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Report No. P-7039-BD

MEMORANDUM AND RECOMMENDATION

OF THE

PRESIDENT OF THE

INTERNATIONAL DEVELOPMENT ASSOCIATION

TO THE

EXECUTIVE DIRECTORS

ON A

PROPOSED CREDIT

IN AN AMOUNT EQUIVALENT TO SDR 51.0 MILLION

TO THE

PEOPLE'S REPUBLIC OF BANGLADESH

FOR A

FOURTH DHAKA WATER SUPPLY PROJECT

November 22, 1996

Infrastructure Operations Division
Country Department I
South Asia Region

CURRENCY EQUIVALENTS
(as of January 1996)

US$ 1.00	=	Tk 41.90
Taka (Tk) 1.00	=	US$ 0.024

WEIGHTS AND MEASURES

1 liter (lt)	=	0.220 imperial gallon
1 cubic meter (m^3)	=	219.9 imperial gallons

ABBREVIATIONS AND ACRONYMS

CCC	-	Chittagong City Corporation
CWASA	-	Chittagong Water Supply and Sewerage Authority
DCC	-	Dhaka City Corporation
DND	-	Dhaka-Narayanganj-Demra
DPHE	-	Department of Public Health and Engineering
DWASA	-	Dhaka Water Supply and Sewerage Authority
GOB	-	Government of Bangladesh
IMGD	-	Imperial Gallons per Day
LGED	-	Local Government Engineering Department
MLGRDC	-	Ministry of Local Government, Rural Development & Cooperatives
UNICEF	-	United Nations Children and Educational Fund

FISCAL YEAR

July 1 to June 30

Vice President:	Mr. Joseph Wood (SASVP)
Director:	Mrs. Mieko Nishimizu (SA1DR)
Division Chief:	Mrs. Marie Robinson (SA1IN)
Task Manager:	Mr. Jonathan Kamkwalala (SA1IN)

BANGLADESH

FOURTH DHAKA WATER SUPPLY PROJECT

Credit and Project Summary

Borrower:	People's Republic of Bangladesh
Beneficiary:	Dhaka Water Supply and Sewerage Authority (DWASA)
Amount:	SDR 51.0 million (US$80.3 million equivalent)
Terms:	Standard, with 40 years maturity
Commitment Fee:	Standard (a variable rate between 0 and 0.5% of the undisbursed credit balance set annually by Executive Directors of IDA)
On-Lending:	Interest rate at 7.5% per annum, 25 years maturity, including five years of grace. GOB will onlend the proceeds of the credit to DWASA. Onlending rates and terms for Government of France financing similar to IDA. The Japanese Government financing will be passed on to DWASA as a grant.
Financing Plan:	See Schedule A.
Economic Rate of Return:	About 22%
Poverty Category:	Not Applicable
Map:	IBRD No. 27130
Project Identification No:	BD-PA-9842

MEMORANDUM AND RECOMMENDATION OF THE PRESIDENT OF THE INTERNATIONAL DEVELOPMENT ASSOCIATION TO THE EXECUTIVE DIRECTORS ON A PROPOSED CREDIT TO THE PEOPLE'S REPUBLIC OF BANGLADESH FOR A FOURTH DHAKA WATER SUPPLY PROJECT

1. I submit for your approval the following memorandum and recommendation on a proposed Development Credit to the People's Republic of Bangladesh for SDR 51.0 million (US$80.3 million equivalent) to help finance a Fourth Dhaka Water Supply Project. The proposed Credit would be on standard IDA terms, with a maturity of 40 years. The proposed project would be cofinanced by the Government of France, for US$31.3 million on grant terms and the Government of Japan grant funds (US$1.3 million).

SECTOR BACKGROUND

2. Bangladesh is one of the world's poorest and most densely populated countries, having an estimated 1995 population of about 120 million people, with about 96 million (80%) living in rural areas. The country faces massive urban population growth challenges due to rural to urban migration, resulting from increased rural landlessness, lack of opportunities in rural areas and the effect of natural disasters in rural areas. It is estimated that between 1974 to 1981, the urban population growth rate was 10.6% per annum, declining to 5.4% per annum between 1982 to 1990 and 4% between 1990-1995 (compared to an average total population growth rate of about 1.6% annually during 1990-1995). About 8.0 million of the urban population live in the Dhaka metropolitan area, representing about 30% of the total urban population. The disproportionate rise in the urban population has created severe pressure on existing infrastructure and services, including water supply, sanitation, solid waste collection and drainage services. The environmental conditions throughout most of the urban areas of Bangladesh are poor, with discharges of human and industrial wastes into river systems, possible contamination of groundwater from lack of adequate sewerage, and inadequate management of solid waste disposal. These problems are particularly severe in Dhaka, where the population growth rate is comparatively high and where it is estimated that about 45% of the households have incomes below the poverty line. The size of the urban population, combined with limited financial resources, puts constraints on the development of adequate urban infrastructure, particularly water supply and sanitation.

3. Although accurate data is not readily available, most of the existing water supply services in Bangladesh are not capable of meeting demand requirements. It is estimated that in the urban areas, about 42% of the population has access to reasonably safe water, but the remaining 58% depend on contaminated traditional sources. With regard to sanitation, about 40% of the urban areas have access to sanitary waste disposal services. Because of the limited sewerage systems and the inefficient sanitary waste disposal facilities, untreated or poorly treated domestic sewage is a major source of water pollution, and the morbidity/mortality rate due to waterborne diseases in Bangladesh is among the highest in the world.

4. In Dhaka it is estimated that the population served by the water supply system is 4.1 million, representing about only 50% of the population of

the metropolitan Dhaka area. At present, Dhaka does not have an adequate sewerage and sanitation system. The waterborne sewerage system only covers about 15% of the total population of Dhaka. It is estimated that another 30% of the population uses approximately 50,000 septic tanks and another 15% have access to bucket and pit latrines. The remaining population do not have any form of acceptable sanitary disposal system. Much of the sewage collection system is in poor condition due to lack of a proper repair and maintenance program, which leads to sewage overflow into storm drains during the rainy season. This results in insanitary conditions, which are aggravated by the lack of a well functioning sullage drainage system. The proposed project includes a technical assistance component for the preparation of a comprehensive long-term program to address sanitation and sewerage issues in Dhaka, including the execution of priority investments for low cost sanitation and sewerage system rehabilitation.

