

MINUTES OF DISCUSSION
ON
THE PRELIMINARY STUDY
ON
THE PROJECT FOR THE IMPROVEMENT OF STORM WATER DRAINAGE SYSTEM
IN DHAKA CITY (PHASE II)
IN
THE PEOPLE'S REPUBLIC OF BANGLADESH

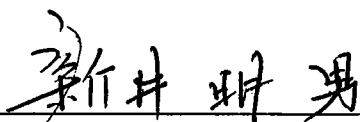
In response to a request from the Government of the People's Republic of Bangladesh (hereinafter referred to as "Bangladesh side") for Grant Aid, the Government of Japan decided to conduct a Preliminary Study on the Project for the Improvement of Storm Water Drainage System in Dhaka City (Phase II) (hereinafter referred to as "the Project") and entrust the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the People's Republic of Bangladesh the Preliminary Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Akio Arai, Resident Representative, JICA Bangladesh Office, JICA and is scheduled to stay in the country from August 12 to September 8, 2005.

The Team held a series of meetings and discussion with the officials concerned of Bangladesh side and conducted field survey at the study area.

In the course of discussion and field survey, both sides confirmed the main items as described on the attached sheets. The Team will continue further study as to the feasibility, necessity and viability of the Project in Japan and report the findings to the Government of Japan.

Dhaka, September 1st, 2005



MR. AKIO ARAI

Leader

Preliminary Study Team

Japan International Cooperation Agency

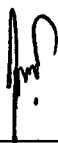


MR. M EMDADUL HAQUE

Deputy Secretary

Economic Relations Division

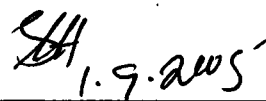
Ministry of Finance



MR. S.D.M. QUAMARUL ALAM CHOWDHURY

Superintending Engineer

Dhaka Water Supply and Sewerage Authority



MR. SYED MAMUNUL ALAM

Senior Assistant Chief

Local Government Division

Ministry of Local Government, Rural Development and Cooperatives

ATTACHMENT

1. OBJECTIVE OF THE PROJECT

The objective of the Project is to mitigate the floods and improve public sanitation conditions of the first priority drainage zone, C of 10.92 km² and H of 17.60 km².

2. PROJECT SITES

The project sites are located in Dhaka City as shown in ANNEX-1.

3. RESPONSIBLE AGENCY AND IMPLEMENTATION AGENCY

3-1. The Responsible Agency: Ministry of Local Government, Rural Development and Cooperatives

3-2. The Implementing Agency: Dhaka Water Supply and Sewerage Authority (hereinafter referred to as "DWASA")

4. JAPAN'S GRANT AID SCHEME

Bangladesh side understood Japan's Grant Aid Scheme explained by the Team, as described in ANNEX-2.

5. COMPONENTS REQUESTED BY BANGLADESH SIDE

After discussion, Bangladesh side requested the Team to study the components with the order of priority listed in ANNEX-3 as the Project components under Grant Aid in case Basic Design Study conducts.

6. OTHER RELEVANT ISSUES

6-1. Environmental and Social Consideration

The Team explained the "JICA Guidelines for Environmental and Social Considerations" and environmental / social consideration of the Project might be conducted in accordance with the JICA's Guidelines as necessary.

6-2. Initial Environmental Examination

(1) Bangladesh side explained the necessity of Initial Environmental Examination (IEE) on the Project according to Environmental Conservation Act (1995) and Environmental Conservation Rules (1997).

(2) DWASA will prepare the IEE on the Project according to the guideline of Department of Environment, Ministry of Environment and Forest and obtain necessary environmental clearance from Department of Environment.

(3) DWASA will report the result of IEE and environmental clearance to JICA Bangladesh Office by the end of January 2006.

6-3. Master Plan for Dhaka Storm Water Drainage

(1) Bangladesh side explained to the Team that they would start studies on Master Plan for Dhaka Storm Water Drainage with World Bank in 2006 or later.

(2) Both sides confirmed the Master Plan should be drawn up on given condition of facilities that had been constructed and would be improved through the Project for the Improvement of Storm Water Drainage System in Dhaka City (Phase I & II).

