Water Treatment constructed under the project. In doing so, the commitment of the borrower, specifically the Local Government Division, will be pivotal in ensuring the sustainability of the investments under the project as well as creating an effective policy environment for DWASA as it tries to manage the water and sewerage systems of a mega-city.

8. Lessons Learned

As this project has, by and large, been unsuccessful, it provides a number of opportunities to consider what lessons can be learned.

Perhaps most surprising is that, despite the project being the fourth by IDA to attempt helping DWASA to develop, it was not more clearly identified that the institutional development component (probably IDA's major interest, as it holds the promise of DWASA becoming self-sufficient) was most likely to be of least interest to GOB/DWASA. A clearer statement of this likely area of disagreement could have led to action during project preparation and design which demonstrated the seriousness of IDA, and the extent of ownership (or lack of ownership) of GOB/DWASA of the concepts.

Alternatively, it can be argued that major policy and institutional changes should be demonstrated in advance of making large physical investments. In the context of this project, this would imply first seeking the managerial and other efficiencies in performance, providing assistance as needed; and then - maybe in a separate project - providing the capacity increases to the city's water supply system. This approach enables both the borrower and the financier to gauge the likelihood of change being implemented, and the expectations and project objectives to be scaled accordingly.

Having intensive supervision directed mainly at institutional development objectives would also demonstrate to the borrower the serious concern with which the objective is viewed by the donor. As noted above, the project could be designed with time-bound covenants related to institutional development early on in the project life, so that any lack of intent to implement the component would be apparent, well before major investment contracts are let out.

In cases like this, where the introduction of the private sector into a utilities' operation was being attempted for the first time in a country, achieving policy reform through a traditional investment project required a cautious approach, because so many of the key decisions would be taken outside DWASA, in higher levels of Government. Consideration of using other instruments, such as introducing key requirements into a Sector Adjustment Loan, could have helped obtain the type of major policy change that requires attention from top-level Government officials if they are

to be introduced in a sustainable manner. The policy changes could then have been supported and implemented by the investment project, which would be the appropriate vehicle for managing detail, especially at the city service level.

In place of major reform, if this is assessed to be unlikely to occur, analysis should be made of whether reduced but still acceptable objectives can be achieved with more limited change, by focusing on one or two critical factors necessary for improvement (and which may also, by its more limited nature, be more amenable to being managed within the organization without external involvement). For example, key areas of reform in DWASA might initially focus on contracting-out metering, billing, collection and disconnection - to increase revenue and reduce UFW - which might in turn be supported by physical investments in pipeline and distribution system rehabilitation, and international experience of techniques for contracting out activities. Based upon the results of a much smaller project, a decision could be made with more confidence about whether or not to prepare a project for large infrastructure development.

Once the project is agreed, it is essential that supervision (by both the borrower and the lender) ensures that agreements are strictly honored, or the project stopped and, if needed, cancelled early on during project implementation, rather than letting problems linger on, meanwhile allowing major contracts to be let - risking eventually both the quality of the borrower/lender relationship, and the sustainability of any infrastructure eventually built. Interestingly, a comment by DWASA below (item iv) stresses the importance of high-level monitoring of progress by its own Ministry, to highlight areas where delays start to occur.

DWASA raises the following additional lessons from its perspective: (i) the importance of staff continuity in the implementation agency, its project management, and the supervisory Ministry; (ii) the need for additional (refresher) training in Bank procedures prior to project implementation - especially related to procurement, disbursement and financial management; (iii) avoiding re-evaluation of tenders by multiple tiers of Government, perhaps by forming joint tender boards with appropriate representation from the different agencies concerned; (iv) the need for high-level, continuous, monitoring of progress; (v) timely provision of counterpart funds, even through times of credit suspension, to avoid interrupting payments to suppliers; (vi) streamlined procedures are required to pay contractors quickly after the Engineer certifies that payment is due (especially where multiple donors are involved); (vii) high-level coordination is needed to resolve inter-ministerial problems; (viii) planning, design and implementation by the same lead consultant minimized conflict between different sections / phases of the project; and (ix) appreciation should be given, when due, to hard work done by Project Implementation staff to ensure they do not become de-motivated.

9. Partner Comments

(a) Borrower/implementing agency:

The following are summaries of the comments received from Government of Bangladesh and Dhaka WASA, which have been prepared by the World Bank. The summarized submissions of the borrower/implementing agency are shown in Annex 8. The complete comments are available

from the South Asia Energy and Infrastructure Division of the World Bank.

Government of Bangladesh's Comments

The Government's comments stress the successful achievement of many of the project's physical components, especially the new WTP and its ancillary works. The various reforms are also listed, mostly in terms of the number of reforms recommended and their current status, whether undertaken, being reviewed, or considered inappropriate. Reference is made to contracting out of billing and collection in two DWASA revenue zones. Emphasis is also given to the efforts made by Government and by DWASA to implement the project as agreed, and in particular to the largely successful effort made to maintain project momentum during the period of Credit suspension. The difficulty of fulfilling covenants simultaneously with major physical works is highlighted, and the suggestion is made that fulfillment of covenants should be a prior responsibility ahead of physical implementation. Also "multi-dimensional" project objectives should be avoided, and recognition given to the non-ideal conditions prevailing for, and the extent of jurisdiction of, agencies such as DWASA.

The impact of the two year delay in Credit effectiveness, requirements for revisions of procurement plans, consideration of project restructuring, Credit suspension, and the like combined such that a number of specific items eventually were dropped from the project. Nevertheless, several important activities have been undertaken despite this, using GOB/DWASA funds.

Lessons from the project include: PIU members must be trained in World Bank guidelines and procedures well ahead of project implementation; and contracts for building a particular asset, such as the WTP, should not be split between a civil works contractor and a electrical/mechanical contractor simply on the basis of funding source, due to the coordination problems created by so doing.

Operation and maintenance arrangements made for the WTP include the appointment of 40 staff, including several managers, and consideration is being given to retaining the WTP engineering contractor for five years to train DWASA's staff; the Department of Fisheries has been requested to protect the raw water in the transmission canal by halting fish farming; and the issue of environmental quality of raw water at the intake point is being monitored through an inter-ministerial committee which has the tasks of identifying sources of pollution, determining remedial measures, and preparing integrated work plans to resolve problems.

Dhaka Water Supply and Sewerage Authority's Comments

In addition to reiterating the project's objectives and components, DWASA's comments contend that the project has achieved its major physical and non-physical objectives to a large extent. In addition to listing the studies, recommendations and reforms under the project, DWASA stresses that efforts to achieve key improvements are continuing, even after project closure, and successful innovations such as the contracting out of two revenue zones are being replicated. It is argued that the new management structure, consisting of a Managing Director and three Deputy

Managing Directors has made the utility more efficient (though after the project closed these posts were filled by senior DWASA staff or Government staff on secondment, rather than staff recruited from the market as originally intended). Similar points to those mentioned above are made concerning the operation of the WTP, the possible involvement of the contractor in this process, and the steps taken to protect the environmental quality of the raw water source, both at the intake point and during its transmission.

The lessons learned are also similar, but include in addition that a multidisciplinary PIU should be created for project implementation, there should be continuity of key staff, the project director should have authority over those implementing components for those components, that multiple re-reviews of a tender evaluation by different levels of Government should be avoided, perhaps by forming a tender evaluation board with appropriate representation; and that high level Ministerial monitoring helped maintain the pace of implementation.

Three concerns are mentioned regarding cash flow: first, the cessation of ADP during the period of Credit suspension added to the delay in paying contractors; second, it took several weeks to pay contractors after the 'Engineer' had authorized payment, due to the number of hands it had to pass through; and third, confirmation of the point above to avoid splitting construction works into contracts simply on the grounds of source of finance, due to the resulting coordination problems caused. A final interesting observation is that planning, design and implementation using the same consulting firm ensured a consistent engineering approach was followed, and minimized conflict.

(b) Cofinanciers.

Comments of the Government of France, the main cofinancier, are:

"The financing brought by the French government for the above mentioned project (representing an investment of approximately 25 M$) is the most important in value for a "one project only" investment in Bangladesh since its independence over thirty years ago.

Generally speaking, this Mission shares the World Bank's conclusions and viewpoints, as stated in the ICR (IDA – 29260). However, this Mission wishes to maintain a constructive approach with regard to this water treatment station's immediate future.

It can be said that there are no exemplary projects in Bangladesh; only those coming to completion become exemplary. Taking this fact into account, the completion of the station in acceptable conditions allows us to bear a positive judgement on this whole operation.

What must be avoided at all costs is to let the pumping and treatment station "go to rust". If it is true that particular efforts must be made in terms of institutional reforms and water distribution systems, every attempt must also be made to ensure that the station lives on. Consequently, the French government would be prepared in principle to finance the station's operation and maintenance for the next 5 years, on the financial base presently available (buyer's credit). However, in order to achieve a more viable financing, it appears necessary to implicate the World Bank as a cofinancier, with the apportionment between the French government and the World Bank yet to be determined.

Moreover, with regard to the upstream pollution problems (river feeding the water gate); the situation is not as alarming as stated by the World Bank. Indeed, according to ONDEO DEGREMONT, the present consumption of reactive agents is less than expected. A very special attention must be given to ensure that the solutions proposed by the Ministry of Environment are carried out in order to reduce in the future the polluting effluents caused by the industries established upstream (relocation envisaged).

Finally, according to the BCEOM Civil Engineer, the open air canal could provide a natural reduction of the pollution through solar rays, providing the canal is suitably monitored.

In conclusion, even though this Mission considers that the transmission of information has sometimes lacked in times of momentary credit suppressions, I bear a very positive judgement on a co financing venture, not obvious at the start, which would involve four players: World Bank, France, Japan, and the Government of Bangladesh."

(c) Other partners (NGOs/private sector).
N/A

10. Additional Information

None.

Annex 1. Key Performance Indicators/Log Frame Matrix

Bangladesh
Fourth Dhaka Water Supply Project
Performance & Monitoring Indicators

BANGLADESH
FOURTH DHAKA WATER SUPPLY PROJECT
Performance And Monitoring Indicators

Year ending June 30	1996		1999		2001		2002	
	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual
Operatinal Targets								
Meter Coverage Level	85%	73.5%	95%	73.4%	95%	70.3%		73.0%
Unaccounted for Water	45%	45%	36%	47%	30%	43%		41%
End-Year Connections	163,765	163,794	199,485	177,980	225,866	196,453		201,238
Operational Indicators								
Water Service Coverage Levels	71.5%	62.0%	77.0%	74.0%	80.4%	75.0%		79.0%
Consumption (litre/capacity/day)	95	107	104	118	106	120		125
Average hours of service /day	13	24	18	24	18	24		24
Production Capacity	85%	88%	73%	92%	81%	99%		99%
Efficiency Indicators								
Staff Productivity Index (staff/000 conn)	18	18	15	18	13	16		15
Personnel / Operating Cost Index	20.4%	15.5%	20.3%	17.8%	21.7%	13.5%		15.5%
Unit Operating Cost/DTW (Tk/m3)	6.95	6.36	8.21	7.25	9.47	9.55		10.25
Unit Operating Cost/SWTP (Tk/m3)	8.4	8.15	9.95	9.29	11.17	12.24		13.75
Avrg Well Productivity (m/litre/day)	3.8	3.55	4	3.46	4	3.24		3.15
Financial Ratios								
Working Raio	0.7	0.84	0.6	0.7	0.7	0.73		
Operating Ratio	0.8	1.07	0.8	1.04	0.8	1.04		
Receivables / Monthly Billing	4	10.58	3	8.33	3	9.85		
Contribution to Investment	15.8%	12.3%	65.0%	18.9%	87.3%	3.1%		
Collection / Revenue Efficiency	96%	79.2%	100%	75.8%	100%	93.0%		
Tariff Increase	0%	0%	0%	5%	0%	0%		
Leverage Indicators								
Debt Service Coverage	0.8	0.93	0.9	2.23	0.8	2.59		
Debt / Equity Ratio (%)	23.05%	43.25%	31.79%	19.36%	29.91%	21.28%		
Current Ratio	7.1	6.4	6.2	4.54	4.9	5.78		

