

資料

資料 1 調査団員・氏名

1. 第一次 B / D 調査団

氏名	業種	現職
大久保 久俊	団長	JICA無償資金協力部業務第一課課長代理
松原 誠	技術参与	国土交通省土木研究所下水道部 下水道研究室主任研究員
広山 和臣	業務主任/下水道計画	(株)エヌジェーエス・コンサルタンツ
田岡 範久	下水道維持管理計画	同上
高柳 建二	機材計画	同上
田中 和夫	管路設計	同上
山口 明	積算/調達計画	同上

2. 第二次 B / D 調査団

氏名	業種	現職
貝原 孝雄	総括	JICA無償資金協力部業務第一課長
稲葉 誠	技術参与	外務省経済協力局無償援助審査業務室長
三宅 繁輝	計画管理	JICA無償資金協力部業務第一課
広山 和臣	業務主任/下水道計画	(株)エヌジェーエス・コンサルタンツ
高柳 建二	機材計画	同上

資料 2 調査行程

1. 第一次 B / D 調査

日順	月 日		活 動 内 容			
			大久保 / 松原	田岡	広山 / 高柳 / 田中	山口
1	Oct. 10	Tue.	Departure from Tokyo			
2	11	Wed.	Arrival in Dhaka, Courtesy Call to JICA Office			
3	12	Thu.	Courtesy Call to EOJ, ERD, MLGRDC and Meeting with DWASA			
4	13	Fri.	Internal Meeting			
5	14	Sat.	Site Survey			
6	15	Sun.	Site Survey			
7	16	Mon.	Site Survey & Meeting with DWASA			
8	17	Tue.	Discussion with DWASA on Minutes			
9	18	Wed.	Discussion with DWASA on Minutes			
10	19	Thu.	Signing on Minutes, Reporting to ERD, MLGRDC, EOJ and JICA Office			
11	20	Fri.	Leave for TYO	Internal Meeting		
12	21	Sat.	Arrive in TYO	Day Off		
13	22	Sun.		Data Collection & Site Survey		
14	23	Mon.		Data Collection & Site Survey		
15	24	Tue.		Data Collection & Site Survey		
16	25	Wed.		Data Collection & Site Survey		
17	26	Thu.		Data Collection & Site Survey		
18	27	Fri.		Internal Meeting		
19	28	Sat.		Day Off		
20	29	Sun.		Data Collection & Site Survey		
21	30	Mon.		Data Collection & Site Survey	Dep. from TYO	
22	31	Tue.		Data Collection & Site Survey	Arrive in DCA	
23	Nov. 1	Wed.		Data Collection & Site Survey		
24	2	Thu.		Data Collection & Site Survey		
25	3	Fri.		Internal Meeting		
26	4	Sat.		Day Off		
27	5	Sun.		Data Collection & Site Survey		
28	6	Mon.		Internal Meeting		
29	7	Tue.		Leave for TYO	Data Collection & Site Survey	
30	8	Wed.	Arrive in TYO	Data Collection & Site Survey		
31	9	Thu.		Data Collection & Site Survey		
32	10	Fri.		Internal Meeting		
33	11	Sat.		Day Off		
34	12	Sun.		Data Collection & Site Survey		
35	13	Mon.		Data Collection & Site Survey		
36	14	Tue.		Discussions with DWASA		
37	15	Wed.		Discussions with DWASA		
38	16	Thu.		Report to EOJ, JICA, MLGRDC		
39	17	Fri.		Leave for TYO		
40	18	Sat.		Arrive in TYO		

## 2 . 第二次 B / D 調査

日順	月日		活 動 内 容	
			Kaibara/Miyake/Hiroshima/Takayanagi	Inaba
1	Jan. 28	Sun.	Departure from Tokyo	
2	29	Mon.	Arrival in Dhaka, Courtesy Call to JICA Office	
3	30	Tue.	Discussion with ERD, Planning Com., MLGRDC, DWASA	
4	31	Wed.	Discussion and signing on Minutes of Meeting, Site Survey	
5	1	Thu.	Internal Meeting	
6	2	Fri.	Leave Dhaka for Tokyo via Bangkok	Data Collection
7	3	Sat.	Arrive in Tokyo	Data Review
8	4	Sun.		Site Survey
9	5	Mon.		Reporting to EOJ, JICA
10	6	Tue.		Leave Dhaka for Tokyo via Bangkok
11	7	Tue.		Arrive in Tokyo

資料 3 関係者（面談者）リスト

氏 名	役 職	備 考
Mr. Lamrul Hasan	Deputy Secretary	ERD
Mr. A.K.M. Nashirul Hug	Deputy Secretary	"
Mr. MD. Emran	Sr. Assistant Secretary	"
Mr. MD. Abdullah AL Masud Choudhung	Sr. Assistant Chieft	計画省
Mr. Mujibur Rahman	Joint Chief	"
Mr. Abul Kalam	Deputy Chief	"
Mr. Scrajul Islam	Deputy Chief	LGRDC
Mr. Md. Abdullah	Deputy Chief	"
Dr. K. Asharul Haq	Managing Director	DWASA
Mr. Mohd. Delwar. Hossain	Deputy Managing Director	"
Mr. Md. Farid	Deputy Managing Director	"
Mr. Kazi Md. Sheesh	Chief Engineer	"
Mr. Q. G. Mowla	Superintending Engineer	"
Mr. Shamsul Alam	Superintending Engineer	"
Mr. MD. Shahidur Rahman Prodhan	Superintending Engineer	"
Mr. M. A. Jalil	Deputy Chief (Planning)	"
Mr. Syed. Qumarul Ahsan	Superintending Engineer	"
Mr. MD. Alkas Uddin	Project Director	"
Mr. A.R.M. Nurul Islam	Project Director	"
Mr. MD. Shahjahan	Executive Engineer	"
Mr. MD. Delwar Hossain	Executive Engineer	DWASA Saidabad Water Treatment Plant
Mr. M. H. Rahman	Executive Engineer	DWASA Pagla Sewage Treatment Plant
Mr. MD. Saidul Islam	Sub-Divisional Engineer	DWASA
石田 樹 氏	一等書記官	日本大使館
染田 勝俊 氏	二等書記官	日本大使館
岡崎 有二 氏	所長	JICAパナマ事務所
木邨 洗一 氏	次長	"
吉川 正宏 氏	所員	"
Mr. MD. Mokirul Islam	プログラム・オフィサー	"
表 伸一郎 氏	JICA専門家	ERD
佐藤 恵一 氏	JICA専門家	DCC
Mr. Tanveer Ahsan	Urban Specialist	世界銀行