5. The responsibility for the water supply and sanitation sector is under the Ministry of Local Government, Rural Development and Cooperatives (MLGRDC). The Ministry, together with the Planning Commission shares the tasks of sectoral resource allocation, funding and policy decisions, as well as project appraisal, approval, evaluation and monitoring. In Dhaka and Chittagong, the Government established Water Supply and Sewerage Authorities (DWASA and CWASA) as autonomous agencies responsible for provision of water supply and sewerage services. These authorities come under MLGRDC as public utilities. DWASA is also responsible for stormwater drainage in Dhaka. In the two cities, the Dhaka and the Chittagong City Corporations (DCC, CCC) are responsible for sanitation activities other than waterborne sewerage.

6. A number of issues hinder the water supply and sanitation sector development and performance. These include problems related with funding of investments and resource mobilization; the Government's management of the sector; lack of commercial orientation in operations; and a weak planning capacity. The availability of local funds to support investments in the sector is also generally inadequate. Foreign assistance through multilateral sources accounts for about 80% of investments in the sector. Furthermore, overall sector management is characterized by excessive Government control and interference in the planning and operation of the central utilities. While DWASA and CWASA are supposed to be autonomous, some operational decisions, including tariff reviews and adjustments, staff appointments, and most policy and investment decisions are controlled by the Government through MLGRDC. There are no clearly defined guidelines for sectoral development or mandates for DWASA and CWASA's operations. As a result, the utilities have no real commercial or management autonomy, which has significantly hampered their performance.

7. In addition, management and staff of these two public water utilities lack the necessary skills, experience and training to effectively manage, operate and maintain the systems. DWASA and CWASA also suffer from a lack of commercial orientation and accountability, poor management systems, and shortage of trained and motivated staff. Poor billing and collection practices, a high level of unaccounted-for-water, and high accounts receivable arrears are typical examples of this lack of accountability. Investment programs in the sector tends to be adversely affected by optimistic and ambitious goals that do not take into account the physical and financial

capacity of the sector institutions to implement the programs. Sector development activities are planned on a project by project basis, without a guiding framework.

Lessons Learned from Previous IDA Involvement

8. In Bangladesh, IDA has assisted the Government in the water supply and sanitation sector since 1963, having financed five water supply projects in the cities of Dhaka and Chittagong. While the physical objectives of these projects were basically met and water supply increased substantially, financial and institutional objectives were not fully met. The most recent of these projects is the Third Dhaka Water Supply Project (Cr. 1734-BD), whose development objectives were to improve DWASA's operational and financial performance, to strengthen sectoral training and sectoral planning and to address immediate needs for additional supplies of water and sanitation services. A review of progress against original project objectives and components at project completion showed that DWASA exceeded original physical targets, and increased water production by 42% beyond the targets in the appraisal report. Financial and institutional performance was, however, not fully satisfactory. Although revenue performance during the project period was close to appraisal estimates, DWASA was unable to meet financial covenants set under the project. First, financial and institutional objectives established in the project were not supported by project components to address identified problems or to provide monitorable indicators. Second, issues like weak management performance, system losses and poor efficiency were not particularly addressed under the project. DWASA's poor performance was also caused by excessive control of the institution by GOB which created obstacles to good performance, and lack of commitment to financial objectives which resulted in GOB's refusal to authorize required tariff increases to compensate for increases in operating costs. In preparing the proposed project, these issues have been addressed in the reform strategy to enhance DWASA's efficiency, through an approach that involves public enterprise reform, some private participation through a program to contract out some services, and an initiative to develop a strategy for mobilizing private finance and increasing operating efficiency. Under the public sector reform strategy, the institutional reform program and its components address the broader sector objectives and draws on the lessons learned as follows: (i) the comprehensive modification of the WASA Ordinance and the establishment of a Policy Statement are is aimed at reducing Government interference in DWASA operations and increasing its autonomy; (ii) a proposed leak detection and rehabilitation program, a Twinning Program, a plan to contract out DWASA services are aimed at improving efficiency. Under the strategy to increase private participation, necessary studies would be carried out for identification of the specific privatization alternatives, and identification of changes needed in the legal/regulatory framework.

Rationale for IDA Involvement

9. IDA has supported GOB and DWASA develop and improve the urban water supply and sanitation sector for many years. While much has been accomplished on the physical side, the increase in water produced per capita has been marginal due to the high population growth of Dhaka and other urban areas. Further investments are required to rehabilitate the system, reduce losses and

increase supply. Institutional performance has been unsatisfactory, while financial performance has been erratic. The objectives being pursued in this project are part of the broad fundamental reforms IDA is pursuing in the country's public utility sector including power and gas as well as water. This approach is built on the recognition that the investments needed in these sectors to support growth and public welfare exceed the fiscal prospects of the public sector; it also recognizes that successive governments have not been able to produce efficient, financially self-sustaining public utilities. It looks to maximizing the role of the private sector, under a sound, transparent and independently administered regulatory framework. Furthermore, as the lead donor in Bangladesh, IDA can play a major catalytic role by giving the Government's institutional reform program the support it needs, by encouraging the Government to continue with the reform process and sustain its momentum and by assisting in coordinating donor participation within the reform framework. IDA's involvement will also assist in the orderly and efficient development of the sector by helping DWASA better define and rationalize its investment options, GOB to plan and analyze such investments to increase availability of water and sanitation services, promote private sector participation and better water resource management, and finally help define a sanitation strategy for Dhaka. The Bank's involvement will also afford DWASA opportunities to draw on the Bank Group's experience in utility reform in other countries. The project is fully consistent with the overall public sector reform strategy as defined in the FY96 Country Assistance Strategy (CAS) discussed by the Executive Directors on November 9, 1995 and its progress report discussed on November 26, 1996.

THE PROJECT

Project Objectives

10. The basic objectives of the project are: (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) 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. The focus of the project is on: (a) institutional strengthening and achievement of financial and operational autonomy to ensure that DWASA, within a reasonable time frame, is able to provide efficient and reliable services; and (b) increasing available water supply to alleviate shortages through loss reduction and capacity additions. The institutional components will address some of the key sectoral constraints identified, namely the lack of commercial orientation in DWASA operations, weak planning capacity and excessive control by GOB on DWASA's day-to-day operations. The physical components will improve DWASA's capacity to provide water supply and sanitation services more efficiently and expand its service to new areas. Technical assistance will support better operations under a private sector manager supported with a twinning arrangement, and including study leading to a higher degree of private sector participation and mobilization of private finance.