Annex 2. Project Costs and Financing

Project Cost Summary (Appraisal Estimate)

Sl. No.	Project Cost By Component	Appraisal Estimate (US$ Million)				
		Local	Foreign	Total	% Foreign Exchange	% Total Base Cost
A	(i) Land Acquisition	22.8	-	22.8	-	15%
	(ii) Resettlement, fencing, etc.		-		-	-
B	Treatment Plant & Associated Works					
	1.Intake Sarulia	1.3	1 7	3.0	57%	2%
	2.Canal Rehabilitation & Site	2.6	-	2.6	-	2%
	3.Culvert from DND Canal to Site	2.9	-	3.0	-	2%
	4.Treatment Plant	28.6	42.6	72 2	59%	46%
	5 Ancillary Structure	1.8	0.1	2.0	5%	1%
Subtotal Treatment Plant & Associated Works		**37.2**	**44.4**	**82.8**	54%	53%
C	New Pipelines					
	1. Primary Transmission Mains	7.4	10.1	17.5	58%	11%
	2. Secondary Transmission Mains	1.7	2.9	4.6	63%	3%
Subtotal New Pipelines		**9.1**	**13.0**	**22.1**	59%	14%
D	Distribution System Rehabilitation	3.1	5.4	8.5	64%	5%
E	Expansion of Service Connections	0.9	1.4	2 3	61%	1%
F	Development of Sewerage/ Sanitation	1.6	2.4	4.1	59%	18%
G	Institutional Development	2.7	4.3	7.0	61%	4%
H	Project Preparation and Implementation Support	0.5	6.0	6.5	92%	4%
I	Electric connection, office furniture, computer, vehicle, generator, project personnel salary, etc.	-	-	-	-	-
Total Baseline Cost		**77.9**	**76.9**	**156.1**	49%	**100%**
Physical Contingencies		3.3	4.6	7.8	59%	5%
Price Contingencies		5.5	6.5	12.0	54%	8%
Total project Cost		**86.7**	**88.0**	**175.8**	50%	113%

Project Cost Summary (Actual)

Sl. No.	Project Cost By Component	Actual / Latest Estimate US$ Million				
		Local	Foreign	Total	% Foreign Exchange	% Of Total Base Cost
A	(i) Land Acquisition	22.80	0.00	22.80	-	18%
	(ii) Resettlement, fencing, etc.	0.24	-	0.24	-	0%
B	Treatment Plant & Associated					
	1.Intake Sarulia	3.17	2.03	5.20	39%	4%
	2.Canal Rehabilitation & Site	2.12	-	2.12		2%
	3.Culvert from DND Canal to Site	1.00	1.84	2.84	65%	2%
	4.Treatment Plant	10.99	38.90	49.89	78%	39%
	5. Ancillary Structure	1.80	0 10	2.00	5%	2%
Subtotal Treatment Plant & Associated Works		19.14	42.77	61.91	69%	49%
C	New Pipelines					
	1. Primary Transmission Mains	8.16	11.34	19.50	58%	15%
	2. Secondary Transmission Mains	-	-	-		
Subtotal New Pipelines		8.16	11.34	19.50	58%	15%
D	Distribution System Rehabilitation	1.13	-	1 19	-	1%
E	Expansion of Service Connections	0.09	-	0.09	-	
F	Development of Sewerage/ Sanitation	0.40	0.73	1.13	65%	1%
G	Institutional Development	2.63	3.32	5.95	56%	5%
H	Project Preparation and	3.73	6.44	10.17	63%	8%
I	Electric connection, office furniture,	4.48	-	4 48	-	4%
Total Baseline Cost		62.80	64.60	127.40	51%	100%
Physical Contingencies		-	-	-	-	-
Price Contingencies		-	-	-	-	-
Total Project Cost		62.80	64.60	127.40	51%	100%

Project Cost By Procurement Arrangements
Project (As Per Staff Appraisal Report)
(US$ million equivalent)

Projected (As per SAR report)					
Procurement Method					
Project Element	**ICB**	**NCB**	**Other**	**NBF [2]/**	**Total [3]/**
Civil Works	68.2 (56.7)	7.8 (7.5)	3.0 -	- -	79.0 (64.2)
Goods and Equipment	3.1 (1.9)	0.2 (0.2)	- -	53.7 -	57.1 (2.1)
Consultancy Services	- -	- -	14.0 (14.0)	1.3 -	15.3 (14.0)
Land Acquisition	- -	- -	- -	24.5 -	24.5 -
Total	**71.3** **(58.6)**	**8.0** **(7.7)**	**17.0** **(14.0)**	**79.5** **-**	**175.8** **(80.3)**

Project Cost By Procurement Arrangements
Latest/Actual Estimate
(US$ million equivalent)

Actual (from DWASA)					
Procurement Method					
Project Element	**ICB**	**NCB**	**Other**	**NBF [2]/**	**Total[3] /**
Civil Works	44.58 (44.58)	2.21 (0.09)	- -	- -	46 79 (44.67)
Goods and Equipment	34.71 (-)	0.53 (0.51)	- -	- -	35 24 (0.51)
Consultancy Services	-	- -	17.85 (17.85)	- -	17.85 (17.85)
(i) Land Acquisition **(ii) Resettlement, Fencing, etc.**	- -	- -	- -	22 8 - 0.24 -	22.8 - 0.24 -
Electric connection, furniture, computer, vehicle, generator, project personnel salary	- -	- -	- -	4.48 -	4.48 -
Total	**79.29** **(44.58)**	**2.74** **(0.60)**	**17.85** **(17.85)**	**27.52** **-**	**127.40** **(63.03)**

1) IDA Amounts in Brackets

2) Non Bank Financed - Co-financiers and Government of Bangladesh

3) Figures may not add up due to rounding.

Project Financing by Components
Estimated

Projected (As per SAR report)													
	The Govt. / Dhaka WASA		IDA		Govt. Of France		Govt. of Japan		Total				
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For Ex	Local (Excl Taxes	Duties and Taxes
1. Investment Cost													
A Land	24.5	100	0	-	0	-	0	-	24 5	13.9	0	24 5	0
A1 Resettlement, housing, etc													
B Civil Works	14.8	18 7	64.2	81 3	0	-	0	-	79	44 9	40 1	22.1	11 8
C. Electrical & Mechanical	23.1	41.8	0 9	1.6	31 3	56 6	0	-	35 3	31 5	32 2	0	23 2
D Technical Assistance	0	-	14	91 5	0	-	1.3	8 5	15 3	8 7	8 3	5 6	0
E Equipment	0 5	29 4	1 2	70 6	0	-	0	-	1 7	1	7 5	0	0 5
F Electric connection, furniture, computer, vehicle, generator, project personnel salary, etc													
Total Disbursement	**62.2**	**35.8**	**80.3**	**45.7**	**31.3**	**17.8**	**1.3**	**0.7**	**175.8**	**100**	**88.1**	**32.2**	**35.5**

Project Financing by Components
Actual

	The Govt. / Dhaka WASA		IDA		Govt Of France		Govt. of Japan		Total				
	Amt.	**%**		**%**	**Amt.**	**%**	**Amt.**	**%**	**Amt.**	**%**	**For Ex.**	**Local (Excl. Taxes**	**Duties and Taxes**
1. Investment Cost													
A. Land	22.8	100	-	-	-	-	-	-	22.8	18	-	22 8	-
A1 Resettlement, housing, etc	0.24	100	-	-	-		-	-	0.24	0.18	-	0 24	-
B Civil Works	11.15	23 82	35 64	76 18	-	-	-	-	46 79	36 93	35 64	2 56	8 59
C Electrical & Mechanical	6 3	19.59	-	-	27 91	80 41	-	-	34 71	27 39	27 91	1.58	5.22
D.Technical Assistance	2 7	15 74	14 41	84 2	-	-	0 7	0 06	17 85	13 53	15.15	0.22	2 48
E Equipment	0 02	3 77	0.51	96.23	-	-	-	-	0 53	0 42	0.51	0 02	-
F Electric connection, furniture, computer, vehicle, generator, project personnel salary, etc	4.48	100		-	-		-	-	4.48	3 54	-	4 1	0 38
Total Disbursement	**48.19**	**38.03**	**50.59**	**39.93**	**27.91**	**26.03**	**0.7**	**0.008**	**127.4**	**100**	**79.21**	**31.52**	**16.67**

Annex 3. Economic Costs and Benefits

During appraisal, the economic analysis of the project had been undertaken by considering the marginal costs of deep tube wells (DTWs) and the Saidabad water treatment plant (SWTP) to obtain the economic least cost solution for the proposed investment program. The methodology used, the underlying assumptions, the long-run marginal costs and the least cost solutions, and the costs and benefits of the project were presented in Annex 13.1 of the Staff Appraisal report (SAR) based on the feasibility study and some information collected by IDA missions.

Given that no recent demand and willingness-to-pay information was available or collected for the ICR, no new cost-benefits analysis has been undertaken for the ICR. Assuming that the SAR demand curve estimated by consumers' willingness to pay still holds, there would be no change in the demand function for water Q=a + bP (SAR Annex 13.1 Table 3) and benefits would be the sum of "value of net capacity" and consumer's surplus; as such, economic returns would vary with the change in project costs. This demand curve was estimated by the willingness to pay of the consumers, as revealed by the maximum amount of that consumers are willing to pay for water which was found to be nearly Tk 27 per m3.

As the project included the construction of the Saidabad water treatment plant and the loss reduction activities, the economic analyses during project appraisal focused on these components which would jointly contribute to an increase in safe water supply in Dhaka (SAR Annex 13.1). The SAR analyzed the comparative costs of water supplied by the DTWs and the SWTP, based on figures from the BCEOM study and/or provided by DWASA for the construction and operation of DTWs and the SWTP. The probable decline in production given existing conditions of water levels was also considered, assuming that as the water table declined, the costs of production would increase.

The benefits of the project stem from both the increased capacity and the loss reduction activities, and the 'reasonable' strategy was to construct the SWTP and meet remaining deficits with a 'cautious' DTW expansion program. However, since project appraisal, especially in the wake of the 1998 floods, DWASA did expand its production capacity by rehabilitating and installing more DTWs than was anticipated at appraisal.

The SAR's estimated rate of return of the project was 22% with net benefits amounting to more than 60% of the project costs. It was estimated that if only 60% of the estimated benefits were obtained, the project would remain economically feasible; also, even if project costs increased by 60% the project would still be economically feasible at a 10% discount rate.

In that context, since project appraisal, DWASA embarked not only on the construction (and eventual commissioning in July 2002) of the water treatment plant but has also expanded its production capacity by installing more deep tube wells (DTWs) than had been projected. As such, the total marginal cost for such DTW production had decreased from the SAR estimate of Tk 7.11 to Tk 6.54 per m3 (Tk 5.24 for investment costs and Tk. 1.30 for O&M costs).

On the other hand, given the actual costs figures available from DWASA, the total marginal cost of the Saidabad plant has now been estimated to be Tk 8.81 per m3 (including Tk 5.99 for

investment costs and Tk 2.81 for O&M costs). The corresponding figures in the SAR were Tk 9.99 (and Tk 7.65 for investment costs and Tk 2.34 for O&M costs). This possibly reflects the actual costs of construction of the water treatment plant being actually lower than estimated.