## 資料 - 4 当該国の社会経済状況 (国別基本情報抜粋)

バングラデシュ人民共和国
People's Republic of Bangladesh

一般指標					
政体	共和制	*1	首都	ダッカ (Dhaka)	*2
元首	大統領 / シャハブディン・ア-メド	*1,3	主要都市名	チッタゴン、クルナ、ラジハヤヒ	*3
独立年月日	1971年3月26日	*3,4	雇用総数	64,071千人 (1998年)	*6
主要民族/部族名	ベンガル人98%	*1,3	義務教育年数	5年間 (年)	*13
主要言語	ベンガル語、英語	*1,3	初等教育就学率	% (1997年)	*6
宗教	イスラム教88.1%、ヒンズー教10.5%	*1,3	中等教育就学率	% (1997年)	*6
国連加盟年	1974年9月17日	*12	成人非識字率	59.2% (2000年)	*13
世銀加盟年	1972年8月	*7	人口密度	965.11人/km2 (1998年)	*6
IMF加盟年	1994年4月	*7	人口増加率	2.1% (1980年)	*6
国土面積	147.00千km2	*6	平均寿命	平均 58.10 男 58.10 女 58.20	*6
総人口	125,629千人 (1998年)	*6	5歳児未満死亡率	96/1000 (1998年)	*6
			カロリー供給量	2,105.0cal/日/人 (1996年)	*10

経済指標					
通貨単位	タカ (Taka)	*3	貿易量	(1998年)	
為替レート	1 US \$ = 53.58 (2000年12月)	*8	商品輸出	5,141.4百万ドル	*15
会計年度	Jun. 30	*6	商品輸入	-6,862.1百万ドル	*15
国家予算	(年)		輸入カバー率	2.5(月) (1997年)	*14
歳入総額		*9	主要輸出品目	縫製品、ニット製品、冷凍食品、ジュート	*1
歳出総額		*9	主要輸入品目	資本財、繊維、原油・石油製品、鉄鋼	*1
総合収支	290.2百万ドル (1998年)	*15	日本への輸出	百万ドル (1998年)	*16
ODA受取額	1,251.1百万ドル (1998年)	*18	日本からの輸入	百万ドル (1998年)	*16
国内総生産(GDP)	42,701.83百万ドル (1998年)	*6			
一人当たりGNP	350.0ドル (1998年)	*6	粗外貨準備額	0.0百万ドル (1998年)	*6
GDP産業別構成	農業 22.2% (1998年)	*6	対外債務残高	16,375.6百万ドル (1998年)	*6
	鉱工業 27.9% (1998年)	*6	対外債務返済率(DSR)	9.1% (1998年)	*6
	サービス業 49.9% (1998年)	*6	インフレ率 (消費者価格物価上昇率)	5.4% (1990-98年)	*6
産業別雇用	農業 男 54.4% 女 77.5% (1992年)	*6			
	鉱工業 10.8% 7.6% (1992年)	*6	国家開発計画		*11
	サービス業 33.7% 11.0% (1992年)	*6			
実質GDP成長率	4.7% (1990年)	*6			

気象 (1961年~1981年平均) 観測地: チッタゴン (北緯22度21分、東経91度50分、標高14m) *4,5													
月	1	2	3	4	5	6	7	8	9	10	11	12	平均/計
降水量	4.2	14.4	34.6	129.8	233.8	594.3	757.8	558.9	249.7	180.5	46.0	8.4	2812.4 mm
平均気温	19.8	22.1	25.5	27.7	28.6	27.9	27.6	27.8	28.1	27.6	24.5	20.8	25.7 °C

- \*1 各国概況 (外務省)
- \*2 世界の国々一覧表 (外務省)
- \*3 世界年鑑2000 (共同通信社)
- \*4 最新世界各国要覧10訂版 (東京書籍)
- \*5 理科年表2000 (国立天文台編)
- \*6 World Development Indicators2000
- \*7 The World Bank Public Information Center, International Financial Statistics Yearbook 1998
- \*8 Universal Currency Converter

- \*9 Government Finances Statistics Yearbook1998 (IMF)
  - \*10 Human Development Report1999(UNDP)
  - \*11 Country Profile(EIU),外務省資料等
  - \*12 United Nations Member States
  - \*13 Statistical Yearbook 1999(UNESCO)
  - \*14 Global Development Finance1999(WB)
  - \*15 International Financial Statistics 1999(IMF)
  - \*16 世界各国経済情報ファイル1999(日本貿易振興会)
- 注: 商品輸入については複式簿記の計上方式を採用しているため  
支払い額はマイナス表記になる

	バングラデシュ人民共和国
	People's Republic of Bangladesh

我が国におけるODAの実績		(資金協力は約束額ベース、単位：億円)					*17
項目	暦年	1995	1996	1997	1998	1999	
技術協力		13.33	16.10	18.66	18.67		
無償資金協力		204.95	207.56	238.04	197.41		
有償資金協力		210.79	0.00	152.52	0.00		
総額		429.07	223.66	409.22	216.08		

当該国に対する我が国ODAの実績		(支出純額、単位：百万ドル)					*17
項目	暦年	1995	1996	1997	1998	1999	
技術協力		34.84	30.52	26.83	22.83		
無償資金協力		228.75	184.77	169.60	216.35		
有償資金協力		-8.69	-41.25	-66.45	-50.14		
総額		254.89	174.03	129.98	189.05		