Project Description

11. To achieve the project objectives, the project consists of the following components:

(a) The institutional reform program: Comprising of: (i) amendment of the WASA Ordinance to provide DWASA with operating conditions that would approximate those of commercial organizations established under the Companies Act, and obtain greater autonomy from GOB by strengthening and streamlining DWASA's existing Board to establish a Board of Directors along the lines of commercial utilities; (ii) defining the Board's role on policy matters relating to corporate planning, tariff setting, staffing, appointment of senior management and remuneration, with the objective of separating the responsibilities of the Government, the Board and management; (ii) establishing and enforcing management accountability by requiring DWASA to meet operational and performance targets; (iv) re-organization of DWASA's activities into profit/loss centers to introduce transparency into operations; and (v) introduction of activities to involve private sector participation in DWASA operations, including possible concession arrangements.

(b) capacity additions and service extensions consisting of: (i) a 50 IMGD treatment plant and associated works including intake structures and pump station (6.6 cu.m./sec) at the Lakhya River; treatment plant electromechanical equipment and civil works, including mixing tanks, flocculators, pump stations, settling basins, filters, sludge recovery facilities and ponds; ancillary works, administration and office buildings; and (ii) 38 km of primary and secondary transmission mains;

(c) loss reduction, sanitation and efficiency improvements consisting of: (i) a distribution system rehabilitation program to identify physical leaks in DWASA service area and a system rehabilitation program based on the results of the leak detection activities; and a tubewell regeneration program to replace, rehabilitate, and reset low yielding tubewells; (ii) expansion of service connections, consisting of a tertiary distribution system and connection program; a Crash Meter Installation Program to reduce unmetered connections to about 5% within two years; 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;

(d) Institutional Development Technical Assistance consisting of: (i) Management and Operational Support (Twinning) Program from an efficient utility to assist DWASA improve its financial and operational performance and efficiency; (ii) a Water Resource Management Study of the Dhaka Region to obtain adequate knowledge for management of water resources in Dhaka and effectively monitor and regulate the quantity and quality of water in the region; (iii) a program to contract out DWASA billing, collections and meter

repair services to the private sector; (iv) management support to senior contract staff on fixed term appointment to provide needed incentives to retain staff with necessary skills; (v) a training program for DWASA staff to improve skills in the commercial operation of utilities; and (vi) a study to assess options for private sector participation including a strategy for mobilizing private financing and improved efficiency, leading to increased private sector participation.

(e) Project Preparation and Implementation Support Technical Assistance consisting of: (i) miscellaneous equipment (motor vehicles, computer equipment, meters etc) to support institutional strengthening efforts; (ii) consulting services for the design of ancillary works, the drafting of the revised WASA Ordinance; (iii) construction supervision of the treatment plant, distribution system, and consulting services for a Network Analysis; and (iv) consultancy services to assist DWASA implement a revised tariff structure.

12. The total project cost, including contingencies is estimated at US$175.8 million equivalent (Taka 7.4 billion), of which US$88.1 million (50.1%) is in foreign exchange. The project cost includes taxes and duties estimated at about US$35.5 million. The base cost is expressed in January 1996 prices. Cost estimates for the project are based on consultant feasibility studies and preliminary design, and the cost of recently awarded contracts for similar works, updated to January 1996 price levels during reappraisal. The project cost estimates are based on a five year implementation period. This is shorter than the regional disbursement profile of seven years for similar projects, but attainable because of the turnkey arrangement of the main contract, the treatment plant. The project financing plan includes the proceeds of the credit, co-financing from the Government of France and the Government of Japan, and counterpart financing from the Government of Bangladesh. The proposed IDA credit of US$80.3 million would finance 45.7% of the total project cost (excluding taxes). The Government of France would finance US$31.3 million, equivalent to 17.8% of the total financing requirements. The Government of Japan would finance about US$1.3 million of the project which would be administered by IDA. The remaining funds (US$62.9 million) will be provided by the Government of Bangladesh and DWASA. IDA funds would be onlent to DWASA at an interest rate of 7.5% and would be repaid over a period of 25 years, including five years of grace. The Government of France financing would be onlent at the same terms as the IDA funds. The Government of Japan financing would be passed on to DWASA as a grant. Signing of the Japanese and French Grant Agreements are conditions of credit effectiveness. A breakdown of the project costs and the financing plan are shown in Schedule A. Amounts and methods of procurement and shown in Schedule B. A timetable of key project processing events, and the status of Bank Group Operations in Bangladesh are presented in Schedules C and D, respectively. A status of the Country at a Glance is included as Schedule E. A map is also attached. The Staff Appraisal Report, No. 16144-BD dated November 22, 1996, is being distributed separately.

Procurement Arrangements

13. Procurement of civil works and goods under the project will be in accordance with World Bank Procurement Guidelines. Consultancy services and technical assistance will be procured in accordance with principles and procedures satisfactory to IDA, based on the Guidelines for the Use of Consultants by World Bank Borrowers and the World Bank as Executing Agency (August 1981). About US$68.2 million of civil works would be carried out on the basis of international competitive bidding (ICB). These represent civil works for the treatment plant, transmission mains, intake and culvert from the DND canal to the treatment plant site and primary and secondary distribution network. All other civil works would be awarded on the basis of national competitive bidding (NCB) procedures acceptable and satisfactory to IDA. These represent small civil works contracts for the expansion of service connections, development of sewerage and sanitation schemes and distribution system rehabilitation, which are unlikely to attract international bidders. About US$3.1 million of goods will be procured following ICB procedures. These represent equipment and materials for the intake and pump station, and miscellaneous equipment, including meters for service connections. About US$0.2 million of the equipment will be procured using NCB procedures. All other goods and materials will be financed by the French Government Assistance and would be procured following internationally acceptable procurement procedures agreed with IDA. All consultancy services will be carried out by consultants whose qualifications, experience and terms and conditions shall be satisfactory to the Association.

Project Implementation

14. The project will be implemented by DWASA, which will be accountable and responsible for meeting agreed project and operating objectives. It is estimated that the project will be implemented over a period of five years, which is less than the average implementation period for similar projects in Bangladesh. This is attainable due to the turnkey arrangements for the installation of the treatment plant equipment. Project implementation will give priority to the construction of the surface water treatment plant, Phase 1 of the Leak Detection and Rehabilitation Program, the Crash Meter Installation Program, and the management consultancy services for the improvement of the operations and management of DWASA.