With these revised project costs and the changes in the total marginal costs from increased production, the net present values for both DTWs and the Saidabad Water Treatment Plant have changed. (Table 1 updates Table 1 of SAR Annex 13. 1 with actual costs figures as available.) With the increase in water supply capacity from the SWTP and the construction and rehabilitation of primary and secondary networks under the project, coupled with the ongoing system rehabilitation program, the economic returns may be deemed to be above the acceptable rate for such projects.

In the SAR Economic Analysis (Annex 13.1), Table 4 and Table 5 provide the revised economic costs and benefits from water supply expansion program and the loss reduction activities; these tables have been revised with current figures on costs available from DWASA but with the assumption that consumer's surplus remains the same. As Table [4] indicates, addition of net capacity have led to increases in gross benefits with lower costs and the present values of net benefits have risen while the internal rate of return (IRR) has also increased to 36.97% from 22.26% in the SAR. Similarly, the IRR from loss reduction activities has also risen to 40% from 29.28% during appraisal (Table 5).

It is expected that the economic value of this additional water supply is considerable because it would reduce costs and allow for an increase in consumption by low-income groups in Dhaka.

Dhaka Water Supply, Comparative costs of DTWs and the Saidabad I SWTP										
	Actuals Used							Saidabad SWTP (1)		
Year	Actual		Production (million m3)	Costs (Tk million)				Produc-tion (Million m3)	Costs (Tk million)	
				Investment			O&M		Invest-ment	O&M
ending June 30	Production (Million m^3)	Production (Million m^3)	Increase net capacity	Direct Invest.	Other Cost	Total Cost	Total for DWASA			
(1995-96)	1									
2	283.61	23.37	8 04	38 66		38 66	0.00			
3	295 65	35.41	20.08	28 22		28.22	0.00		1163 06	
4	299.67	39 43	24 10	16.92	151 43	168 35	0 00		419 25	
5	345 66	85 42	45 99	194.23	156.34	350 57	0 00		396.12	
6	395.28	135.04	49 62	134 13		134.13	0.00		854 19	
7	423 75	163 51	28.47	144 50		144 5	0.00		1578.11	
2002	439 22	178.98	15.47	65 45		65.45	0.00		1129.41	
9	439.22	178.98	0 00	39.48		39.48	0 00	82.125	296 57	194 00
10	439.22	178.98	0 00	39.48		39.48	0.00	82.125		194 00
11	439.22	178.98	0 00	21 94		21.94	0.00	82.125		194 00
12	450 71	178.98	0.00	21 94		21 94	0.00	82.125		194 00
13	462 2	178.98	0 00	8.77		8.77	0 00	82.125		194 00
14	468 58	178 98	0.00				0.00	82 125		239 00
15	474 96	178.98	0 00				0.00	82 125		239 00
2010	477.46	178 98	0 00				0 00	82 125		239 00
17	477 46	178 98	0.00				0 00	82.125		239 00
18	477 46	178 98	0 00				0.00	82.125		239 00
19	477 46	178.98	0.00				0 00	82.125		272 60
20	477.46	178 98	0 00				0 00	82 125		272.60
2015	477 46	178 98	0.00				0.00	82.125		272 60
22	477.46	178.98	0 00				0.00	82 125		272.60
23	477.46	178 98	0 00				0.00	82 125		272 60
24	477 46	178 98	0 00				0 00	82.125		300 80
25	477 46	178 98	0 00				0.00	82 125		300 80
2020	477 46	178.98	0 00				0 00	82.125		300 80
27	477.46	178.98	0.00				0 00	82.125		300 80
28	477 46	178.98	0.00				0.00	82 125		300 80
29	477.46	178.98	0 00				0.00	82 125		319 30
30	477.46	178 98	0 00				0 00	82.125		319 30
2025	477.46	178.98	0 00				0.00	82.125		319 30
Present Values	3,170 86	996 77	119 14			624.36	0.00	633 88	3,799 28	1,782 18
Marginal cost Tk/m3						5.24	0.00		5 99	2 81
Total marginal cost Tk/m3				5 24		5.24			8 81	
Total marginal cost US $/m3				0 1310		0 1310			0 2201	
		IRR						IRR		

Note:

In the year 2015 population will be 18.86 million and demand for water will be 3016.99 m considering 160 litre per capita per day.
After 2007 no further production from TW in envisaged

Here:

1)Direct cost includes 'all costs for the setting up of a new DTW'
2) Other cost: includes the cost which ensures 'uninterrupted service for the installation of a DTW".
3) Direct Investment and O&M Costs - found from each of the future program that WASA plans to implement in near future

Year	Actual
1996	216
1997	222
1998	237
1999	277
2000	307
2001	335
2002	357
2003	
2004	
2005	

Table 3 - Dhaka, Description of the estimated demand function for water (Q=a+bp)

Ouantity Q m3/yr.	Intercept (a)	Slope (b)	Price P Tk/m3	Consumption (lpd)	Price Elasticity (-)	Required Supply m3/s	Required Capacity m3/s
59.45	595	19.835	27	30.00	9.01	1.89	2.53
79.29	595	19.835	26	40.01	6.50	2.51	3.37
99.13	595	19.835	25	50.01	5.00	3.14	4.21
118.96	595	19.835	24	60.02	4.00	3.77	5.05
138.80	595	19.835	23	70.03	3.29	4.40	5.90
158.63	595	19.835	22	80.04	2.75	5.03	6.74
178.47	595	19.835	21	90.05	2.33	5.66	7.58
198.30	595	19.835	20	100.05	2.00	6.29	8.43
218.14	595	19.835	19	110.06	1.73	6.92	9.27
237.97	595	19.835	18	120.07	1.50	7.55	10.11
257.81	595	19.835	17	130.08	1.31	8.17	10.95
277.64	595	19.835	16	140.08	1.14	8.80	11.80
297.48	595	19.835	15	150.09	1.00	9.43	12.64
317.31	595	19.835	14	160 10	0.88	10.06	13.48
337.15	595	19.835	13	170.11	0.76	10.69	14.33
356.98	595	19.835	12	180.12	0.67	11.32	15.17
376.82	595	19.835	11	190.12	0.58	11.95	16.01
396.65	595	19.835	10	200.13	0.50	12.58	16.85
416.49	595	19.835	9	210.14	0.43	13.21	17.70
436.32	595	19.835	8	220.15	0.36	13.84	18.54
456.16	595	19.835	7	230.15	0.30	14.46	19.38
475.99	595	19.835	6	240.16	0.25	15.09	20.23
495.83	595	19.835	5	250.17	0.20	15.72	21.07
515.66	595	19.835	4	260.18	0.15	16.35	21.91
525.78	595	19.835	3.49	265.28	0.13	16.67	22.34
535.50	595	19.835	3	270.19	0.11	16.98	22.75
555.33	595	19.835	2	280.19	0.07	17.61	23.60
575.17	595	19.835	1	290.20	0.03	18.24	24.44
595.00	595	19.835	0	300.21	0.00	18.87	25.28

** Aprox. Current consumption; * Equilibrium Level (Price = Marginal Cost)

Table 4 - Dhaka, Economic Costs and Benefits of the Water Supply Expansion Program

Year	Saidabad capacity M M3	Losses (%)	Increased net capacity M m3	Price Tk/m3	Value of net capacity M Tk	Consumer's surpluse M Tk	Gross Benefits M Tk	Costs M Tk	Net Benefits M Tk
1996	0	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0	0.45	2.21	18.58	40.99	0.43	41.42	1,163.06	-1,121.64
1998	0	0.43	2.94	18.45	54.29	1.91	56.20	419.25	-363.05
1999	0	0.47	11.38	18.85	214.51	4.30	218.81	396.12	-177.31
2000	0	0.47	20.47	18.75	383.81	140.63	524.44	854.19	-329.75
2001	82.125	0.43	107.82	18.38	1,981.64	160.83	2,142.47	1,578.11	564.36
2002	82.125	0.42	110.65	18.24	2,018.16	205.30	2,223.46	1,129.41	1,094.05
2003	82.125	0.40	110.65	17.98	1,989.40	255.19	2,244.59	296.57	1,948.02
2004	82.125	0.38	110.65	17.80	1,969.48	310.50	2,279.98	300.00	1,979.98
2005	82.125	0.36	110.65	17.45	1,930.76	371.24	2,302.00	300.00	2,302.00
2006	82.125	0.36	112.76	17.26	1,946.15	408.95	2,355.10	300.00	2,355.10
2007	82.125	0.35	114.87	17.19	1,974.53	408.95	2,383.48	300.00	2,383.48
2008	82.125	0.35	116.04	17.19	1,994.64	408.95	2,403.59	300.00	2,403.59
2009	82.125	0.35	117.21	17.19	2,014.75	408.95	2,423.70	300.00	2,423.70
2010	82.125	0.35	117.67	17.19	2,022.66	408.95	2,431.61	300.00	2,431.61
2011	82.125	0.35	117.13	17.19	2,013.38	408.95	2,422.33	300.00	2,422.33
2012	82.125	0.35	116.13	17.19	1,996.19	408.95	2,405.14	300.00	2,405.14
2012	82.125	0.35	117.67	17.19	2,022.66	408.95	2,431.61	300.00	2,431.61
to 2032	82.125	0.35	117.67	17.19	2,022.66	408.95	2,431.61	300.00	2,431.61
Present values(@12% discount rate) Million Tk M							12,627.06	4,892.41	7,773.76
Present values(@12% discount rate) Million US$							315.68	122.31	194.34
					Internal Rate of Return			36.97%	
M = million									

Table 5 - Dhaka, Economic Costs and Benefits of Loss Reduction Activities

Year	Saidabad capacity M M3	Losses(%)	Increased net capacity M m3	Price Tk/m3	Value of net capacity M Tk	Consumer's surplus M Tk	Gross Benefits M Tk	Costs M Tk	Net Benefits M Tk
1996	0	0.4500	0	0	0	0	0	0	0.00
1997	0	0.4498	2.21	11.09	24.47	0	24.47	53.13	-28.66
1998	0	0.4303	2.94	11.03	32.46	15.27	47.73	47.45	0.27
1999	0	0.4712	11.37	10.96	124.61	31.1	155.71	232.50	-76.79
2000	0	0.4652	20.46	10.89	222.83	47.52	270.35	465.29	-194.94
2001	0	0.4286	25.68	10.82	277.85	64.5	342.35	298.72	43.63
2002	0	0.4174	28.51	10.74	306.24	100.2	406.44	364.94	41.49
2003	0	0.3994	28.51	10.65	303.67	138.19	441.86	285.89	155.97
2004	0	0.3814	28.51	10.56	301.10	178.47	479.57	259.92	219.65
2005	0	0.3634	28.51	10.35	295.12	221.05	516.17	259.92	256.24
2006	0	0.3550	30.62	10.24	313.54	265.92	579.46	253.46	326.00
2007	0	0.3500	32.72	10.12	331.17	265.92	597.09	264.13	332.97
2008	0	0.3500	33.89	10.12	343.00	265.92	608.92	257.16	351.76
2009	0	0.3500	35.06	10.12	354.83	265.92	620.75	263.31	357.44
2010	0	0.3500	35.52	10.12	359.47	265.92	625.39	266.38	359.01
2011	0	0.3500	35.52	10.12	359.47	265.92	625.39	267.53	357.86
2012 a	0	0.3500	35.52	10.12	359.47	265.92	625.39	268.74	356.65
2032	0	0.3500	35.52	10.12	359.47	265.92	625.39	274.21	351.18
Present values(@12% discount rate) Million Tk M							3,085.42	1,992.94	1,092.48
Present values(@12% discount rate) Million US$							77.14	49.82	27.31
						IRR	40%		