OECD 諸国の経済協力実績		(支出純額、単位：百万ドル)				*18
	贈与 (1) (無償資金協力・ 技術協力)	有償資金協力 (2)	政府開発援助 (ODA) (1)+(2)=(3)	その他政府資金 及び民間資金(4)	経済協力総額 (3)+(4)	
二国間援助 (主要供与国)	695.6	-71.8	623.8	136.4	760.2	
1. Japan	239.2	-50.1	189.1	41.3	230.4	
2. United Kingdom	99.5	-0.5	99.0	-34.5	64.5	
3. Germany	65.1	0.0	65.1	-4.8	60.3	
4. Netherland	57.9	0.0	57.9	58.4	116.3	
多国間援助 (主要援助機関)	152.4	477.7	630.1	-5.0	625.1	
1. IDA			290.8	0.0	290.8	
2. AsDB			183.3	0.2	183.5	
その他	11.6	-14.4	-2.8	0.0	-2.8	
合計	859.6	391.5	1,251.1	131.4	1,382.5	

援助受入窓口機関	*19
技術協力：大蔵省経済関係局 (ERD) (Economic Relations Division)	
無償：大蔵省経済関係局 (ERD) (Economic Relations Division)	
協力隊：大蔵省経済関係局 (ERD) (Economic Relations Division)	

\*17 我が国の政府開発援助1999(国際協力推進協会)

\*18 International Development Statistics (CD-ROM) 2000 OECD

\*19 JICA資料

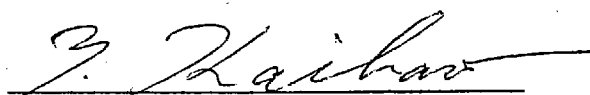
MINUTES OF DISCUSSIONS ON  
BASIC DESIGN STUDY (II) ON  
THE PROJECT FOR IMPROVEMENT OF SEWERAGE SYSTEM  
IN DHAKA CITY IN THE PEOPLE'S REPUBLIC OF BANGLADESH

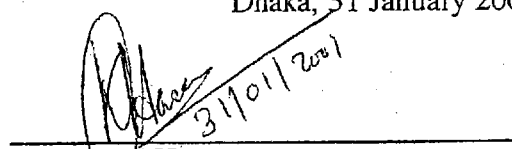
In October, 2000 the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team (I) on the Project for Improvement of Sewerage System in Dhaka City (hereinafter referred to as "the Project") to the Government of the People's Republic of Bangladesh (hereinafter referred to as "the Government of Bangladesh") and through discussions, field surveys and technical examinations of the results in Japan, JICA prepared an Interim Report of the Study.

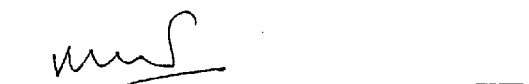
In order to explain the contents of the Interim Report and to consult the Bangladesh JICA sent to the Government of Bangladesh the Basic Design Study Team (II) (hereinafter referred to as "the Team (II)") headed by Mr. Takao Kaibara, Director, First Project Management Division, Grant Aid Management Department, JICA, from 29th January to 2<sup>nd</sup> February 2001.


The Team had discussions with the officials concerned of the Government of Bangladesh and as a result of discussion, both sides confirmed the main items described on the attached sheets.

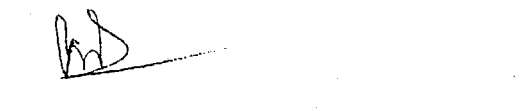
Dhaka, 31 January 2001

  
Takao Kaibara  
Leader  
Basic Design Study Team (II)  
Japan International Cooperation Agency

  
Kamrul Hasan  
Deputy Secretary  
Economic Relations Division(ERD)  
Ministry of Finance

  
Abul Kalam  
Deputy Chief  
Physical Planning and Housing Wing,  
Planning Commission

  
Md. Abdullah  
Deputy Chief  
Ministry of Local Government,  
Rural Development and  
Cooperatives

  
M. A. Jalil  
Deputy Chief (Planning)  
Dhaka Water Supply and  
Sewerage Authority (DWASA)



## ATTACHMENT

1. Both sides jointly reviewed the contents of the Minutes of Discussions on Basic Design Study (I) signed on October 19, 2000. Referring to the Project described in the Minutes, the Japanese side explained the following:



- (1) Though both sides had agreed that the southern part of the sewer trunk main should be the legitimate component of the Project, the original PCP (and the official project request to the Japanese side based on it) had not included the component as the scope of the Project;
- (2) The machinery equipment to cover the whole Dhaka city was also out of the original scope of the existing PCP;
- (3) The Japanese side understood that the Government of Bangladesh had been preparing a new PCP for the official inclusion of the southern trunk sewer main and exclusion of sewer line of Baridhara proposed in original PCP and equipment according to the minutes of discussions on basic design ( I ) signed on October 19, 2000;
- (4) However, in order to operate and maintain properly the sewer system to be newly constructed, the Government of Bangladesh had to secure enough budgetary allocation, staffing and plan training and human resources development and managerial improvement, etc. well in advance; and
- (5) Therefore the Japanese side would recommend that a revised PCP be prepared before the Project goes to a further stage, namely a basic design.

2. Therefore, both sides finally concluded and agreed that:

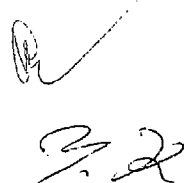
- (1) The Government of Bangladesh will prepare a revised PCP as soon as possible;
- (2) The Japanese side will resume a further basic study after the revised PCP (and the revised official project request) is fully authorized and submitted by ERD to Embassy of Japan.

3. Regarding the interim report, the Japanese side explained that the report should be treated as a technical report and recommendation on a newer equipment plan for cleaning programme of the sewer system in the whole Dhaka.

4. Both the Bangladeshi and Japanese sides will fully comply with the above.





MINUTES OF DISCUSSIONS ON  
BASIC DESIGN STUDY (I) ON  
THE PROJECT FOR IMPROVEMENT OF SEWERAGE SYSTEM  
IN DHAKA CITY IN BANGLADESH

In response to a request from the Government of the People's Republic of Bangladesh (hereinafter referred to as "the Government of Bangladesh"), the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Sewerage System in Dhaka City (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Bangladesh the Basic Design Study Team (I) (hereinafter referred to as "the Team (I)") headed by Mr. Hisatoshi Okubo, Deputy Director, First Project Management Division, Grant Aid Management Department, JICA from October 11 to November 17, 2000.