Project Sustainability

15. The proposed project will assist DWASA in its efforts to improve the provision of water and sanitation services in the Dhaka area. The institutional reform efforts will improve DWASA's efficiency, and increase its effectiveness in providing these services. Technical assistance under the project will develop DWASA's capability to operate as a more autonomous and commercially managed water supply institution. To ensure project sustainability, performance objectives and targets in financial, operational and technical areas have been established as part of the institutional development components, which will be used to monitor actual performance.

Agreed Actions

16. During negotiations, agreements were reached with GOB and DWASA as follows:

(a) on project specific matters: i) to carry out resettlement activities in accordance with IDA's resettlement and rehabilitation guidelines; ii) the content and timing of a mid-term review, including benchmarks for assessing progress against objectives; iii) format for progress reports, including information to be provided in the report; iv) to carry out a strategy study to assess privatization options and commence the implementation of the results of the study by February 28, 1998; v) to maintain accounts receivables to no more than four months of total billing by June 1998; vi) to appoint Deputy Managing Directors for Finance and Administration, Technical and Planning and Development by June 1997; vii) to carry out a staff rationalization program to assess staff strength and weaknesses by March 1997; viii) to establish a system to reduce public sector arrears to no more than 90 days of public billings; ix) to conduct an assessment of stores and inventories by March 1997, and write off mismatched, obsolete and slow moving stocks by December 1997; x) to conduct an assessment of all receivables to identify uncollectible receivables by March 1997, and write off uncollectible arrears by December 1997; xi) to have DWASA's accounts and financial statements audited and furnish to IDA copies of audits within six months of the end of the fiscal year; xii) to commence the implementation of the results of the Water Resources Management Study by January 1998; and xiii) to establish an environmental cell within DWASA to monitor water quality by March 31, 1997.

(b) On actions to be completed before credit effectiveness: i) DWASA/GOB will execute the subsidiary loan agreement to cover the onlending terms of the credit; ii) DWASA will sign the contracts for the Sanitation Program and Twinning Program; iii) DWASA will commence the strategic study to assess private sector options; and iv) DWASA will execute the French and Japanese Grant Agreements.

Environmental Aspects

17. An Environmental Impact Assessment (EIA) of the project was carried out and a final Report is available, dated April 1994. Key environmental impacts identified include the following:

(a) for raw water quality: positive impacts through continuing monitoring of raw water at source, and long-term protection of water quality through restriction of industrial discharges;

(b) for raw water intake and transmission, construction and operation: some long term effects on river flows during the dry season, land based effects along the transmission alignment (both physical and social), short-term construction and nuisance effects;

(c) for surface water treatment plant construction and operation: long-term physical and social effects at the site, short-term construction nuisance; and

(d) for treated water distribution network: short-term construction nuisance, especially traffic disruption, long-term impacts on public health and disposal of wastewater.

Positive impacts include the provision of a 50 IMGD increment of treated surface water supply to the DWASA system, planned conjunctive use of ground and surface water (thus reducing groundwater overpumping), and improved environmental management and monitoring of the water sources as a result of the Water Resources Management Study to be undertaken under the project. Positive impacts will be strengthened by the concurrent program of leak detection and rehabilitation which will enable greater pressures to be maintained in the distribution system and system integrity to be improved, with greater amenity and public health benefits. The treated surface water is to be supplied to areas of the city where groundwater drawdown is most severe, thus allowing the groundwater resources to recover from overpumping. Potential negative impacts of the project include: (i) the increased discharge of wastewater to the shallow surface aquifer through (a) household on-plot sanitation facilities, (b) the existing sewerage system, and (c) surface drainage channels; (ii) further growth in urban development (supported by the increased availability of water supply through the project); and (iii) necessary restriction or regulation of industrial and other discharges along a stretch of the Sitalakhya River in the vicinity of the raw water intake (to be further investigated in the water resource management study). Mitigation measures have been incorporated in the project to reduce or eliminate the potential negative impacts associated with necessary fencing of the DND Canal, including the removal and relocation of shacks used by small businesses, the removal of domestic and commercial washing points along the canal, and the production of large volumes of sludge.

18. Land acquisition necessary for the conveyance route from the Sitalakhya River to the treatment plant site involved some involuntary resettlement and payment of compensation for loss of property, which has been completed. In view of the small number of buildings to be removed (about twenty households at the intake site, 180 temporary trading shacks along the conveyance canal), no full resettlement action plan was required. IDA's resettlement guidelines were followed in compensation for all project affected people.

Project Benefits

19. The proposed project would introduce the first primary water treatment plant in Dhaka and would therefore provide urgently needed safe water to the area, relieving current water shortages, particularly to areas that are currently not served by piped water. The project, when in full operation will supply 223 million cubic meters (50 IMGD) of potable water, equivalent to the consumption requirements of 2.3 million people. This will be the joint contribution of additional capacity provided by the Saidabad treatment plant and the loss reduction activities. The economic value of this additional supply is considerable because it will reduce costs and allow an

increase in consumption by low income groups. These groups pay as much as Tk. 27.00 (US$0.675) per cubic meter for water purchased in small volumes and consume as little as 30 lpd (liters per capita per day), while the current DWASA price of water for residential connection is Tk 3.49 (US$ 0.09) per cubic meter, and consumption of the population served with direct residential connections, although low, is about 90 lpd. The population of Dhaka as a whole will benefit from the additional supply since it's current per capita consumption is already low. The economic price of this consumption is nearly Taka 15.00 (US$0.375) per cubic meter. The value of the additional supply is therefore significant, as expected in a large and growing city with relatively low consumption due to supply restrictions, large water deficits, low coverage, and high costs for those without direct water service. The economic rate of return for the project is estimated at 22%. Net benefits amount to Tk 4,823.93 million (US$120.60 million) which are more than 60% of the project costs. The main factor affecting economic rate of return is the value of water since the willingness to pay is substantial and the estimates used in the analysis may be conservative, given the critical water supply situation in Dhaka and its possible development in the coming years. The net fiscal impact of the project on the Government budget will be positive, through increased tax revenues on DWASA's water and sanitation income. The project does not therefore distort the Government's budget priorities.