M = million

Annex 4. Bank Inputs

(a) Missions:

Stage of Project Cycle	No. of Persons and Specialty (e.g. 2 Economists, 1 FMS, etc.)		Performance Rating	
Month/Year	Count	Specialty	Implementation Progress	Development Objective
Identification/Preparation 01/1994				
Appraisal/Negotiation 05/1994		FINANCIAL ANALYST (1); PROCUREMENT ANALYST (1); SANITARY ENGINEER (1); PSD SPECIALIST (1); FINANCIAL ANALYST (1); PROGRAM OFFICER (1); RESETTLEMENT SPECIALIST (1); ANTHROPOLOGIST (1), ENVIRONMENTAL ECONOMIST (1); OPERATIONS OFICER (1)		
Supervision 03/06/1997	*7*	PROCUREMENT ANALYST (1); SANITARY ENGINEER (1); PSD SPECIALIST (1); FINANCIAL ANALYST (1); PROGRAM OFFICER (1), ENVIRONMENTAL ENGINEER (1); ENVIRONMENTAL ECONOMIST (1)	S	S
10/06/1997	*5*	FINANCIAL ANALYST (1); PROGRAM OFFICER (1); ENVIRONMENTAL ENGINEER (1); URBAN ENV. SPECIALIST (1); ENVIRONMENTAL ECONOMIC (1)	S	S
03/13/1998	*7*	SR. FINANCIAL ANALYST (1), ENVIRONMENTAL SPECIALIST (2); ENVIRONMENTAL ECONOMIST (1); PRIVATE SECTOR SPECIALIST (1); URBAN SPECIALIST (1); FINANCIAL SPECIALIST (1)	U	U
06/13/1999	*6*	FINANCIAL ANALYST (2); URBAN ENV. SPECIALIST (1); PROGRAM OFFICER (1);	U	U

	02/02/2000	9	ENVIRONMENTAL ECON. (1); ENVIRONMENTAL SPEC. (1) TEAM LEADER (1); TECHNICAL ASPECTS (1); INSTITUTIONAL ASPECTS (1); FINANCIAL ASPECTS (1); ENVIRONMENTAL ASPECTS (1); ADVISOR (1); PROCUREMENT (1); FINANCIAL MANAGEMENT (1); DISBURSEMENT (1)	U	S
	07/21/2000	7	FINANCIAL ANALYST (1); URBAN ENVIRONMENT (1); TEAM LEADER (1); URBAN SPECIALIST (1); WATER & SANITATION SPEC. (1); PROCUREMENT (1); FINACIAL MANAGEMENT (1)	U	U
	10/31/2001	5	URBAN SPECIALIST (1); WSS SPECIALIST (1); DISBURSEMENT OFFICER (1), FINANCIAL ANALYST (1); PROCUREMENT ANALYST (1)	U	U
ICR	10/2002	5	TEAM LEADER (1); ECONOMIST (1); ENGINEER (1); ENVIRONMENTAL SPECIALIST (1); FINANCIAL ANALYST (1)		

(b) Staff:

Stage of Project Cycle	Actual/Latest Estimate	
	No. Staff weeks	US$ ('000)
Identification/Preparation	169 2	315.6
Appraisal/Negotiation	115.4	286.7
Supervision	249.8	374 0
ICR	18.9	53.6
Total	553.3	1,029.9

Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

	Rating
☐ *Macro policies*	○ *H* ○ *SU* ○ *M* ○ *N* ● *NA*
☐ *Sector Policies*	○ *H* ○ *SU* ○ *M* ● *N* ○ *NA*
☐ *Physical*	○ *H* ○ *SU* ○ *M* ● *N* ○ *NA*
☐ *Financial*	○ *H* ○ *SU* ○ *M* ● *N* ○ *NA*
☐ *Institutional Development*	○ *H* ○ *SU* ● *M* ○ *N* ○ *NA*
☐ *Environmental*	○ *H* ○ *SU* ○ *M* ● *N* ○ *NA*
Social	
☐ *Poverty Reduction*	○ *H* ○ *SU* ○ *M* ○ *N* ● *NA*
☐ *Gender*	○ *H* ○ *SU* ○ *M* ○ *N* ● *NA*
☐ *Other (Please specify)*	○ *H* ○ *SU* ○ *M* ○ *N* ● *NA*
☐ *Private sector development*	○ *H* ○ *SU* ○ *M* ● *N* ○ *NA*
☐ *Public sector management*	○ *H* ○ *SU* ● *M* ○ *N* ○ *NA*
☐ *Other (Please specify)*	○ *H* ○ *SU* ○ *M* ○ *N* ● *NA*

Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

6.1 Bank performance	*Rating*
☐ *Lending*	○ *HS* ○ *S* ● *U* ○ *HU*
☐ *Supervision*	○ *HS* ○ *S* ● *U* ○ *HU*
☐ *Overall*	○ *HS* ○ *S* ● *U* ○ *HU*

6.2 Borrower performance	*Rating*
☐ *Preparation*	○ *HS* ○ *S* ● *U* ○ *HU*
☐ *Government implementation performance*	○ *HS* ○ *S* ● *U* ○ *HU*
☐ *Implementation agency performance*	○ *HS* ○ *S* ● *U* ○ *HU*
☐ *Overall*	○ *HS* ○ *S* ● *U* ○ *HU*

Annex 7. List of Supporting Documents

Borrower's comments (full text)

Development Credit Agreement between the People's Republic of Bangladesh and the International Development Association, January 8, 1997

Staff Appraisal Report "Bangladesh Fourth Dhaka Water Supply Project November 22, 1996" Report No. 16144-BD

DWASA, "Management & Operational Support (Twining) Programme", Executive Summary, Thames Water International, Halcrow & Partners, et al., August 2000.

Ministry of Local Government, Rural Development and Co-operatives, "DWASA Fourth Dhaka Water Supply Project - Saidabad Water Treatment Plant: Project Completion Report" (Joint Venture), June 2002.

Ministry of Local Government, Rural Development and Co-operatives, "Consultancy Services for Construction Supervision of Supply and Installation of Electro-Magnetical Equipment and Civil Works of Saidabad Surface Water Treatment Plant Project (Under DWASA IV Project)", BCEOM, July 2002

World Bank Project Status Reports

Additional Annex 8. Evaluation Report Summary Prepared by the Borrower

The Borrower prepared this summary of its complete comments, which are available from the World Bank South Asia Energy & Infrastructure unit in Washington, DC.

Borrower's Evaluation Report

(IDA CREDIT NO. 2926 B.D.)

1. Introduction:

The 4th Dhaka Water Supply Project was established in 1996 by IDA. This project has been co-financed by the Government of France , Government of Japan and the Government of Bangladesh. The Japanese Government financing was 1.30 million US dollar, used directly by the World Bank for the technical assistance for Water Resources Management Study (WRMS). It was a grant money. The French Govt. financing was 173.95 million French Frank (FF) equivalent to 31.30 million US dollar, out of which 153.70 FF was grant money & 20.25 million FF was soft loan to Bangladesh.

The total amount of IDA Credit for funding under 4th Dhaka Water Supply Project was originally SDR 51.00 million (US dollar 80.30 equivalent). Finally the credit amount stands to 35.68 million SDR. Credit closing as per Development Credit Agreement (DCA) was initially December 31, 2002. However the credit was closed earlier, that is, on 30 June 2002.

2. Project objectives :

By financing core investment for the water supply and sanitation sector the project would seek to ensure that the Government can address the essential elements of its development strategy. The objectives of this strategy are ;

a) To increase potable water supply in the Dhaka city area by effectively utilizing available surface and ground water resources.

b) to increase the life of existing assets and reduce water losses through water loss reduction and rehabilitation program.

c) to commence a program of institutional reforms that would lead to efficient operation of the water and sanitation sector in Dhaka on a commercial basis and prepare a strategy to enhance private operations and mobilize private finance.

d) strengthen water resources management for the greater Dhaka area, by optimizing use of available water resources in the most economic and environmentally acceptable way.

3. Design, Implementation & Operation experiences of the project:

Physical Components :

Intake, Raw water pumping station and twin culvert between Sitalakhya river and DND canal. Intake structure, Pumping station & Twin culvert between the DND Canal & Sitalakhya river including pumps & Electro-mechanical equipment for the Raw water pumping station was fully implemented. The Electro-mechanical equipment installed under this contract can deliver 6.6

m3/Sec water excluding the water provided for irrigation purpose. Civil structure of the pump house can accommodate additional pumps in future to raise the capacity of pump station up to 14.50 m3/sec.

DND Canal rehabilitation & Site development.

4.5 km of DND Canal starting from the Karim Jute Mills up to Mirdhabari was renovated including construction of isolating embankment & metallic fencing along the two banks of the canal for environmental protection.The treatment plant site was backfilled to the required level for the construction of the treatment plant.

Twin culvert between DND Canal & treatment plant site.

Twin culvert with a length of 1.60 km connecting DND Canal and the treatment plant site have been constructed. This twin culvert is capable to carry 11 m3/sec. of raw water from DND Canal to the treatment plant.

Supply & installation and of Electro-Mechanical equipment of the treatment plant.

The Electro-Mechanical equipment necessary for the treatment plant have been supplied and installed on time. This supply constituted equipment for Raw water pump station, raw water dividing chamber, chemical dosing, Clarifier, Filter battery, filter backwash recovery tank, clear water pump station, treatment plant laboratory and workshop.

Civil Structures of the treatment plant.

All the Civil Engineering Structures of the treatment plant have been completed & commissioned on time. The Civil Engineering structures are : Raw water pump station, Raw water dividing chamber, clarifiers, filters, flow meter chamber, treated water storage tank. Treated water pump station i/c. Electrical building, wash water recovery tank, chemical & chlorination building, pipe works, sludge tank, dyke, sludge lagoon & sludge drying bed. These structures are capable of treating 225 MLD of water.

Ancillary structures of treatment plant.

The ancillary structures have been constructed. This component includes 3 storied administrative building, Workshop building, 2, 3 storied Residential buildings, boundary wall, fencing, internal roads and utility services for the treatment plant complex.

Primary Transmission & Part of Secondary network.

36.40 km of primary transmission & part of secondary water system network has already been completed and put into operation. It consist of 0.715 km of 1800 mm, 6.748 km of 1400 mm, 2.912 km of 1200 mm, 6.948 km of 1000 mm, 4.874 km of 600 mm, 12.737 km of 400 mm & 1.462 km of 300 mm dia ductile cast iron(DCI) pipe.

Institutional Strengthening.

Leak detection & System Rehabilitation:

As a part of the leak detection program, Immediate Action Program (Training) was completed. Subsequently based on the recommendation of the leak detection program and those of the Twining program consultants, System rehabilitation program is continuing utilizing GOB sources.

A length of around 50 km water line have already been rehabilitated.

Crash Metering Installation Program :
Under the project 35,000 meters have already been procured and installed by year 2000. Procurement of meters have continued from WASA's own resources and in the Fy 2001-2002, 8000 meters have already been procured and installed, work order for the supply of another 4000 meters have been awarded and procurement of further 12000 meters are being processed. Meter procurement and installation is a continuos process and necessary meters will be procured every year.

Study on Improved Sanitation :
The study on the improved sanitation has already completed and DWASA is implementing the recommendations of the study from GOB funding. In addition steps have been taken to bring the hitherto unserviced area under piped sewerage system. The Govt. of Japan and the Govt. of China is expected to provide financial assistance for the new projects.