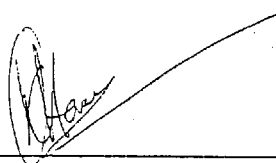
The Team had discussions with the officials concerned of the Government of Bangladesh and conducted field surveys in the study area. In the course of the discussions and field surveys, both sides have confirmed the main items described on the attached sheets.

Dhaka, October 19, 2000



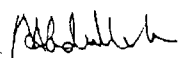
---

Hisatoshi Okubo  
Leader  
Basic Design Study Team (I)  
JICA



---

Kamrul Hasan  
Deputy Secretary  
Economic Relations Division (ERD)  
Ministry of Finance



---

Md. Abdullah  
Deputy Chief  
Local Government Division  
Ministry of Local Government,  
Rural Development and Cooperatives



---

M.A. Jalil  
Deputy Chief (Planning)  
Dhaka Water Supply and Sewerage  
Authority (DWASA)

## ATTACHMENT

### 1. Objective

The Objective of the Project is to improve the sewerage in Dhaka City area through provision of sewer cleaning equipment (“Part 1” of the Project) and construction and rehabilitation of sewer (“Part 2” of the Project).

### 2. Project Site

The Site of the Project is Dhaka City (Shown in Annex I).

### 3. Responsible and Executing Organizations

- (1) The responsible organization of the Project is the Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Cooperatives (LGRDC).
- (2) The executing organization of the Project is the Dhaka Water Supply and Sewerage Authority (DWASA).

### 4. Items requested by the Government of Bangladesh

After discussions with the Team, the items described in Annex II were finally requested for the “Part 1” of the Project by the Government of Bangladesh. JICA will assess the appropriateness of the requested items and will recommend to the Government of Japan for approval. When finalizing the equipment plan, the following criteria may be used;

- (1) Past and current performance of cleaning activities in each Zone,
- (2) Financial viability, i.e. budgetary preparation for daily operation and maintenance of each MODS Zone Office and for its staffing,
- (3) Technical and managerial competence of each MODS Zone Office and,
- (4) Availability of parking space for big machinery and storage room for spare parts.

### 5. Schedule of the Study

- (1) The consultants will proceed to further studies in Bangladesh until November 17, 2000.
- (2) In Japan, JICA will prepare the Interim Report covering the “Part

As

NO

MD

Q

1" of the Project and dispatch the Basic Design Study Team (II) in January 2001.

- (3) During the Study, the Team (II) will explain the contents of the report and also conduct further studies in order to determine the items for the "Part 2" of the Project.

#### 6. Minutes of Discussions on the Preparatory Study

The Minutes of Discussions signed on May 31, 2000 has been reproduced as Annex III for record.

#### 7. Japan's Grant Aid Scheme

The Government of Bangladesh has understood the Japan's Grant Aid Scheme and the necessary measures to be taken as explained by the Team (I) and described in Annex III and IV of the Minutes of Discussions on the Preparatory Study.

#### 8. Capacity Building and Institutional Development for Operation and Maintenance (O&M)

In order to develop and improve the O&M system of DWASA in general and that of cleaning activities of sewer in particular, the Government of Bangladesh will make a separate request for technical assistance. In addition to that, a "Soft Component" under the Grant Aid Scheme is regarded essential as a part of the Project for the same purpose.

#### 9. Items for the "Part 2" of the Project

- (1) Both sides have agreed that technically it has more rationale to start rehabilitation from the southern end of the sewer trunk main, i.e. from Pagla Treatment Plant northward rather than from the northern area downward.
- (2) However, the World Bank had completed its feasibility study "Improved Sanitation Services: Fourth Dhaka Water Supply and Sanitation Project (1998)". The Study included a rehabilitation project of the same trunk main, which is on the short list of future projects of the World Bank for DWASA.
- (3) Therefore, DWASA through LGD will inform the World Bank of

As

240



the contents of discussions it had with the Team (I) and secure from the World Bank firm acknowledgement regarding preparation of the Project.

- (4) LGD will also organize and chair a joint meeting latest by November 5, 2000 to which representatives from the Government of Bangladesh, the World Bank, the Embassy of Japan, JICA Office and the Team (I) will be invited. The meeting is expected to facilitate coordination among the parties concerned and to help avoid any misunderstanding among them in future.
- (5) LGD will write an official letter to JICA Office (and c.c. to Embassy of Japan) regarding the results of the above (3) and latest by the end of November 2000.
- (6) Based on the above (5), the Team (II) will conduct field surveys in the study area from Pagla to the southern end of Gulshan area.