Project Risks

20. The main risk of this project is delay in implementation of the various components of the project, causing possible postponement in overall project completion. DWASA has adequate experience in the implementation of World Bank financed projects, and with the assistance of consultants for construction supervision, the proposed project should be implemented without major delays. DWASA's experience was evident under the Third DWASA Project (Credit 1734-BD), in which major civil works were completed before the original closing date. In addition, the procurement processing for main civil works under the project have already been completed. This should help mitigate some of the risks of delays. With its own financing, GOB has already commenced the implementation of two components critical in the project to speed implementation. The other major risk is the possibility that the Government and DWASA may not follow through with the reforms under the project, due to political constraints, and possible resistance to reforms by major interest groups. To minimize this risk, IDA's project processing was preceded by continued policy dialogue with the Government. The risk was approached by requiring upfront actions on the reform programs as a means of demonstrating commitment, on critical components such as the program to contract out billing and collections to the private sector. The National Cabinet has approved a program of reform. The Government has already amended the regulatory framework, and the new WASA Ordinance has been enacted, a private sector manager has been recruited and DWASA has started the Leak Detection program. Annual comprehensive reviews and a mid-term review of project progress against specific performance objectives would provide opportunity for corrective action if necessary.

Recommendation

21. I am satisfied that the proposed Development Credit would comply with the Articles of Agreement of the Association and recommend that the Executive Directors approve the proposed credit.

James D. Wolfensohn
President

by Gautam S. Kaji

Attachments
November 22, 1996
Washington, D.C.

Schedule A

BANGLADESH

FOURTH DHAKA WATER SUPPLY PROJECT

Estimated Cost and Financing Plan
(US$ Million)

Estimated Costs:[1/]

	Local	Foreign	Total
Land Acquisition	22.80	0.00	22.80
Treatment Plant and Works	38.30	44.50	82.80
Primary, Secondary Transmission	9.10	13.00	22.10
Distribution Rehabilitation	3.10	5.40	8.50
Expansion of Service Connections	0.90	1.40	2.30
Sewerage/Sanitation	1.60	2.40	4.00
Institutional Strengthening	2.70	4.30	7.10
Technical Assistance	0.50	6.00	6.50
Base Cost	79.00	77.80	156.00
Physical Contingency	3.30	4.50	7.80
Price Contingency	5.50	6.50	12.00
Total Project Cost	87.80	88.00	175.80

Financing Plan:

	Local	Foreign	Total
IDA	24.40	55.90	80.30
French Government	0.00	31.30	31.30
Japanese Government	0.40	0.80	1.20
GOB	63.00	0.00	63.00
Total	87.80	88.00	175.80

[1/] Includes duties and taxes equivalent to US$35.5 million.

Schedule B
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BANGLADESH

FOURTH DHAKA WATER SUPPLY PROJECT

Procurement Methods and Disbursements
(US$ Million)

Project Elements	Procurement Methods				
	ICB	NCB	Other	NBF[1/]	Total
Civil Works					
Intake and Treatment Plant	31.5	-	3.0	-	34.5
	(31.5)	-	-	-	(31.5)
Primary/Secondary Transmission	26.5	-	-	-	26.5
	(18.4)	-	-	-	(18.4)
System Rehab & Service Expansion	10.2	2.8	-	-	13.0
	(6.8)	(2.5)	-	-	(9.3)
Development of Sewerage/Sanitation		5.0	-	-	5.0
		(5.0)			(5.0)
Equipment					
Intake & Treatment Plant	1.6	-	-	53.7	55.3
	(0.9)	-	-	-	(0.9)
Miscellaneous	1.5	0.2	-	-	1.7
	(1.0)	(0.2)	-	-	(1.2)
Consultancy Services					
Institutional Development	-	-	7.6	1.3	8.9
	-	-	(7.6)	-	(7.6)
Project Implementation	-	-	6.4	-	6.4
	-	-	(6.4)	-	(6.4)
Land Acquisition	-	-	-	24.5	24.5
Total	71.3	8.0	17.0	79.5	175.8
	(58.6)	(7.7)	(14.0)	(0.0)	(80.3)

1/ NBF: Not Bank Financed (These include land acquisition and components financed by GOB, the French and Japanese Governments.

Note: Figures in parenthesis are amounts financed by IDA Credit.

Schedule B
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Disbursements

Category	Amount SDR Equivalent	Percentage of Expenditures to be Financed	Amount US$ Million Equivalent
1) Intake & Treatment Plant	14,660,000	100% of foreign expenditures & 95% of local expenditures	23.1
2) Primary/Secondary Transmission	9,840,000	100% of foreign expenditures & 95% of local expenditures	15.5
3) Other Civil Works	7,620,000	100% of foreign expenditures & 95% of local expenditures	12.0
4) Goods	1,280,000	100% of foreign expenditures, 100% of local expenditures (ex-factory cost) & 65% of local expenditures for other items procured locally	2.0
5) Consultant Services	7,370,000	100% of expenditures	11.6
6) Training	510,000	100% of expenditures	0.8
7) Unallocated	9,720,000		15.3
TOTAL	51,000,000		80.3

Estimated Disbursements:

IDA Fiscal Year	FY97	FY98	FY99	FY00	FY01	FY02
Annual	1.5	15.4	21.4	22.2	13.2	6.2
Cumulative	1.5	16.9	38.3	60.5	74.1	80.3

Schedule C

BANGLADESH

FOURTH DHAKA WATER SUPPLY PROJECT

Timetable of Key Project Processing Events

a)	Time taken to prepare the Project:	4 years
b)	Prepared by:	Government with assistance of foreign/local consultants and IDA
c)	First IDA mission:	October 1992
d)	Appraisal mission departure:	August 1994
e)	Negotiations:	June 1995
f)	Planned date of effectiveness:	March 1997

The following staff were involved in project preparation: Mr. Jonathan Kamkwalala (Sr. Financial Analyst, Task Manager) - (SA1IN); Messrs. Arun Banerjee (Senior Operations Officer) and Saibul Huda (Program Officer) - (SA1BG); Mr. Alf Jerve (Anthropologist) - (ASTHR); Mr. Zahed Khan (Resettlement Specialist) - (SA1DR); Mr. Mohinder Virdy (Procurement Analyst) - (ASTTP); Messrs. Robert McWilliam (Sanitary Engineer) and Marco Fierro (Economist) - (Consultants). The project was re-appraised in May 1996 by the following staff members: Mr. Jonathan Kamkwalala (Task Manager) and Ms. Helen Nankani (Private Sector Development Specialist) - PSD.