Institutional development technical assistance.

Water Resources Management study :
Out of the 23 recommendations under Water Resources Management Program (WRMP), 12 have already been implemented and remaining 10 are in the process of implementation. The only 1(one) that is not considered feasible at this stage i.e. shifting of the raw water intake point from Sarulia because the intake has already been built.

Management & Operational Support (Twining) Program:
The 19 manuals produced by the Twinning Consultants have, by and large, 122 specific recommendations. Of these, 74 have been implemented /adopted, 35 are in the process of implementation, 8 need pre-implementation review and 5 need consultation with JICA. The process of adoption/implementation shall continue.

Twinning consultants identified 157 water mains rehabilitation jobs with an aggregated length of 201.40 km. Up till now, a length of around 50 km has already been rehabilitated. Under the ongoing interim Project 4, an additional length of approx. 37 km of distribution mains have been rehabilitated and work order has been issued for rehabilitation of another 27 Km. On top of this, a further 7 km of rehabilitation has been taken up under interim Project 3 of which 3 km have been completed.

Contracting out DWASA Services :
Two revenue zones of DWASA service area have already been contracted out. The results are encouraging. Rest of the zones will be contracted out gradually.

Training :
The Twinning consultants and the Training Center of DWASA have carried out a number of workshop/seminar and training programs for the Accounts Department and the Audit Department

on accounting codes, chart of accounts, budgeting techniques, financial regulations, extended cash book, etc. A number of foreign training programs had been identified for the officers of DWASA. The programs was sent to the Administrative Ministry with a copy to the Bank. Due to credit suspension & early credit closing this program could not be implemented.

Management Support Contract Staff :
The establishment of new DWASA Board as per WASA Ordinance 1996 has facilitated obtaining greater Autonomy from GOB. The new management structure consisting of Managing Director & three Deputy Managing Directors have made the day to day management of DWASA more efficient which has created a dynamic environment in Dhaka WASA. This has facilitated DWASA to meet operational and performance targets.Three Deputy Managing Directors were recruited from the open market who worked till 30th June 2002 i.e. up to the closing date of IDA credit.

At present as an interim arrangement senior officers of DWASA are working in the post of DMD (RP&D) & DMD (O&M). One Officer has been deputed from the Administrative Ministry to perform the duties of DMD (F&A).

Strategy Study for Mobilization of Private Finance :
The strategy study to mobilize finance and increase efficiency in DWASA was completed on time. The implementation of the recommended actions for the sector reform and mobilization of private financing is under active consideration of the inter-ministerial committee formed by the GoB.

Equipment :
5 computers, 25 Motor cycles & 35,000 meters have been procured under the project.

Project implementation Consultancy service.
Consulting firms engaged for planning, design & supervision of the work have completed their work in due time

Operational experiences.

The Project, specially the treatment plant was essential for city water supply. As such, for the materialization of the project DWASA as well as GoB tried hard to fulfill all the conditions, though the working environment was not favourable at all time. None the less, a considerable number of institutional development objectives were pursuit and achieved to some extend. The result of all the institutional reform programme could not be achieved in time. DWASA & GoB still continuing their efforts to achieve the institutional development objectives.

We are confident that, for the sustainability of the project all the institutional reform programme will be implemented with the cooperation and coordination of all concerned.

It is further noted that the rehabilitation programme followed by the studies needs proper design, drawing & tender documents for tender as per World Bank conditions but these documentation was missing in the ToR of the studies. Moreover, these contracts ought to be executed through ICB as mentioned in DCA. It needs considerable time for processing and awarding an ICB

contract. Furthermore, all these execution ought to be sequential because these needs major road cutting operations.

It is notable that at about mid of execution of the physical components the disbursement of IDA credit was suspended. Being a suspended project it was almost impossible to retain the contractors & consultants and continue the works. Even under such situation DWASA & GOB manage to continue the work with the consultant and contractor without serious damage to the implementation plan. This was possible only for the commitment of the borrower to the project.

Even during the major floods occurred in 1998 DWASA & GoB paid due attention for the implementation of the project. Given the environmental constraints, DWASA & GoB tried their best to implement the project as agreed.

Dhaka WASA has continuously tried to materialize the implementation program of the project as stipulated. In some cases there were slippage of time due to unavoidable circumstances like suspension of disbursement of IDA credit.

There were a number of covenants and conditions associated with the credit to be fulfilled simultaneously along with the project implementation. Fulfillment of covenants along with project implementation simultaneously is practically difficult. Fulfillment of covenants, if any, should be prior responsibility ahead of project implementation. Furthermore, multidimensional project objectives, as was the case in 4th project should be avoided for successful completion of a project.

The preconditions imposed by WB through the SAR for the execution of the project are only possible to fulfill in an ideal condition. By DWASA, which is a public utility for a particular service sector, it is not possible to fulfill all the conditions, some of which are beyond its own jurisdiction.

After the credit was made effective, delay by two years to start the execution of civil works of the treatment plant created an uncomfortable environment & urgency to the implementing agency to start and complete the work under continuous suspension threat followed by credit suspension.

Some of the components could not be started for execution in time. Implementing agency processed the tender documents for NOC of the Bank. The Bank in their January, 2000 mission's Aide memoire instructed to prepare Revised Procurement Plan before processing. The revised procurement plan was submitted by the implementing agency on March, 2000. The Bank by their letter of May, 2000 instructed to defer the components with a view to restructure the project. Instead of restructuring, the Bank suspended the credit on Nov., 2000. After withdrawal of suspension on April, 2001, the implementing agency requested to approve the procurement plan for execution of remaining components but the Bank did not approve the plan & ultimately these components have been dropped from the project. This decision came from the Bank after one and half years from the date of submission of the procurement plan.

DWASA applied same level of efforts for the implementation of physical works as well as the institutional reforms /development measures but this has to be kept in mind that many important activities relating to institutional reform activities were beyond DWASA as well as administrative ministry's control.

The processing of procurement of vehicle , equipment & computer was started as soon as no objection was received from IDA in October, 2001. The tendering process for vehicle following World Bank guideline was done through ICB. After evaluation of the bids the evaluation report prepared as per World Bank guideline was sent to IDA for their no objection. After getting no objection from IDA a formal contract between DWASA and the bidder was executed and sent to World Bank. Later on IDA local office suggested Dhaka WASA to modify the bidder's performance guarantee in foreign currency rather than the local currency as was given by the bidder and subsequently they advised that the contract should be amended by changing the name of the bidder which was originally the local agent. It may be mentioned here that the bidder was local agent and submitted his bid in favour of the supplier and the World Bank advised to take performance guarantee from the supplier in foreign currency instead of the bidder's currency as was submitted. During processing of all these things considerable time was passed away. Even then the supplier was ready to deliver the goods by July, 2002 but the World Bank did not endorse the L.C. already opened in favour of the contract. If it was allowed to supply the vehicles by July, 2002 the vehicles could be procured and payment could be made by October, 2002.

The processing of the procurement of equipment (Forklift & crane) following World Bank guide line was made through ICB. After evaluation of the bids the evaluation report prepared as per World Bank guideline was sent to IDA for their no objection. Due to receipt of non responsive bids it was necessary to re-tender the procurement. The time available did not allow for going for re-tendering as the credit closing date was re-scheduled 6 months earlier.

The tender processing for the procurement of computer following World Bank guide line was made through ICB. After evaluation of the bids the evaluation report was prepared and was sent to IDA. The world Bank advised DWASA to revisit the evaluation report. DWASA reevaluated the bids and sent to World Bank for no objection which was not accepted by World Bank. There was no further time for re-tendering.

It may be mentioned here that the amount allocated as per SAR of the project for the different components those could not be started in time as stated above were meager. Dhaka WASA started implementing these components in a much more expensive manner. As for example;

Twinning consultants identified 157 water mains rehabilitation jobs with an aggregated length of 201.40 km. Up till now, a length of around 50 km has already been rehabilitated. Under the ongoing interim Project 4, an additional length of approx. 37 km of distribution mains have been rehabilitated and work order has been issued for rehabilitation of another 27 Km. On top of this, a further 7 km of rehabilitation has been taken up under interim Project 3 of which 3 km have been completed.

As a part of the leak detection program, Immediate Action Program (Training) was completed.

Subsequently based on the recommendation of the leak detection program and those of the Twining program consultants, System rehabilitation program is continuing utilizing GOB sources.

Based on the recommendations of the study for improved sanitation programme, massive program for sewerage rehabilitation has been taken up. For the newly developed areas, feasibility study, drawing & design of a separate sewerage system with some rehabilitation has been completed. To finalize the source of fund negotiation with Japan Govt. is going on. The programme for rehabilitation of existing sewerage system has been taken up. Tender has been floated for a Treatment Plant at Northern Dhaka under a protocol signed with the Chinese Govt.

Around 36 kilometer of sewer has already been rehabilitated and another 24 km going to be rehabilitated by Dhaka WASA from GoB sources

Under this project 35,000 meters have already been procured and installed by year 2000. Procurement of meters have continued from WASA's own resources and in the Fy 2001-2002, 8000 meters have already been procured and installed, work order for the supply of another 4000 meters have been awarded and procurement of further 12000 meters are being processed. Meter procurement and installation is a continuos process and necessary meters will be procured every year.

Tube well regeneration program has been assessed not suitable in Dhaka because the failure of the tube wells are not occurring due to encrustation but due to excessive declination of ground water table.

Dhaka WASA, along the course of the project tried, with their utmost capacity, for compliance of the financial covenants of the DCA.

4. Borrower's Performance:

Execution of the Project :
DWASA has carried out the project with due diligence and efficiency and in conformity with the available appropriate administrative, financial, engineering and public utility practices. GOB has provided, or cause to be provided, promptly as needed, the funds, facilities, services and other resources required for the implementation of the project. Especially, during the period of suspension of disbursement of the credit by World Bank, GOB took pragmatic steps to solve the problem and continuously gave moral support to the executing agency to implement the project successfully. Across the implementation period of the project, although there were changes of Govt. during implementation of the project ,their commitment to the project did not change. To implement the project Govt. provided necessary funds and logistic and policy support. The extend of achievement of the objective of the project has been described in detail in the agency's comments.

Borrower has put all its full efforts to fulfill the various requirement at appraisal and Board presentation. In most of cases the borrower was successful in achieving the requirements. The

borrower appointed the Managing Director & Deputy Managing Directors, WASA Act, 1996 has been enacted by fulfilling the requirements mentioned in the SAR. All studies have been conducted, most of the recommendations of the studies have been fulfilled, some are in the process of implementation. The Govt. effort were never half-hearted although some of the steps being introduced for the first time suffered delay in certain cases.

Lesson Learned.

Fulfillment of credit covenants & conditions.

There were a number of covenants and conditions associated with the credit to be fulfilled simultaneously along with the project implementation. Fulfillment of all covenants along with project implementation simultaneously was found not possible. Fulfillment of covenants, if any, should be prior responsibility ahead of project implementation. Furthermore, multidimensional project objectives, as was the case in 4th project should be avoided for successful completion of a project.

The preconditions imposed by WB through the SAR for the execution of the project are only possible to fulfill in an ideal condition. By DWASA, which is a public utility for a particular service sector, it is difficult possible to fulfill all the conditions.

Acquaintance of PIU members with World Bank guidelines on procurement and implementation and financial management.

The PIU members must under go a training to acquire working knowledge on the World Bank guidelines on procurement, disbursement, implementations, financial management etc. well ahead of start of the physical execution of the project.

Problems of financing the project from Multiple donors.