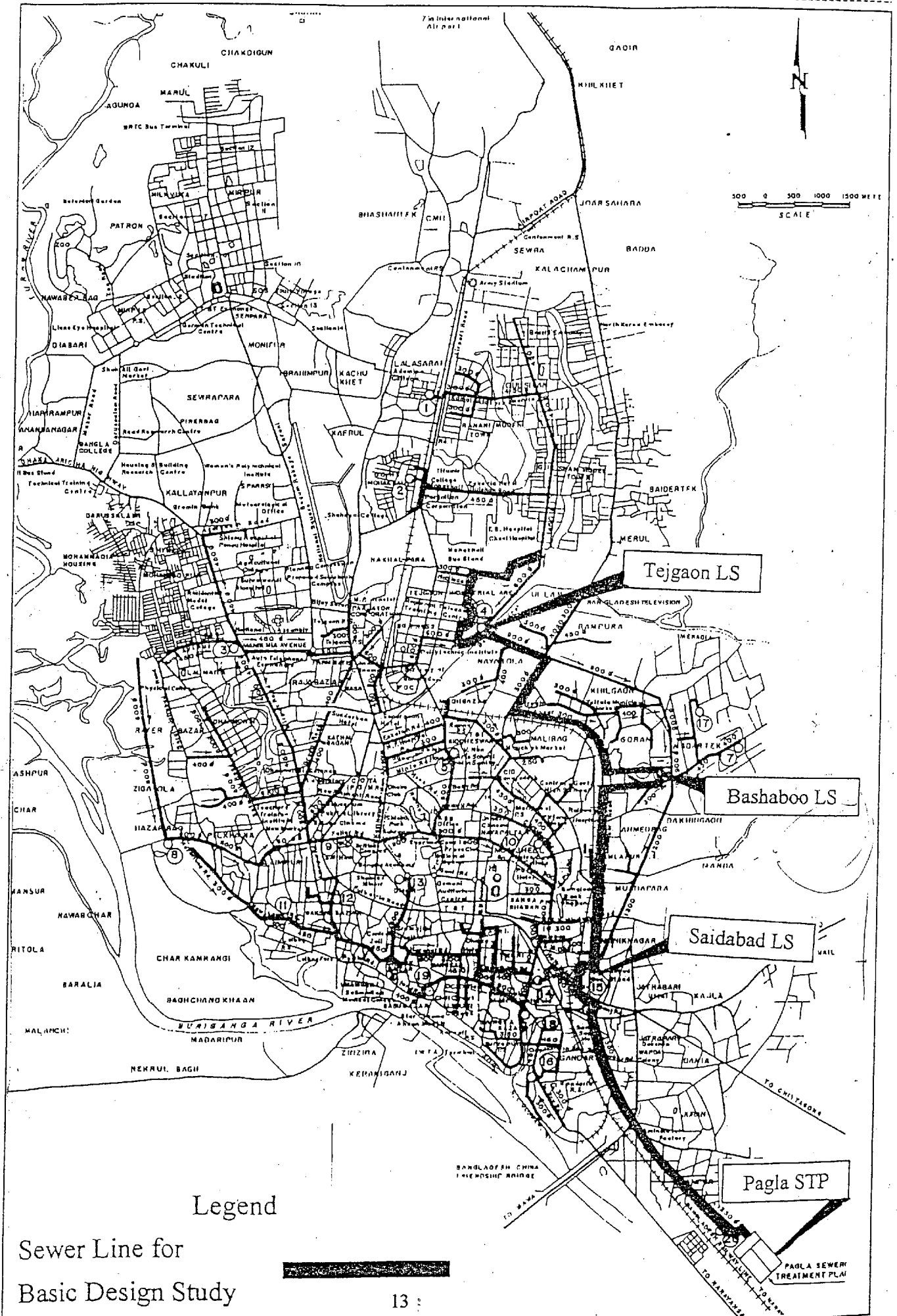
AL

MD

MD

Q

# Annex I



## Legend

Sewer Line for  
Basic Design Study



Handwritten notes and signatures in the bottom left corner, including the number '210' and several illegible scribbles.

## Annex-II

Items Requested by the Bangladesh Side

Item	Quantity Requested	Priority	
		A (MODS I, V & VI)	B (MODS II, III & IV)
Vacuum Cleaner with Dehydration System	6	3	3
Water Jet Cleaner	6	3	3
Water Tanker	6	3	3
Sludge Hauling Dump Truck	6	3	3
High Pressure Flexible Drain Pipe	6	3	3
Appurtenances	6	3	3
Spare Parts	6	3	3

M

H.O

Ans

D

MINUTES OF DISCUSSIONS  
PREPARATORY STUDY ON THE EMERGENCY SEWER  
CONSTRUCTION PROJECT IN NORTH DHAKA AREA  
IN THE PEOPLE'S REPUBLIC OF BANGLADESH

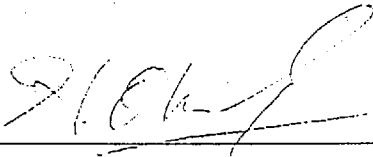
In response to a request from the Government of the People's Republic of Bangladesh (hereinafter referred to as "the Government of Bangladesh"), the Government of Japan decided to conduct a Preparatory Study on the Emergency Sewer Construction Project (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Bangladesh the Preparatory Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Hisatoshi Okubo, Deputy Director, First Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from 16th May 2000 to 2<sup>nd</sup> June 2000.


The Team held discussions with the officials concerned of the Government of Bangladesh and conducted a field survey at the study area.

As a result of discussion and field survey, both sides confirmed the main items described on the attached sheets. Subject to the decision by the Government of Japan, JICA will conduct a Basic Design Study on the Project.

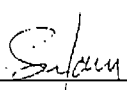
Dhaka, 31<sup>st</sup> May 2000



Hisatoshi Okubo  
Leader  
Preparatory Study Team  
Japan International Cooperation Agency  
Japan



A.K.M. Nashirul Huq  
Deputy Secretary  
Economic Relations Division  
Ministry of Finance



Serajul Islam  
Deputy Chief  
Local Government Division  
Ministry of Local Government Rural  
Development and Cooperatives



M.A. Jalil  
Deputy Chief (Planning)  
Dhaka Water Supply and  
Sewerage Authority



## ATTACHMENT

### 1. Objective of the Project

The Objective of the Project is to improve the sewerage in Dhaka area through construction and rehabilitation of sewer and provision of sewer cleaning equipment.

### 2. Project Site

The site of the Project is Dhaka City. (See map in Annex -I)

### 3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives (LGRDC).

3-2. The Implementing Agency is the Dhaka Water Supply and Sewerage Authority (DWASA).

### 4. Items requested by the Government of Bangladesh

After discussions with the Team, the Government of Bangladesh finally requested the items described in Annex-II.

JICA will assess the appropriateness of the request and will report the findings to the Government of Japan. The final components of the Project will be decided after the Basic Design Study.

### 5. Japan's Grant Aid Scheme

5-1. The Government of Bangladesh understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-III.

5-2. The Government of Bangladesh will take necessary measures, as described in Annex-IV, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

## 6. Schedule of the Study

If the Project is found feasible as a result of the Preparatory Study, JICA will send the Basic Design Study Team around September 2000.

## 7. Other Relevant Issues

### 7-1. Title of the Project

As the rehabilitation of the sewerage requested by the Government of Bangladesh extends not only in North Dhaka but also in South Dhaka, the title of the Project would be changed according to the Basic Design Study.