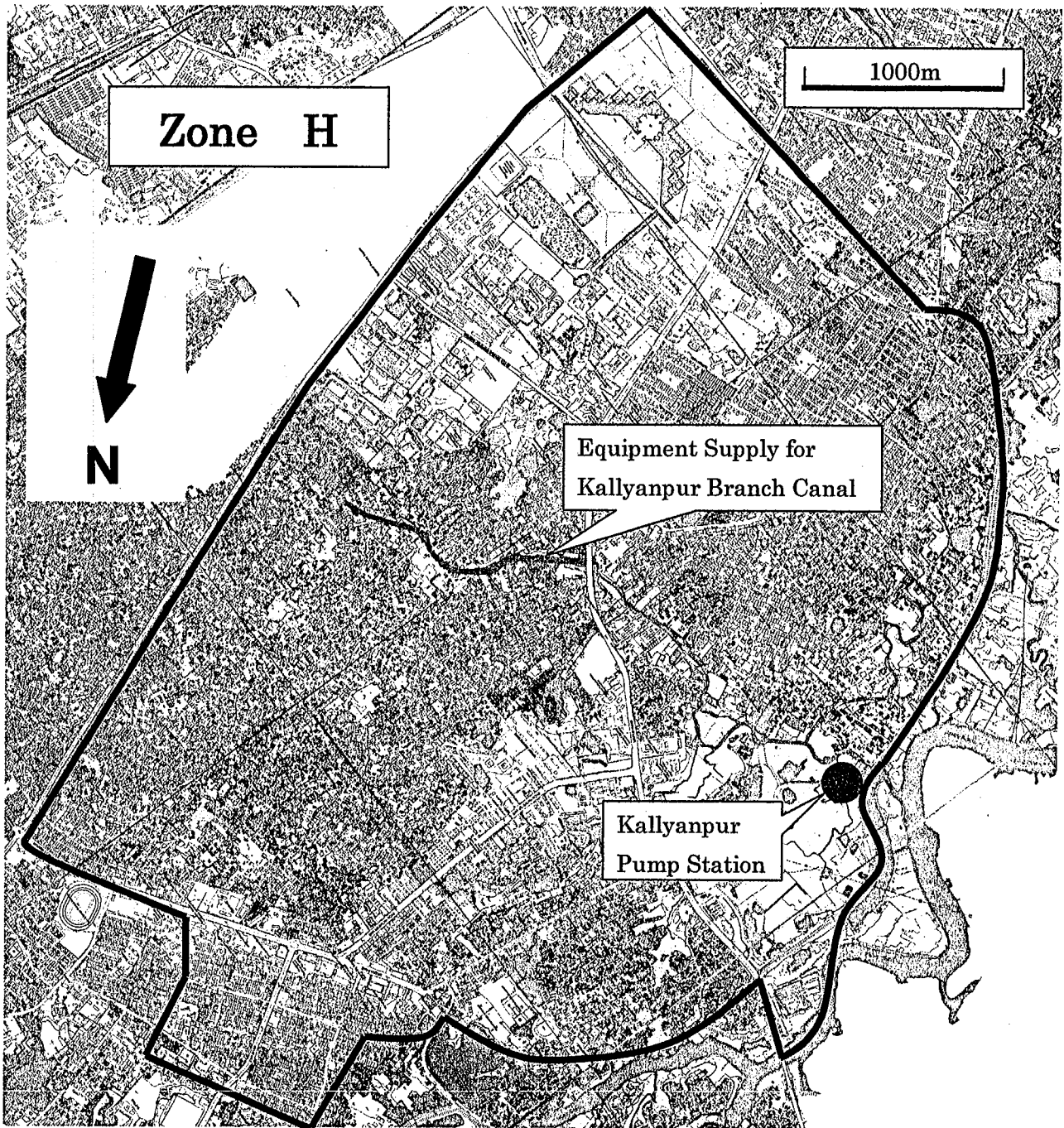
6-4. Conditions of Existing Machinery and Equipment

Through the data provided by Bangladesh side and field survey, the Team understood conditions of existing machinery and equipment concerned with drainage system in Dhaka city as shown in ANNEX-4.

6-5. Action Plan for Dredging and Retrieval Works

Bangladesh side explained DWASA would finalize the draft of the Action Plan for Dredging and Retrieval Works including transportation and disposal of sludge / solid waste removed from open channels, drainage pipes and box culverts in the project sites and hand it to JICA Bangladesh Office by the end of October 2005.