The two different sources of financing in implementing the treatment plant, namely, Civil Construction funding from IDA & E/M equipment supply and installation by French funding have created many problems in coordinating the work in two separate contracts with two separate conditions of financing. This type of treatment plant should be executed by a single contractor.

Participatory Management :

Participatory type of management from all concerned could be more helpful in the execution of the project which was somewhat lacking.

Miscellaneous issues:

Some miscellaneous issues/events which exerted important impact on the project implementation are :

The construction of civil works & elector-mechanical works of the treatment plant, being financed from two different sources, could not proceed as per implementation programme. The implementing agency put its utmost effort by assisting the consultants & contractor for solving the practical problems during execution.

5. Performance of Bank & Co-financing:

The World Bank's overall performance from inception to completion of the project was satisfactory. Supervision missions were professional. The supervision missions followed the rules & regulations of the Bank strictly to handle the project. Implementation problems were correctly assessed. Necessary advice were given to the implementing agency & as well as the borrower to complete the project.

The Bank has given sufficient effort to achieve the objectives as well as the fulfillment of the covenants. But some of the covenants were rather difficult to fulfill within the scheduled time.

The supervision missions of the World Bank completed their assignment as planned. Being understanding that many of the legal & financial covenants were difficult to achieve by cent percent, the missions continuously stressed the Borrower for the fulfillment of the same which encouraged the Govt. in its efforts to fulfill the objectives.

It may be recalled that a surface water treatment plant project was a long overdue for DWASA & the Government. The borrower was committed to the public and determined to implement Saidabad water treatment plant by any effort.

6. Arrangement for future operation of the project:

Sustainability.

Infrastructure such as, Office building, Residential building, Workshop etc. has been set-up. The water produced from Saidabad Water Treatment Plant has augmented the water supply to the common people of the city. Implementation of the project has reduced the cases of acute water shortages at different parts of Dhaka city. To sustain the project in the long run adequate measures have been taken.

Operational Plan for Saidabad Water Treatment Plant

Saidabad Water Treatment Plant has been implemented under Fourth Dhaka Water Supply Project and started operation from July 27, 2002 with approximately 1/3rd of its capacity. The capacity has been increased 2/3rd on August 27, 2002. The plant is running with its full capacity since 9th October, 2002.

(O&M) of Saidabad Plant & its Network :-

An organizational structure for the Treatment Plant has been prepared with the help of consultants and contractor (plant supplier). At present we have engaged 40 operational staff of different category and discipline. These staff are working along with the staff of the plant supplier and they are getting in-house training.

A Superintending Engineer has already posted as the Head of the Operation and Maintenance of the treatment plant. Under the direct supervision of the said Superintending Engineer two Executive Engineers (one E/M, one Civil) have started functioning for the O&M of the treatment plant. Besides, one Assistant Engineer, two Sub-Asstt. Engineer have been already deployed in the plant.

In addition to that an advertisement has been published in the local dailies for filling up different positions with a view to establish a strong O&M organization for smooth operation of the plant. As a long term strategic plan, the possibility of engaging the contractor M/s. Degremont to operate & maintain the plant for the next five years is under consideration. The French Govt. has assured DWASA for financing in the O&M of the plant.

The Government of France has already informed DWASA that they are ready to make available of an amount of 10 (ten) million Euro for the operation & maintenance of the plant for a period of 5(five) years. After receiving consent of France Govt. DWASA has placed proposal for engaging electro-mechanical contractor of the plant M/s. Degremont for O&M of the plant to the Govt. Hopefully the proposal will be approved soon. At present M/s. Degremont is continuing O & M of the plant.

Protection of DND Canal from Pollution :

DND canal is very important to sustain the operation of the treatment plant in the long run. The responsibility of the canal maintenance has been entrusted with the plant management to protect the canal from unwanted pollution. As a part of that both sides of the canal have been fenced. Local Govt. and administrative bodies and the elites are kept in constant contact to assist in protecting the canal.

Department of Fisheries has been requested to assist DWASA in protecting the canal water by stopping fish culture as it interferes with raw water quality. Necessary arrangement for maintaining the desired quality of the canal water by using chemicals has been planned. Public awareness campaign has been planned to motivate local people for protecting the canal water.

As a long term strategic plan DWASA is planning to construct a twin culvert of sufficient capacity along with the DND canal from Mridhabari point to Karim Jute Mills, if necessary, to protect the raw water quality during conveyance. This proposal was earlier forwarded to the World Bank for financing from savings of the Fourth project which was, however, not accepted by the Bank.

Protection of Raw Water Sources :

The raw water source at Sarulia point are being tested at regular interval just after finalisation of location of the intake point. The test reports show that no alarming situation has been arised in respect of water quality. It is true that to avoid pollution from Balu river the intake point was initially selected at the upstream of the confluence of the Balu & the Lakhya river. Due to the huge cost involvement & to use the DND canal for transportation, the location had been changed.

In this changed location it is very much clear that unless the Balu river is protected from pollution, in the long run, the quality of raw water at intake may further deteriorate and may cost additional financial involvement for treatment.

In an interministerial meeting held on 10th October, 2002 a committee has been formed consisting of (i) Director (Technical), Deptt. of Environment - Convenor (ii) Superintending Engineer, Environment Cell, Dhaka WASA, Member (iii) One representative from Ministry of Industry - Member.The scope of work of the committee encompasses identification of the sources of

pollution of the Sitalakhya & Balu river, determination of remedial measures and preparation of integrated work plan. It has also been decided that Ministry of Industry, Department of Environment, RAJUK (Rajdhani Unnoyan Kartipokkha), Dhaka City Corporation, BIWTA (Bangladesh Inland Water Transport Authority), Water Development Board and DWASA will work together through integrated planning to protect pollution of water."

Comments from DWASA:

"1. Introduction

The 4th Dhaka Water Supply Project was established in 1996 by IDA. This project has been co-financed by the Government of France , Government of Japan and the Government of Bangladesh. The Japanese Government financing was 1.30 million US dollar, used directly by the World Bank for the technical assistance for Water Resources Management Study (WRMS). It was a grant money. The French Govt. financing was 173.95 million French Frank (FF) equivalent to 31.30 million US dollar, out of which 153.70 FF was grant money & 20.25 million FF was soft loan to Bangladesh.

Fund from the Govt. of France was primarily utilized for procurement of Electro-Mechanical Equipment of the Treatment Plant by Open Tender among the French Companies only. A part of the financing was utilized for design, drawing & supervision of the project at initial stage.

The total amount of IDA Credit for funding under 4th Dhaka Water Supply Project was originally SDR 51.00 million (US dollar 80.30 equivalent). Finally the credit amount stands to 38.964 million SDR. Credit closing as per Development Credit Agreement (DCA) was initially December 31, 2002. However the credit was closed earlier, that is, on 30 June 2002.
The overall project was comprehensively out lined and identified with concerned objectives, project activities, and project financial planning in the Staff Appraisal Report (SAR), November 22, 1996 of the World Bank ref. report no. 16144-BD.

2. Project objectives
By financing core investment for the water supply and sanitation sector the project would seek to ensure that the Government can address the essential elements of its development strategy. The objectives of this strategy are ;
a) To increase potable water supply in the Dhaka city area by effectively utilizing available surface and ground water resources.
b) to increase the life of existing assets and reduce water losses through water loss reduction and rehabilitation program.
c) to commence a program of institutional reforms that would lead to efficient operation of the water and sanitation sector in Dhaka on a commercial basis and prepare a strategy to enhance private operations and mobilize private finance.
d) strengthen water resources management for the greater Dhaka area, by optimizing use of available water resources in the most economic and environmentally acceptable way.

3. Project description
The project components include;

i) Capacity additions and service extension;
ii) Loss reduction, sanitation and efficiency improvement activities;
iii) The institutional reform program;
iv) Institutional development technical assistance; and
v) Project preparation and implementation support technical assistance.

3.1 Capacity additions & service extension :

This consist of the construction of a 225 MLD conventional surface water treatment plant & associated works, including primary water transmission line. Sub components under this include :

i) Land acquisition for intake, culvert and the treatment plant site.

ii) Treatment plant & Associated works consisting of; Intake structure, pumping station & connecting twin culvert between DND canal (capacity 14.5 cu m/sec) and the Lakhya river.

iii) Rehabilitation of the DND canal & site development.

iv) Construction of 1.6 km twin culvert from DND canal to the treatment plant site.

v) Treatment plant which include Electro-Mechanical equipment & civil work, including Raw water pumping station, Raw water flow dividing chamber including chemical mixing facilities, clarifiers, filters, chemical & chlorine building, filter washout recovery facilities, sludge lagoon & sludge drying beds.

vi) Ancillary works like, Administrative office building, Workshop building, Residential buildings, internal road, water, sewer & other utility service lines, boundary wall & fencing.

vii) 36.60 km of Primary & Secondary Transmission Mains.

3.2 Loss Reduction, Sanitation & Efficiency improvements :

This component consist of;

(i) a distribution system rehabilitation program consisting of a Leak Detection Program to identify physical leaks in DWASA service area, a system rehabilitation program based on the results of the leak detection activities and a tube well regeneration program to replace, rehabilitate and reset low yielding tube wells;

(ii) expansion of service connections, consisting of a tertiary distribution system and connection program; and a Crash Meter Installation Program to reduce unmetered connections to about 5% within two years;

(iii) an improved sanitation program consisting of a study and preparation of a sanitation master plan for Dhaka for the period 1996-2020, and first stage investments in low cost sanitation and rehabilitation of selected sewerage systems assets;

3.3 The institutional reform program :

This includes (i) Amendment of DWASA Ordinance, in the lines of Commercial Utilities.

ii) Re-organisation of DWASAs activities;

iii) Introduction of private sector in DWASA operations.

3.4 Institutional development technical assistance :

This consist of the following programs & studies.

i) Management and Operational Support (Twining) Program. To assist DWASA improve its operational efficiency.

ii) A Water Resources Management study of the Dhaka region : To obtain comprehensive knowledge of Management of water resources in Dhaka.

iii) Contracting out DWASA's billing, collections, meter repair services to the private sector.
iv) Appointment of senior staff for management support.
v) Training for DWASA staff to improve skill in the commercial operation.
vi) A strategy study to asses options for private sector participation i/c a strategy for mobilizing private financing.

3.5 Project preparation & implementation support technical assistance:

This plan includes the following sub-components.
i) Design & Construction Supervision of treatment plant; Distribution system, Intake structure, Ancillary structure & Consultancy services for network Analysis.
ii) Consultancy services for design of Ancillary works. The drafting of revised WASA ordinance.
iii) Miscellaneous equipment like Motor cycle, Computer & Meter to support institutional strengthening efforts.

4. Achievement of objectives :
The Project has achieved its major physical and non-physical objectives to a large extent.

4.1 The capacity additions of the water supply by the Saidabad Water Treatment Plant has increased substantially the available water supply.
4.2 Under loss reduction, sanitation & efficiency improvement programme, several studies & programs in the field of water supply & sanitation have been made. The recommendations of the studies have created a positive impact for taking future programme for strengthening & improvement of DWASA services. Some of the studies and programs are:-

- Immediate Action Program, IAP (T).
- Improved sanitation program.
- Twining program.
- Crash metering installation program.
- Contracting out DWASA services.

The result of immediate action programme has helped DWASA to confirm its technical & administrative losses. To minimize administrative losses the result of contracted out of two revenue zones has indicated DWASA to go for contracting out of remaining zones. Very recently DWASA has finalized to contract out another two zones to private company for the improvement of collection efficiency by reducing the administrative losses.

Tube well regeneration program has been assessed not suitable in Dhaka because the failure of the tube wells are not occurring due to encrustation but due to excessive declination of ground water table.