### 7-2. Sewer Trunk Main

A portion of the sewer trunk main between Tejgaon LS and Bashaboo LS has been dilapidated since the severe flooding in 1998. The sewer trunk main from Saydabad LS to Pagla Treatment Plant has not been functioning properly, either. The Government of Bangladesh explained that these 2 lines should be included in the Project components since volume of sewage flow into the Pagla Treatment Plant could not be expected to increase without their rehabilitation. The Team supported the above view of the Government of Bangladesh.

### 7-3. Equipment

The Team explained that types, quality and specifications of a set of cleaning equipment should be carefully examined based on results of further studies later.

### 7-4. Pump / Lift Station

 DWASA has just started implementing a project to rehabilitate 8 lift stations along the sewer trunk main. A tender has already been opened for procurement of 29 number of pump equipment. Among the 8 lift stations, Tejgaon LS, Bashaboo LS and Saydabad LS are along the sewer trunk main of the Project.

DWASA unofficially expressed its hope that rehabilitation and construction of buildings of these 3 pump stations be included in the Project. The Team pointed out that the schedule of the DWASA project were well ahead of the expected timely of the Project and explained that it was very difficult to

consent to DWASA's request.

However, the team recommended that DWASA seek for possibility to utilize Japan's Counterpart Fund for realization of its plan.

#### 7-5. Baridhara Area

The Project proposal prepared by the Government of Bangladesh in 1998 "Emergency Sewer Construction Project for North Dhaka" did not explicitly include components for Baridhara area.

However, both the Master Plan "The study on the Sewerage System in North Dhaka" and the PCP (Project Concept Paper) for the Project included Baridhara. Both sides therefore understood that the construction of sewer in the area was a legitimate part of the Project.

#### 7-6. Prioritization of the Items in the Project

Both sides discussed the implementing priority of items in the Project and concluded as follows;

1st Priority: Equipment

2nd Priority: Rehabilitation / Construction (Gulshan Area - Tejgaon LS - Bashaboo LS - Saydabad LS line)

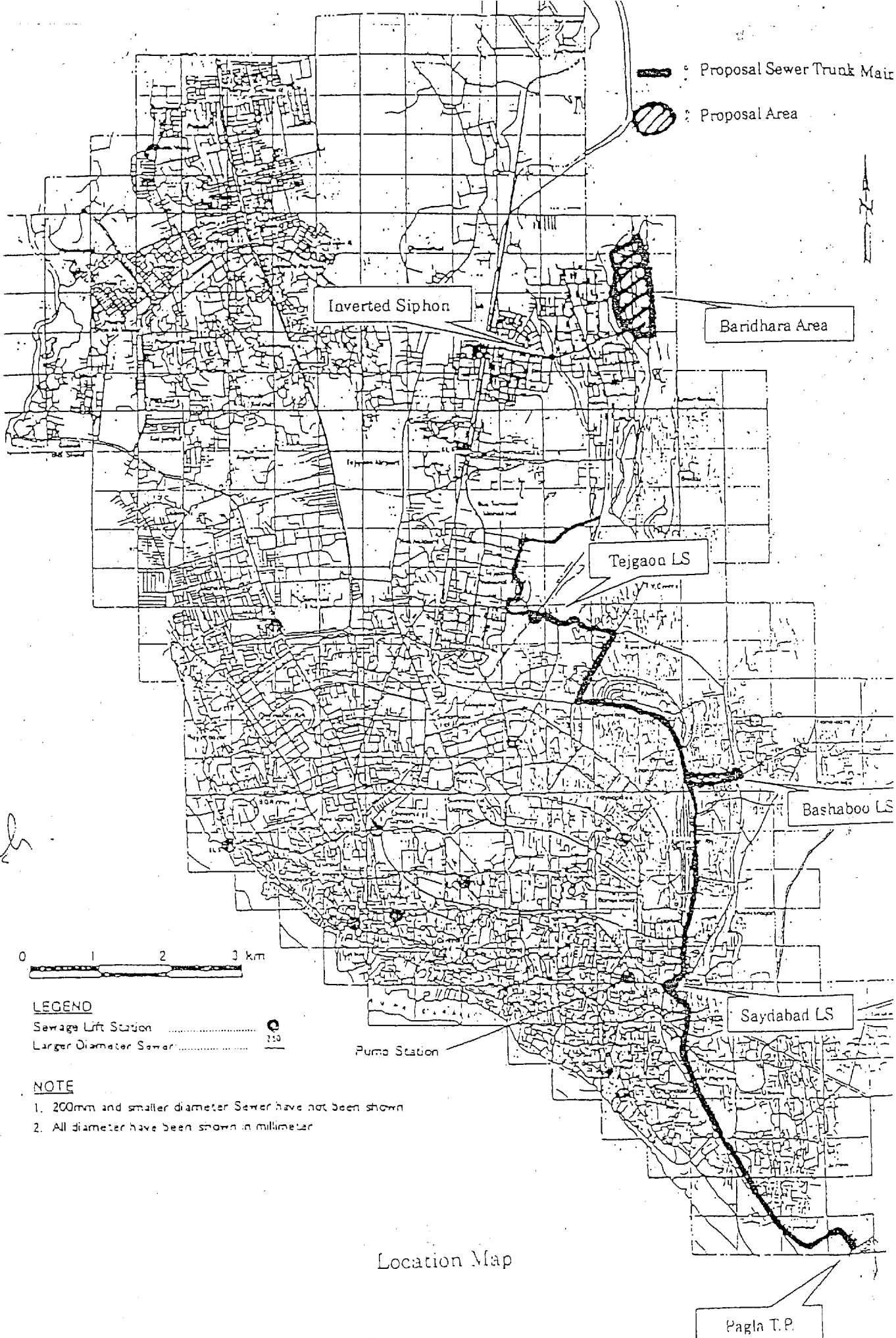
3rd Priority: Rehabilitation / Construction (Saydabad LS - Pagla Treatment Plant line)



4th Priority: Construction (Baridhara Area)

#### 7-7. Capacity Building and Institutional Development of Operation and Maintenance

The Government of Bangladesh fully understood that O/M of equipment and facilities under the Project should be their responsibility. In order to develop and improve the O/M system of DWASA, the Government of Bangladesh expressed its desire to have technical support from the Japanese side.