Status of Bank Group Operations in Bangladesh
IBRD Loans and IDA Credits in the Operations Portfolio
(As of September 30, 1996)

Project ID	Loan or Credit No.	Fiscal Year	Borrower	Purpose	Original amount in US$ millions IBRD	IDA	Cancellations	Undisbursed	Difference between expected and actual disbursements[a]
Number of Closed Loans/Credits:	151								
Active Loans									
BD-PA-40985	C29220	1997	GOB	POVERTY ALLEVIATION		105.00		104.92	
BD-PA-9454	C23400	1992	GOB	PRIVATE SEC IND'L CR		25.50		18.62	16.73
BD-PA-9459	C18270	1987	GOB	ROAD REHAB. & MAINTE		102.00		12.71	4.13
BD-PA-9461	C20990	1990	GOB	BWDB SYSTEM REHAB.		53.90	19.45	22.77	34.33
BD-PA-9464	C23610	1992	GOB	PUBLIC RESOURCE MGT		150.00		53.29	49.41
BD-PA-9465	C26380	1994	GOB	2ND ROAD REHAB & MAI		146.80		89.34	-13.44
BD-PA-9467	C19300	1988	GOB	URBAN DEV. I		47.60	8.79	22.11	27.82
BD-PA-9470	C23970	1992	GOB	FOREST RESOURCES MGM		49.60		29.20	8.97
BD-PA-9484	C28150	1996	GOB	AG. RES. MANAGEMENT		50.00		48.49	7.20
BD-PA-9491	C19400	1988	GOB	RURAL ROADS & MARKET		62.30		10.15	8.96
BD-PA-9496	C27350	1995	GOB	NUTRITION		59.80		57.26	3.57
BD-PA-9506	C20160	1989	GOB	POWER DIST. (16 TOWN)		87.00		26.55	21.07
BD-PA-9509	C25690	1994	GOB	JAMUNA BRIDGE		200.00		85.73	30.61
BD-PA-9514	C21180	1990	GOB	GENERAL EDUCATION		159.30	13.21	44.94	46.65
BD-PA-9516	C22330	1991	GOB	AGRIC. SUPPORT SERVI		35.00		22.95	18.87
BD-PA-9519	C21460	1990	GOB	FISHERIES III		44.60	28.36	4.90	28.83
BD-PA-9529	C22590	1991	GOB	POP. & HEALTH IV		180.00		64.11	44.75
BD-PA-9533	C27200	1995	GOB	GAS INFRASTRUCTURE		120.80		99.26	16.08
BD-PA-9540	C22320	1991	GOB	INLAND WATER TRANSP		45.00		37.95	22.45
BD-PA-9542	C21290	1990	GOB	RURAL ELECTRIF. III		105.00		47.74	28.63
BD-PA-9544	C22460	1991	GOB	NAT'L MINOR IRRIGATI		54.00	30.77	21.84	44.24
BD-PA-9545	C27910	1996	GOB	RIVER BANK PROTECTIO		121.90		94.57	19.04
BD-PA-9549	C27830	1996	GOB	COASTAL EMBANKMENT R		53.00		49.21	11.70
BD-PA-9553	C25670	1994	GOB	JUTE SECTOR ADJ.CRED		247.00		202.05	188.59
BD-PA-9553	C25673	1996	GOB	JUTE SECTOR ADJ.CRED		3.40		3.32	
BD-PA-9555	C24690	1993	GOB	FEMALE SECONDARY SCH		68.00		54.22	4.84
BD-PA-9559	C23930	1992	GOB	TECHNICAL ASSISTANCE		25.00		13.32	3.70
BD-PA-9560	C28220	1996	GOB	NON-FORMAL EDUCATION		10.50		10.25	0.33
TOTAL					0.00	2412.00	100.58	1351.77	678.06

	Active Loans	Closed Loans	Total
Total disbursed (IBRD and IDA)	1034.14	4456.15	5490.29
Of which repaid	0.00	257.65	257.65
Total now held by IBRD and IDA	2311.43	3972.42	6283.85
Amount sold	0.00	0.37	0.37
Of which repaid	0.00	0.37	0.37
Total undisbursed	1351.77	3.32	1355.09

a. Intended disbursements to date minus actual disbursements to date as projected at appraisal.

Note: Disbursement data are updated at the end of the first week of the month.

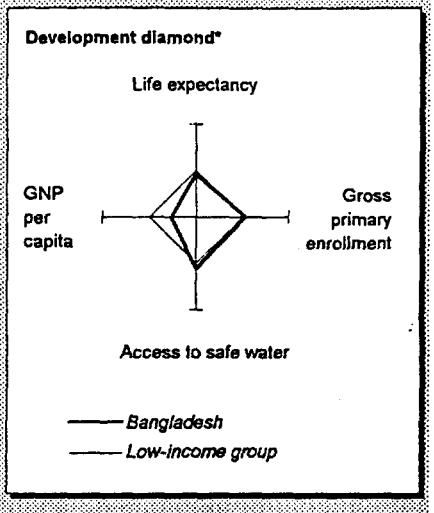
Bangladesh - Statement of IFC Investments
Committed and Disbursed Portfolio
As of September 30, 1996
(In US Dollar Millions)

		Committed				Disbursed			
		IFC				IFC			
FY Approval	*Company*	*Loan*	*Equity*	*Quasi*	*Partic*	*Loan*	*Equity*	*Quasi*	*Partic*
1980	IPDC	0.00	1.05	0.00	0.00	0.00	1.05	0.00	0.00
1983/85	Bata Shoe BD	0.00	0.13	0.00	0.00	0.00	0.13	0.00	0.00
1985/95	IDLC	0.00	0.15	0.00	0.00	0.00	0.15	0.00	0.00
1991	Dynamic Textile	2.28	0.00	0.00	1.77	2.28	0.00	0.00	1.77
	Total Portfolio:	2.28	1.33	0.00	1.77	2.28	1.33	0.00	1.77

		Approvals Pending Commitment			
		Loan	*Equity*	*Quasi*	*Partic*
1996	ICT-B	0.00	0.00	0.00	0.00
1996	ICT-W	0.00	0.00	0.00	0.00
	Total Pending Commitment:	0.00	0.00	0.00	0.00