Based on the recommendations of the study for improved sanitation programme, massive program for sewerage rehabilitation has been taken up. For the newly developed areas, feasibility study, drawing & design of a separate sewerage system with some rehabilitation has been completed. To finalize the source of fund negotiation with Japan Govt. is going on. The programme for

rehabilitation of existing sewerage system has been taken up. Tender has been floated for a Treatment Plant at Northern Dhaka under a protocol signed with the Chinese Govt.

Crash metering programme has helped DWASA to improve collection efficiency by determining the water uses to the consumer's end. This programme is continuing by purchasing meter from DWASA's own sources (Ref. may be made to 5.2.2).

In accordance with the guide line of the twining program, DWASA has started system rehabilitation program. 50 kms of water line as identified by the twining consultant has already been rehabilitated. A programme for rehabilitation of another 250 kms of water line has taken up & will be executed by the year 2004(Ref. may be made to 5.3.2).

The 19 manuals produced by the Twining consultant have, by and large, 122 specific recommendations. The implementation of these recommendations has improved the administrative, commercial, financial and Engg. operations of DWASA.

4.3 The implementation of recommendations given under WRM (Water Resources Management) Plan has facilitated better management of water resources by DWASA. The declaration of environmental protection zone in the river Lakhya & Balu is a positive achievement in this direction. The delegation of Authority to the proper organization for the enforcement of the declaration is expected to be obtained very soon which would ensure control of DWASA over the protection of quality of water in Lakhya & Balu.

Dissemination seminars conducted under "Cleaner Production Program", Policy consultation seminar and public awareness seminars conducted during the WRM study have broadened the stakeholders' view towards water resources management for Dhaka. Through WRM study it has been possible to bring the stakeholders to one platform of common interest for protecting the water resources.

4.4 The establishment of new DWASA Board as per WASA Ordinance 1996 has facilitated obtaining greater Autonomy from GOB. The new management structure consisting of Managing Director & three Deputy Managing Directors has made the day to day management of DWASA more efficient which has created a dynamic environment in Dhaka WASA. This has facilitated DWASA to meet operational and performance targets to a large extent. Introduction of activities to involve Private Sector Participation in DWASA Operations especially contracting out of billing & collection services of Zone-4 & 5 has brought substantial increase in revenue collection in the concerned zones accompanied by as a significant reduction in UFW.

As a part of staff rationalization program the organogram of DWASA has been accepted by the Govt. & Secretaries committee of the Govt. is reviewing papers for the approval of Prime Minister

5. Output by Components:

5.1 Physical Components :

5.1.1 Intake, Raw water pumping station and twin culvert between Sitalakhya river and DND

canal.Intake structure, Pumping station & Twin culvert between the DND Canal & Sitalakhya river including pumps & Electro-mechanical equipment for the Raw water pumping station was fully implemented. The Electro-mechanical equipment installed under this contract can deliver 6.6 m3/Sec water excluding the water provided for irrigation purpose. Civil structure of the pump house can accommodate additional pumps in future to raise the capacity of pump station up to 14.50 m3/sec.

5.1.2 DND Canal rehabilitation & Site development.

4.5 km of DND Canal starting from the Karim Jute Mills up to Mirdhabari was renovated including construction of isolating embankment & metallic fencing along the two banks of the canal for environmental protection.

The treatment plant site was backfilled to the required level for the construction of the treatment plant.

5.1.3 Twin culvert between DND Canal & treatment plant site.

Twin culvert with a length of 1.60 km connecting DND Canal and the treatment plant site have been constructed. This twin culvert is capable to carry 11 m3/sec. of raw water from DND Canal to the treatment plant.

5.1.4 Supply & installation and of Electro-Mechanical equipment of the treatment plant.

The Electro-Mechanical equipment necessary for the treatment plant have been supplied and installed on time. This supply constituted equipment for Raw water pump station, raw water dividing chamber, chemical dosing, Clarifier, Filter battery, filter backwash recovery tank, clear water pump station, treatment plant laboratory and workshop.

5.1.5 Civil Structures of the treatment plant.

All the Civil Engineering Structures of the treatment plant have been completed & commissioned on time. The Civil Engineering structures are : Raw water pump station, Raw water dividing chamber, clarifiers, filters, flow meter chamber, treated water storage tank. Treated water pump station i/c. Electrical building, wash water recovery tank, chemical & chlorination building, pipe works, sludge tank, dyke, sludge lagoon & sludge drying bed. These structures are capable of treating 225 MLD of water.

5.1.6 Ancillary structures of treatment plant.

The ancillary structures have been constructed. This component includes 3 storied administrative building, Workshop building, 2, 3 storied Residential buildings, boundary wall, fencing, internal roads and utility services for the treatment plant complex.

5.1.7 Primary Transmission & Part of Secondary network.

36.40 km of primary transmission & part of secondary water system network has already been completed and put into operation. It consist of 0.715 km of 1800 mm, 6.748 km of 1400 mm, 2.912 km of 1200 mm, 6.948 km of 1000 mm, 4.874 km of 600 mm, 12.737 km of 400 mm & 1.462 km of 300 mm dia ductile cast iron(DCI) pipe.

5.2 Institutional Strengthening.

5.2.1 Leak detection & System Rehabilitation:

As a part of the leak detection program, Immediate Action Program (Training) was completed. Subsequently based on the recommendation of the leak detection program and those of the Twining program consultants, System rehabilitation program is continuing utilizing GOB sources. A length of around 50 km water line have already been rehabilitated.

5.2.2 Crash Metering Installation Program :

Under the project 35,000 meters have already been procured and installed by year 2000. Procurement of meters have continued from WASA's own resources and in the Fy 2001-2002, 8000 meters have already been procured and installed, work order for the supply of another 4000 meters have been awarded and procurement of further 12000 meters are being processed. Meter procurement and installation is a continuos process and necessary meters will be procured every year.

5.2.3 Study on Improved Sanitation :

The study on the improved sanitation has already completed and DWASA is implementing the recommendations of the study from GOB funding. In addition steps have been taken to bring the hitherto unserviced area under piped sewerage system. The Govt. of Japan and the Govt. of China is expected to provide financial assistance for the new projects.

5.3 Institutional development technical assistance.

5.3.1 Water Resources Management study :

Out of the 23 recommendations under Water Resources Management Program (WRMP), 12 have already been implemented and remaining 10 are in the process of implementation. The only 1(one) that is not considered feasible at this stage i.e. shifting of the raw water intake point from Sarulia because the intake has already been built.

The Ministry of LGRD&C has requested the Ministry of Environment and Forest, on 06 January 2002, to expedite approval regarding delegation of authority to Dhaka WASA for enforcement of the declaration of environmental protection zone in the river Lakhya and Balu. (Ref. may be made to 7.2.4). The environmental cell of DWASA, with its key personnel and logistics, is in operation. However, the approval of the total manpower, logistic and funding is still awaited from the ministry (MoLGRD&C).

5.3.2 Management & Operational Support (Twining) Program:

The 19 manuals produced by the Twinning Consultants have, by and large, 122 specific recommendations. Of these, 74 have been implemented /adopted, 35 are in the process of implementation, 8 need pre-implementation review and 5 need consultation with JICA. The process of adoption/implementation shall continue.

Twinning consultants identified 157 water mains rehabilitation jobs with an aggregated length of 201.40 km. Up till now, a length of around 50 km has already been rehabilitated. Under the ongoing interim Project 4, an additional length of approx. 37 km of distribution mains have been rehabilitated and work order has been issued for rehabilitation of another 27 Km.

On top of this, a further 7 km of rehabilitation has been taken up under interim Project 3 of which 3 km have been completed.

5.3.3 Contracting out DWASA Services :

Two revenue zones of DWASA service area have already been contracted out. The results are encouraging. Rest of the zones will be contracted out gradually.

5.3.4 Training :

The Twinning consultants and the Training Center of DWASA have carried out a number of workshop/seminar and training programs for the Accounts Department and the Audit Department on accounting codes, chart of accounts, budgeting techniques, financial regulations, extended cash

book, etc. A number of foreign training programs had been identified for the officers of DWASA. The programs was sent to the Administrative Ministry with a copy to the Bank. Due to credit suspension & early credit closing this program could not be implemented.

5.3.5 Management Support Contract Staff :

The establishment of new DWASA Board as per WASA Ordinance 1996 has facilitated obtaining greater Autonomy from GOB. The new management structure consisting of Managing Director & three Deputy Managing Directors have made the day to day management of DWASA more efficient which has created a dynamic environment in Dhaka WASA. This has facilitated DWASA to meet operational and performance targets.

Three Deputy Managing Directors were recruited from the open market who worked till 30th June 2002 i.e. up to the closing date of IDA credit.

At present as an interim arrangement senior officers of DWASA are working in the post of DMD (RP&D) & DMD (O&M). One Officer has been deputed from the Administrative Ministry to perform the duties of DMD (F&A).

5.3.6 Strategy Study for Mobilization of Private Finance :

The strategy study to mobilize finance and increase efficiency in DWASA was completed on time. The implementation of the recommended actions for the sector reform and mobilization of private financing is under active consideration of the inter-ministerial committee formed by the GoB.

5.3.7 Equipment :

5 computers, 25 Motor cycles & 35,000 meters have been procured under the project.

5.3.8 Project implementation Consultancy service.

Consulting firms engaged for planning, design & supervision of the work have completed their work in due time.

6. Cost & Financing.

The total project estimated cost (IDA portion) was 80.30 million USD (SDR 51.00). The actual expenditure was SDR 36.24 million which is close to 71% to the total estimated cost. Fund flow did not significantly affect implementation of the project except during the period of suspension of the disbursement.

7. Sustainability.

7.1 Infrastructure such as, Office building, Residential building, Workshop etc. has been set-up. The water produced from Saidabad Water Treatment Plant has augmented the water supply to the common people of the city. Implementation of the project has reduced the cases of acute water shortages at different parts of Dhaka city. To sustain the project in the long run adequate measures have been taken.

7.2 Operational Plan for Saidabad Water Treatment Plant

Saidabad Water Treatment Plant has been implemented under Fourth Dhaka Water Supply Project and started operation from July 27, 2002 with approximately 1/3rd of its capacity. The capacity has been increased 2/3rd on August 27, 2002. The plant is running with its full capacity since 9th October, 2002.

7.2.1 (O&M) of Saidabad Plant & its Network :-

An organizational structure for the Treatment Plant has been prepared with the help of consultants and contractor (plant supplier). At present we have engaged 40 operational staff of different category and discipline. These staff are working along with the staff of the plant supplier and they are getting in-house training.

A Superintending Engineer has already posted as the Head of the Operation and Maintenance of the treatment plant. Under the direct supervision of the said Superintending Engineer two Executive Engineers (one E/M, one Civil) have started functioning for the O&M of the treatment plant. Besides, one Assistant Engineer, two Sub-Asstt. Engineer have been already deployed in the plant.

In addition to that an advertisement has been published in the local dailies for filling up different positions with a view to establish a strong O&M organization for smooth operation of the plant.

As a long term strategic plan, the possibility of engaging the contractor M/s. Degremont to operate & maintain the plant for the next five years is under consideration. The French Govt. has assured DWASA for financing in the O&M of the plant.

7.2.2 Protection of DND Canal from Pollution :-

DND canal is very important to sustain the operation of the treatment plant in the long run. The responsibility of the canal maintenance has been entrusted with the plant management to protect the canal from unwanted pollution. As a part of that both sides of the canal have been fenced. Local Govt. and administrative bodies and the elites are kept in constant contact to assist in protecting the canal.