The details of the matter will be discussed at the Basic Design Study Stage.



 : Proposal Sewer Trunk Main  
 : Proposal Area

Inverted Siphon

Baridhara Area

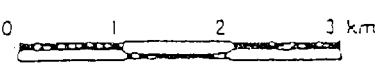
Tejgaon LS

Bashaboo LS



Saydabad LS

Pump Station

Pagla T.P.



**LEGEND**

Sewage Lift Station .....   
 Larger Diameter Sewer ..... 

**NOTE**

1. 200mm and smaller diameter Sewer have not been shown
2. All diameter have been shown in millimeter

Location Map

Annex- II

Items requested by the Government of Bangladesh

1. Construction and Rehabilitation of sewer trunk main
    - (a) Gulshan Area to Tejgaon Lift Station (LS)
    - (b) Tejgaon LS to Bashaboo LS
    - (c) Bashaboo LS to Saydabad LS
    - (d) Saydabad LS to Pagla Treatment Plant
  
  2. Construction and Rehabilitation of other facilities
    - (a) Inverted Siphon in Banani area leading to Gulshan area
    - (b) Sewer in Baridhara area
  
  3. Provision of Equipment
    - (a) Vacuum Cleaner with Dehydration System
    - (b) Water Jet Cleaner
    - (c) Water Tanker
    - (d) Sludge Hauling Dump Truck
    - (e) Service Truck
    - (f) Generator
    - (g) Submersible Pump
    - (h) Blower
    - (i) Gas-Detector
    - (j) High Pressure Flexible Drain Pipe
    - (k) Appurtenances
- Handwritten initials: sh.*
- Handwritten: HO*

## Japan's Grant Aid Program

### 1. Japan's Grant Aid Procedures

- (1) The Japan's Grant Aid is executed by the following procedures.
- Application (request made by a recipient country)
  - Study (Preparatory Study / Basic Design Study conducted by JICA)
  - Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
  - Determination of Implementation (Exchange of Notes between the Governments of Japan and the recipient country)
  - Implementation (Implementation of the Project)
- (2) Firstly, an application or a request for a Project submitted by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is suitable for Japan's Grant Aid. If the request is deemed appropriate, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency).

Secondly, JICA conducts the study (Basic Design Study), using a Japanese consulting firm(s). If the background and objective of the requested project are not clear, a Preparatory Study is conducted prior to a Basic Design Study.

Thirdly, the Government of Japan appraises the project to see whether or not the Project is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted for approval by the Cabinet.

Fourthly, the Project approved by the Cabinet becomes official when pledges by the Exchange of Notes signed by the both Governments.

Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

### 2. Basic Design Study

#### (1) Contents of the Study

The purpose of the Study (Preparatory Study/Basic Design Study) conducted on a project requested by JICA is to provide a basic document necessary for appraisal of the project by the Japanese Government. The contents of the Study are as follows:

- (a) to confirm background, objectives, benefits of the project and institutional capacity of agencies concerned of the recipient country necessary for project implementation;
- (b) to evaluate appropriateness of the Project for the Grant Aid Scheme from a technical, social and economical point of view;
- (c) to confirm items agreed on by both parties concerning the basic concept of the Project;
- (d) to prepare a basic design of the project,
- (e) to estimate cost involved in the project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures is necessary to ensure its self-reliance in the implementation of the project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the project. Therefore, the implementation of the project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selecting (a) Consulting Firm(s)

For smooth implementation of the study, JICA uses (a) consulting firm(s) registered. JICA selects (a) firm(s) through proposals submitted by firms, which are interested. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

The consulting firm(s) used for the study is (are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid provides a recipient country with non-reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not in a form of donation as such.

(2) Exchange of Notes (E/N)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by both Governments, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) "The period of the Grant Aid" means Japanese single fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedure such as Exchange of Notes, concluding contracts with (a) consulting firm(s) and (a) contractor(s) and a final payment to them must be completed. However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of single fiscal year at most by mutual agreement between the two Governments.

(4) Under the Grant, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant may be used for the purchase of products or services of a third country origin.

However the prime contractors, namely, consulting, construction and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

(5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is deemed necessary to secure accountability to Japanese tax payers.

(6) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following:

- (a) to secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,
- (b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- (c) to secure buildings prior to the installation work in case the Project is providing equipment,
- (d) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- (e) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- (f) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(7) Proper Use

The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

(8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

(9) Banking Arrangement (B/A)

- (a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.
- (b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay issued by the Government of the recipient country or its designated authority.



Annex-IV: UNDERTAKINGS REQUIRED OF THE GOVERNMENT OF BANGLADESH

Necessary measures to be taken by the Government of Bangladesh on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. To provide data and information necessary for the Project.
2. To secure the land necessary for the execution of the Project.
3. To clear the sites.
4. To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities in around the sites.
5. To bear the following commissions to a bank of Japan for the banking services based upon the B/A.
  - 1) Advising commission of A/P
  - 2) Payment commission
6. To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation in the Government of Bangladesh and internal transportation of the products purchased under the Grant Aid.
7. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.
8. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.
9. To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid.
10. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary.
11. To coordinate and solve any issues related to the Project which may be raised from third parties or inhabitants in the Project area during implementation of the Project.
12. To bear all the expenses other than those covered by the Grant Aid, necessary for the Project.