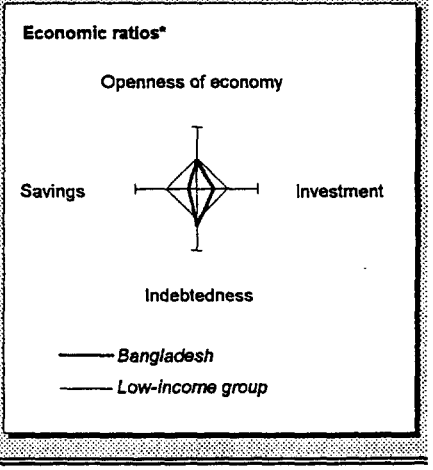
Bangladesh at a glance

POVERTY and SOCIAL	Bangladesh	South Asia	Low-income
Population mid-1995 *(millions)*	119.8	1,243	3,188
GNP per capita 1995 *(US$)*	240	350	460
GNP 1995 *(billions US$)*	28.6	435	1,466
Average annual growth, 1990-95			
Population *(%)*	1.6	1.9	1.8
Labor force *(%)*	2.7	2.4	1.9
Most recent estimate *(latest year available since 1989)*			
Poverty: headcount index *(% of population)*	48	..	..
Urban population *(% of total population)*	18	26	29
Life expectancy at birth *(years)*	58	61	63
Infant mortality *(per 1,000 live births)*	79	73	58
Child malnutrition *(% of children under 5)*	84	62	38
Access to safe water *(% of population)*	84	81	75
Illiteracy *(% of population age 15+)*	62	50	34
Gross primary enrollment *(% of school-age population)*	111	98	105
Male	128	110	112
Female	105	87	98



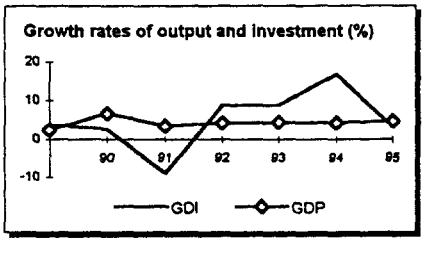
KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1975	1985	1994	1995
GDP *(billions US$)*	14.3	15.7	25.8	29.1
Gross domestic investment/GDP	6.1	12.9	15.4	16.6
Exports of goods and non-factor services/GDP	2.9	7.4	11.9	14.2
Gross domestic savings/GDP	0.9	2.0	9.1	8.3
Gross national savings/GDP	1.1	4.5	13.8	13.1
Current account balance/GDP	-7.0	-8.4	-1.6	-3.5
Interest payments/GDP	0.1	0.6	0.8	0.7
Total debt/GDP	12.9	46.5	64.3	58.3
Total debt service/exports	23.3	22.7	15.2	12.4
Present value of debt/GDP	..	..	32.6	..
Present value of debt/exports	..	..	195.7	..

	1975-84	1985-95	1994	1995	1996-04
(average annual growth)					
GDP	4.9	4.1	4.2	4.7	4.8
GNP per capita	2.3	2.1	2.8	2.6	2.5
Exports of goods and nfs	6.8	10.2	4.1	30.1	8.4

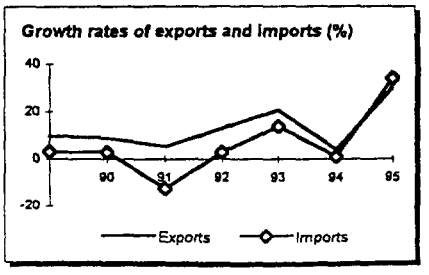


STRUCTURE of the ECONOMY

	1975	1985	1994	1995
(% of GDP)				
Agriculture	62.0	41.8	29.7	30.9
Industry	11.6	16.0	17.7	17.6
Manufacturing	7.0	9.9	9.8	9.6
Services	26.4	42.3	52.6	51.5
Private consumption	95.9	90.6	76.6	77.9
General government consumption	3.2	7.3	14.3	13.7
Imports of goods and non-factor services	8.1	18.3	18.2	22.5



	1975-84	1985-95	1994	1995
(average annual growth)				
Agriculture	3.5	2.2	0.3	-1.0
Industry	4.7	6.2	7.8	8.4
Manufacturing	3.1	5.5	7.8	8.6
Services	6.5	5.0	5.8	6.9
Private consumption	..	..	5.1	14.2
General government consumption	..	..	8.3	1.0
Gross domestic investment	9.5	3.4	16.7	3.1
Imports of goods and non-factor services	7.9	2.8	0.9	34.1
Gross national product	4.8	4.2	4.7	4.5



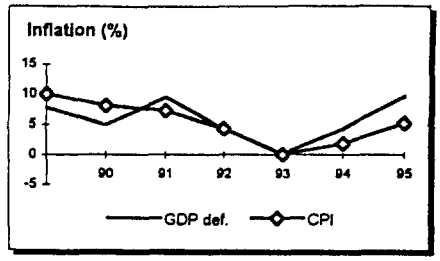
Note: 1995 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

Bangladesh

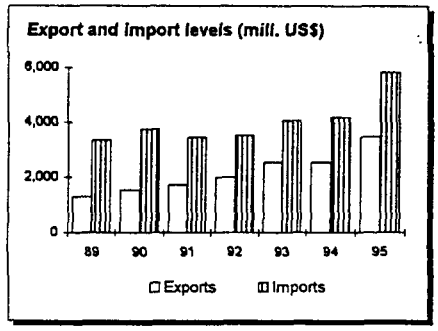
PRICES and GOVERNMENT FINANCE

	1975	1985	1994	1995
Domestic prices				
(% change)				
Consumer prices	21.9	10.7	1.8	5.2
Implicit GDP deflator	..	11.1	4.3	9.7
Government finance				
(% of GDP)				
Current revenue	..	8.5	12.2	12.1
Current budget balance	..	1.3	6.1	6.4
Overall surplus/deficit	..	-9.1	-6.0	-6.8



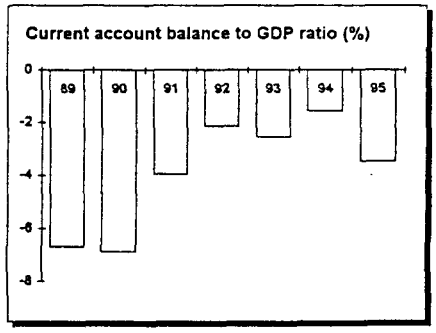
TRADE

	1975	1985	1994	1995
(millions US$)				
Total exports (fob)	..	940	2,534	3,473
Other agriculture	..	151	57	..
Shrimp, fish and froglegs	..	70	211	306
Manufactures	..	506	1,737	2,356
Total imports (cif)	..	2,647	4,191	5,834
Food	..	601	131	500
Fuel and energy	..	359	323	407
Capital goods	..	691	1,300	1,303
Export price index *(1987=100)*	..	74	101	..
Import price index *(1987=100)*	..	104	101	..
Terms of trade *(1987=100)*	..	71	99	..