Department of Fisheries has been requested to assist DWASA in protecting the canal water by stopping fish culture as it interferes with raw water quality. Necessary arrangement for maintaining the desired quality of the canal water by using chemicals has been planned. Public awareness campaign has been planned to motivate local people for protecting the canal water.

As a long term strategic plan DWASA is planning to construct a twin culvert of sufficient capacity along with the DND canal from Mridhabari point to Karim Jute Mills, if necessary, to protect the raw water quality during conveyance. This proposal was earlier forwarded to the World Bank for financing from savings of the Fourth project which was, however, not accepted by the Bank.

7.2.4 Protection of Raw Water Sources :-

The raw water source at Sarulia point are being tested at regular interval just after finalisation of location of the intake point. The test reports show that no alarming situation has been arised in respect of water quality. It is true that to avoid pollution from Balu river the intake point was initially selected at the upstream of the confluence of the Balu & the Lakhya river. Due to the huge cost involvement & to use the DND canal for transportation, the location had been changed.

In this changed location it is very much clear that unless the Balu river is protected from pollution, in the long run, the quality of raw water at intake may further deteriorate and may cost additional financial involvement for treatment.

In an interministerial meeting held on 10th October, 2002 a committee has been formed consisting of (i) Director (Technical), Deptt. of Environment - Convenor (ii) Superintending Engineer, Environment Cell, Dhaka WASA, Member (iii) One representative from Ministry of Industry - Member.The scope of work of the committee encompasses identification of the sources of pollution of the Sitalakhya & Balu river, determination of remedial measures and preparation of integrated work plan. It has also been decided that Ministry of Industry, Department of Environment, RAJUK (Rajdhani Unnoyan Kartipokkha), Dhaka City Corporation, BIWTA (Bangladesh Inland Water Transport Authority), Water Development Board and DWASA will work together through integrated planning to protect pollution of water.

8. Borrower's Performance

8.1 GOB's performance during implementation can be considered satisfactory. Especially, during the period of suspension of disbursement of the credit by World Bank, GOB took pragmatic steps to solve the problem and continuously gave moral support to the executing agency to implement the project successfully. Across the implementation period of the project, although there were changes of Govt. during implementation of the project ,their commitment to the project did not change. To implement the project Govt. provided necessary funds and logistic and policy support.

9. Lesson Learned.

9.1 Fulfillment of credit covenants & conditions.

There were a number of covenants and conditions associated with the credit to be fulfilled simultaneously along with the project implementation. Fulfillment of all covenants along with project implementation simultaneously was not possible. Fulfillment of covenants, if any, should be prior responsibility ahead of project implementation. Furthermore, multidimensional project objectives, as was the case in 4th project should be avoided for successful completion of a project.

The preconditions imposed by WB through the SAR for the execution of the project are only possible to fulfill in an ideal condition. By DWASA, which is a public utility for a particular service sector, it is not possible to fulfill all the conditions.

9.2 Delegation of financial power to PD:

Threshold of financial power of Project Director was required. This might improve speed of implementation of the project.

9.3 Formation of appropriate PIU (Project Implementation Unit) & control of Project Director on PIU.

Formation of PIU with people from different disciplines are needed for total management of the project. For example, professional Accountant, financial Analyst, Procurement Specialist, Liaison Officer etc. must be specifically designated for the project and must be included in PIU who will work directly under the guidance & control of Project Director. This is needed for efficient management of the project.

9.4 Continuity of key Personnel:

Change of key personnel in the PIU, Agency as well as in the Ministry hampered and slowed down the implementation of the project. Continuity of the key personnel is very important for

successful implementation of the project.

9.5 Acquaintance of PIU members with World Bank guidelines on procurement and implementation and financial management.

The PIU members must under go a training to acquire working knowledge on the World Bank guidelines on procurement, disbursement, implementations, financial management etc. well ahead of start of the physical execution of the project.

9.6 Control over the director of different project components especially the technical assistance component.

The directors of different technical assistance programs & studies were supposed to be directly accountable to the Project Director of the project. Lack of such linkage in the project has hampered the integration of the project.

9.7 Joint tender evaluation :

The tender evaluation at different stages and by different team separately, namely, by the Consultant , by the Agency's evaluation committee, Agency's tender evaluation committee, Board's evaluation committee, Ministry's evaluation committee have retarded the speed of decision making process and award of contract. A strategy should be developed to evaluate a tender by a joint evaluation committee consisting of members from administrative ministry, agency and the consultant in order to shorten the time of tender evaluation & awarding.

9.8 High level Continuous Monitoring :

The implementation of physical components of the project got the impetus and momentum through a regular & continuous monitoring from the highest authority in the Ministry. This effort should be replicated as a monitoring tool for future project.

9.9 Obstruction of ADP Budget planning due to credit suspension.

The timely availability of the ADP allocation is important criteria for smooth implementation of the project. Due to credit suspension, provision of allocation in ADP could not be made & resulted in considerable delay in the payment to the contractors.

9.10 Inordinate delays in payment of interim payment certificates of the contractors due to too many channels of handling.

After recommendation of an IPC by the "Engineer" it took several weeks to pay the contractor due to convention of processing the bills through so many offices & channels. This should be carefully reviewed and a proper mechanism should be developed to decrease the inordinate delays in bill processing for the smooth implementation of the project.

9.11 Activities requiring action from other Ministries:

The approval process of the action program sometimes was delayed due to involvement of other Ministries like, Ministry of Finance , Ministry of Law, Ministry of Environment & Forest, Ministry of Land, Ministry of Water Resources etc. This may be considered as one of the factors in impeding the pace of implementation of the action plan. Any future project requiring the actions from different Ministries should be well coordinated.

9.12 Problems of financing the project from Multiple donors.

The two different sources of financing in implementing the treatment plant, namely, Civil

Construction funding from IDA & E/M equipment supply and installation by French funding have created many problems in coordinating the work in two separate contracts with two separate conditions of financing. This type of treatment plant should be executed by a single contractor.

9.13 Continuity of Consultants role :
The planning design & implementation of the project by the same lead Consulting firm has facilitated effective coordination among the different physical component of the work. With a view to ensuring a consistent engineering approach and minimizing the amount of potential conflict / disputes, the continuation of a same lead consulting firm must be ensured from the beginning to the end of the project.

9.14 Lack of appreciation of the efforts given by the project personnel:
The implementation of the project have passed through several turmoil and critical situation when the project personnel worked with innovative approach, utmost diligence with inputs even beyond the official hours, to overcome the bottleneck & barriers for continuation of the project. But, surprisingly little appreciation or admiration was given to the concerned people. This type of cold attitude might work negatively for the motivated work force. The Bank's attitude to the implementing agency seems to be unusually hard. Softness in the attitude of the Bank would help the implementing agency to understand as well as to address the problem more satisfactorily.

9.15 Rules vs Ethics : In the implementation of the project, in decision making the rules have dominated over the Ethics. In some cases Ethics has not applied during taking serious decision. The project could be implemented more smoothly if Ethics could be applied. This has been observed during execution of physical works. It can be noted that procurement process of some of the essential goods could be completed if we could apply Ethics for judgment.

9.16 Participatory Management : Participatory type of management from all concerned could be more helpful in the execution of the project which was somewhat lacking.

9.17 Advantage & disadvantages of Engaging Consultant of the project.
Advantages & disadvantages :
Advantages :
a. The conceptualization of a long term complex project needs so many external & internal environmental factors which needs very careful study. For successful implementation of such a study the input of the International consultants who are experienced in this particular type of work are generally found to be useful for the implementing agencies.
b. The tender / bidding documents used for externally funded projects are generally of International nature equipped with internationally accepted condition of contract. This conditions of contract contain many delicate and critical legal aspects which bear important implications. As the international consultants are acquainted and familiar with such issues they can manage the contract at the field level, effectively against the international contractors who are much tricky to raise such issues.
c. The consultants, normally engaged, are of international nature having own global image . They generally try to upgrade or at least maintain their image. As such, quality aspects of the

project are maintained in a way that it conforms to the standard.

Disadvantages :

a. Though the transfer of technology by the consultant to the concerned agency are generally a condition of the appointment of consultant but in most of the cases consultant are found to be reluctant to transfer the same. Even if it is done they do not make it in a comprehensive manner which hamper the effectiveness of utilization of the technology by local experts.

b. In some cases even though the concerned agency is quite capable of managing the project yet due to conditional external funding the agency has no other choice but to engage the consultants involving considerable foreign currency

c. During execution of the project / work the consultant has the entire responsibility for maintaining quality of the work / project. If after implementation of the work / project if the quality is not up to the mark the consultant does not bear any responsibility.

d. After completion of the project and take over by the concerned agency consultants are not liable to bear any responsibility of any defect arising out of the earlier decision given during execution. These implications are equally applicable in case of financial decision taken by the consultants.

9.18 Miscellaneous issues

Some miscellaneous issues/events which exerted important impact on the project implementation are :

i) The prime objective of the project was to built a surface water treatment plant for improving the water supply situation of the city. To sustain the plant the other objectives were introduced. Unfortunately the suspension of the credit virtually stood to hamper the fulfillment of the main objective & there was every possibility to abandon the project if we would fail to continue the project during suspension.

ii) The construction of civil works & elector-mechanical works of the treatment plant, being financed from two different sources, could not proceed as per implementation programme. The implementing agency put its utmost effort by assisting the consultants & contractor for solving the practical problems during execution.

iii) After the credit was made effective, delay by two years to start the execution of civil works of the treatment plant created a panic & urgency to the implementing agency to start and complete the work under continuous suspension threat followed by credit suspension.

iv) Some of the components could not be started for execution in time. Implementing agency processed the tender documents for NOC of the Bank. The Bank in their January, 2000 mission's Aide memoire instructed to prepare Revised Procurement Plan before processing. The revised procurement plan was submitted by the implementing agency on March, 2000. The Bank by their letter of May, 2000 instructed to defer the components with a view to restructure the project. Instead of restructuring, the Bank suspended the credit on Nov., 2000. After withdrawal of suspension on April, 2001, the implementing agency requested to approve the procurement plan for execution of remaining components but the Bank did not approve the plan & ultimately these components have been dropped from the project. This decision came from the Bank after one and

half years from the date of submission of the procurement plan.
v) On submission of a statement of works to the October, 2001 mission, the Bank partially canceled an amount for the credit. The recommendation of cancellation was not based on the statement submitted by the implementing agency. However the project has been completed with the remaining credit, this was possible as we have failed to complete the procurement process of some of the components within the revised credit closing date which was 6 (six) months earlier than the original date.

10. Evaluation of the performance of the World Bank.

Donors performance from identification to completion of the project was satisfactory. Supervisory missions were very professional, objectively oriented & based on understanding of the borrower's institutional capability and on the basis of donors policy & procedures. During the project implementation, the donor/borrower relationship was beneficial and productive. Both parties responded positively to the practical needs that arose during implementation. Implementation problems were correctly identified and adequately assessed. Necessary advice was given to the implementing agency and follow-up actions were adequate. The timing of supervision mission was appropriate and time spend for this was sufficient. The donor borrower relationship was good though there was some misunderstanding prior to suspension of the disbursement of the credit. As a result of suspension the project activities were limited within the capacity addition program. Due to delay of about 1 year 6 months in receiving NOC for the revised procurement plan, the issue of partial cancellation was established for time constraint. Revision of the closing date about 6 months earlier than that of the original caused the non-completion of the procurement cycle for some of the components which were requested for better operation & maintenance of the treatment plant. Continuous suspension threat destroyed the moral courage of the implementation agency to resist against any decision of the Bank.

IMAGING

Report No.: 25247
Type: ICR