## 資料 - 6 事前評価表

1. 対象事業名
バングラデシュ人民共和国 ダッカ市下水道施設改善計画基本設計調査
2. 我が国が援助することの必要性・妥当性
(1) バングラデシュ国の首都、ダッカ市の下水道施設は、遠く 1930 年代に施設整備が着手され、現在の施設構成を有するに至り、大きく 3 系統に分かれた下水幹線が市内で排出された下水をパグラ処理場に送って、最終処理を行っている。
(2) 我が国は 1988~90 年、無償資金協力によって上記パグラ下水処理場及び市内の関連ポンプ場のリハビリ・拡充への協力を進めた。この結果、パグラ下水処理場は 96,000m <sup>3</sup> /日（晴天日平均）の処理能力を有する同国唯一の施設となった。一方、バングラデシュ国の分担事業として整理された下水管網の修復事業は、遅々として進まず、パグラ処理場の処理能力の半分程度しか下水が流入しない状況が 90 年代後半まで続いた。
(3) バングラデシュ政府は、こうした状況下、ダッカ市における下水道を中心とした生活環境の改善を目指し、ダッカ市北部に係る下水道整備計画策定を日本（JICA）に、南部に係る計画策定を世銀に、それぞれ技術協力を要請し、97~98 年に各々の計画が取りまとめられた。
(4) JICA の技術協力の下で策定された「ダッカ市北部下水道整備計画」において提言された「緊急下水管網整備計画」が本計画の出発点となっており、更にバングラデシュ政府は、「ダッカ市南部下水管渠清掃計画」も併せて我が国に対して無償資金協力の要請を行った。この要請の背景には、上述した JICA・世銀による種々の提言に添った自助努力による DWASA の組織・経営の改善、下水道施設の改善を進める中、98 年に発生した洪水による甚大な下水道施設への被害復旧が緊急の課題となったことが挙げられる。
(5) 本計画の構成案件である「緊急下水管網整備計画」と「本清掃機材計画」とは密接な関係を有しており、特に本機材計画に関与する問題としては、以下のようにとりまとめられる。 <ul style="list-style-type: none"> <li>・ 市内の下水管網は、ほとんど閉塞しており、下水道としての機能を果たしていない。</li> <li>・ 既存の下水管渠の清掃機材は、老朽化による故障等により、所定の能力を発揮できない状況にあり、機能不全に陥っている。</li> <li>・ 既存の下水管渠清掃機材は、効率的な作業を行なうための機能・能力がなく、管渠の閉塞を解消する合理的な清掃作業が行なわれていない。</li> </ul>
(6) 当該国の社会・経済事情については、別紙資料参照
3. 事業の目的等
本計画は、清掃用機材の調達・活用により、閉塞した下水管渠を清掃し、その機能を回復させて、パグラ下水処理場への流下水量を増加させ、ダッカ市内の衛生環境の改善を実現させることを目的としている。

#### 4. 事業の内容

- (1) 対象地域  
 ダッカ市内，北部グルシャン地区から南部パグラ処理場に至る幹線及び幹線に流入する準幹線
- (2) アウトプット  
 下水幹線・準幹線での閉塞状況の解消  
 下水幹線・準幹線の清掃作業の完了及び DWASA の清掃技術の向上  
 ダッカ市内の衛生環境の改善
- (3) インプット  
 下水管渠清掃機材の供与  
 ・揚泥車，高圧洗浄車，給水車，汚泥運搬用ダンプトラック，深マンホール用清掃機材，スペアパーツ等  
 初期操作指導（清掃機材の運転・整備に関する技術支援）  
 ソフト・コンポーネント  
 ・DWASA による自立的下水管渠清掃作業技術確立への技術支援
- (4) 総事業費  
 4.6 億円（日本側 4.6 億円，「バ」国側なし）
- (5) スケジュール  
 実施期間（コンサルタント契約～機材引渡しまで，12ヶ月を見込む）  
 （同契約～ソフト・コンポーネントまで，18ヶ月を見込む）
- (6) 実施体制  
 責任機関：地方行政・農村開発共同組合省 (MLGRDC; Ministry of Local Government, Rural Development and Cooperatives)  
 実施機関：ダッカ市上下水道公社 (DWASA; Dhaka Water Supply and Sewerage Authority)

#### 5. 成果の目標

- (1) パグラ下水処理場への下水流入量の改善。  
 現在，本来の計画流入量の半分程度となっているが，管渠の清掃により，計画流入量に改善させ，本来の処理能力まで回復させる。

成果の指標	パグラ処理場への下水流入量	
	2000年	事業実施2年後
日平均下水流入量 (m <sup>3</sup> /日)	48,000	96,000
漏水率 (%)	北部 95	北部 79
	南部 31	南部 29

- (2) 機材引渡し後2年間の期間中に下水主幹線・準幹線の清掃計画の完了  
 対象地域の人口：下水道普及地域人口，1,121,000人\* (1999年)  
 (\*ダッカ市の人口×21%)

<p>6. 外部要因リスク</p>
<p>(1) 供与機材の保管管理の徹底（盗難防止）  深マンホール用機材やスペアパーツ等の盗難防止のため，保管先に予定されている DWASA Workshop での保管庫への立ち入り制限及び台帳整備等の徹底。</p> <p>(2) 洪水等の天災による供与機材の損傷  洪水により，国土のほとんどが水に浸かる場合がある。水に浸かった場合は，機材の保守点検を励行する。</p> <p>(3) 洪水等の天災やハルタル（地域的ゼネスト）による作業日数の減少等により，成果目標の達成に影響する可能性がある。</p>
<p>7. 今後の評価計画</p>
<p>(1) 事後評価に用いる成果指標  パグラ下水処理場への流入水量（<math>m^3</math>/日）  湖沼・沼沢池等の公共水域への下水漏出量の減少（公共用水域の水質指標；BOD，DO 等）  （ただし，上記「流入下水量」と同様に，「ダッカ下水管網緊急整備計画」の実施による下水幹線の破損個所の修復が必要条件）</p> <p>(4) 評価のタイミング  プロジェクト終了時  プロジェクト終了後逐次（「バ」国側が実施）  プロジェクト終了後 6 年後  （ただし，下水管網整備計画が清掃計画完了時点で終了していることが必要条件）</p>

調査名 バングラデシュ国ダッカ市下水道施設改善計画基本設計調査

番号	名称	形態 図書・ビデオ 地図・写真	利用状況	発行機関	発行年
1	Sewer Complaints (Overflow) MODS ZONE-5 Dhaka WASA	印刷物		DWASA,MODS,ZONE5	
2	MODS ZONE5,Organization Chart	印刷物		DWASA,MODS,ZONE5	
3	MODS ZONE1 IN DETAILS(SEWER)	印刷物		DWASA,MODS,ZONE1	
4	Work Schedule of Mass-cleaning of Sewer Line	印刷物		DWASA	
5	Staff Position of MODS ZONE3 Office	印刷物		DWASA,MODS,ZONE3	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					