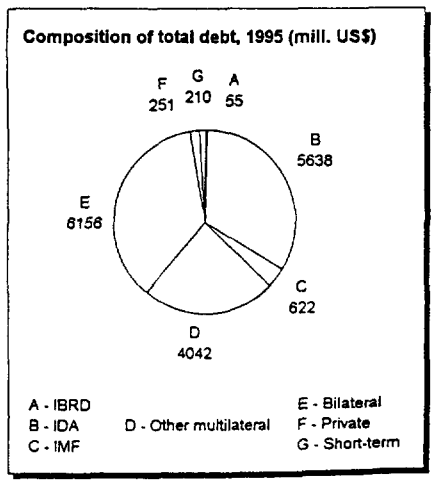
BALANCE of PAYMENTS

	1975	1985	1994	1995
(millions US$)				
Exports of goods and non-factor services	427	1,162	3,057	4,130
Imports of goods and non-factor services	1,459	2,864	4,693	6,545
Resource balance	-1,033	-1,702	-1,636	-2,415
Net factor income	-6	-90	-30	-41
Net current transfers	35	477	1,247	1,426
Current account balance, before official transfers	-1,003	-1,314	-420	-1,030
Financing items (net)	1,048	1,237	1,045	1,304
Changes in net reserves	-45	77	-625	-274
Memo:				
Reserves including gold *(mill. US$)*	148	356	2,852	3,070
Conversion rate *(local/US$)*	8.9	26.0	40.0	40.2



EXTERNAL DEBT and RESOURCE FLOWS

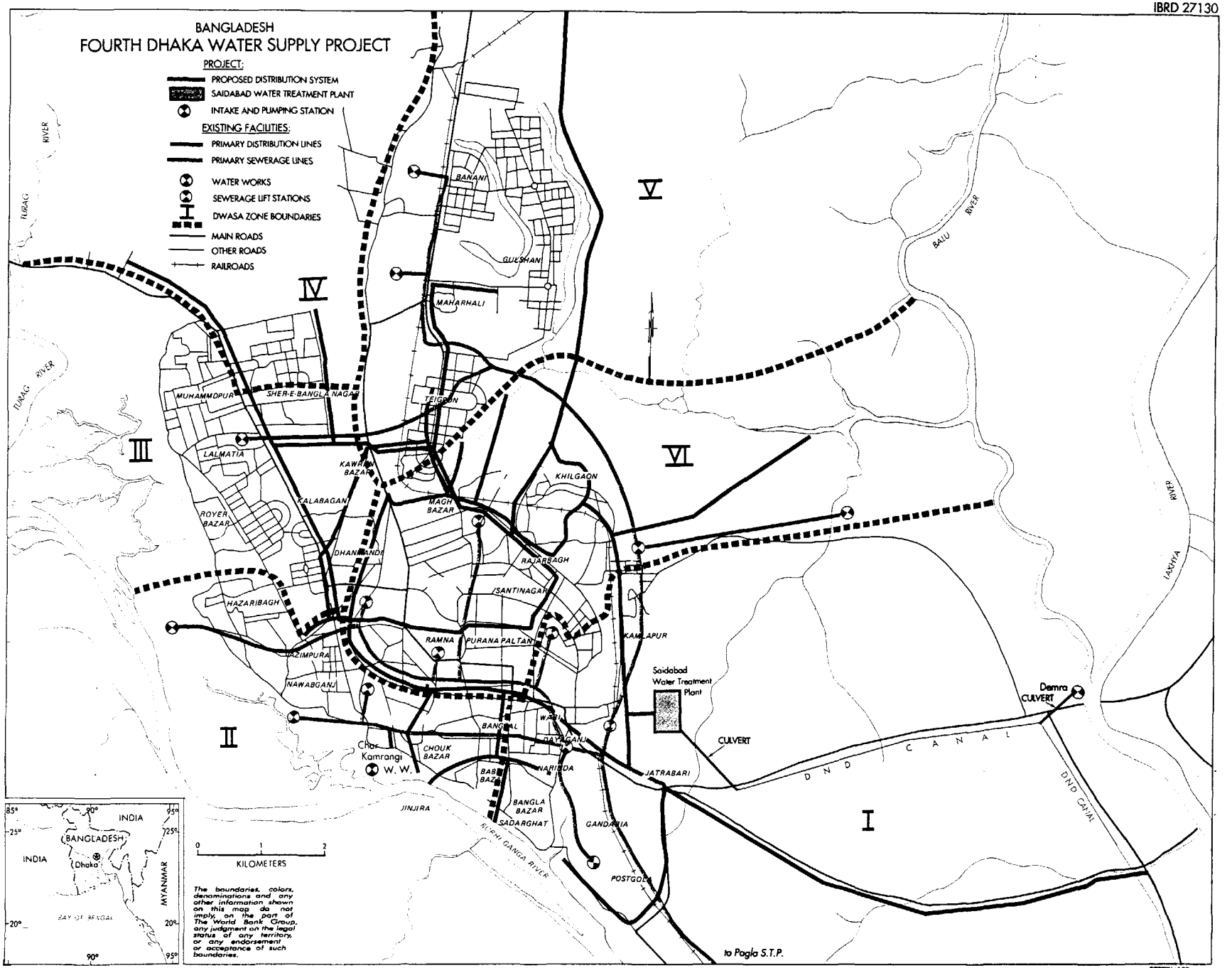
	1975	1985	1994	1995
(millions US$)				
Total debt outstanding and disbursed	1,841	7,278	16,569	16,974
IBRD	55	55	58	55
IDA	295	2,021	5,378	5,638
Total debt service	104	360	653	679
IBRD	0	3	7	8
IDA	2	22	71	83
Composition of net resource flows				
Official grants	315	472	759	800
Official creditors	576	603	730	445
Private creditors	-3	-3	-11	0
Foreign direct investment	0	0	11	125
Portfolio equity	0	0	47	22
World Bank program				
Commitments	205	398	597	356
Disbursements	91	288	412	197
Principal repayments	0	6	37	46
Net flows	91	282	375	151
Interest payments	1	20	43	46
Net transfers	90	262	332	105



MAP SECTION

IBRD 27130

BANGLADESH
FOURTH DHAKA WATER SUPPLY PROJECT



The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

SEPTEMBER 1995

IMAGING

Report No: P- 7039 BD
Type: MOP