END

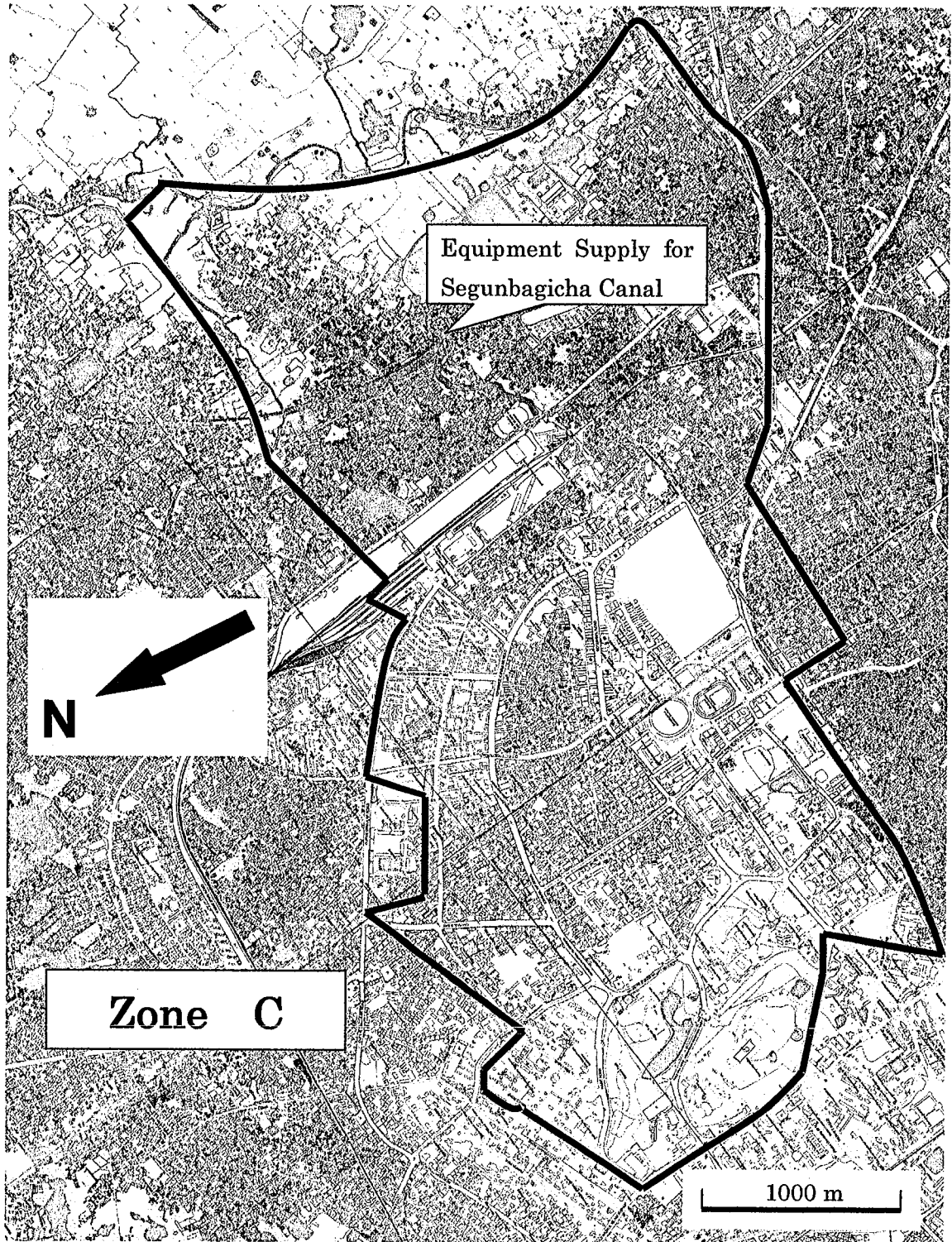


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JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application (Request made by a recipient country)

Study (Preliminary Study / Basic Design Study conducted by JICA)

Appraisal & Approval (Appraisal by the Government of Japan and Approval by
Cabinet)

Determination of (The Notes exchanged between the Governments of Japan

Implementation and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

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

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
- b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
- c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
- d) preparation of a basic design of the Project; and
- e) estimation of costs of 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 are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through 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) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, 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" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and 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 one fiscal year at most by mutual agreement between the two Governments.

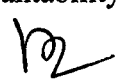
4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

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

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

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



- 6) Undertakings required to the Government of the recipient country
- a) to secure a lot of land necessary for the construction of the Project and to clear the site;
 - b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;
 - c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
 - d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
 - e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;
 - f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and
 - g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered 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 should open an account in the name of the Government of the recipient country in an authorized foreign exchange 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 the Government of the recipient country or its designated authority under the verified contracts.

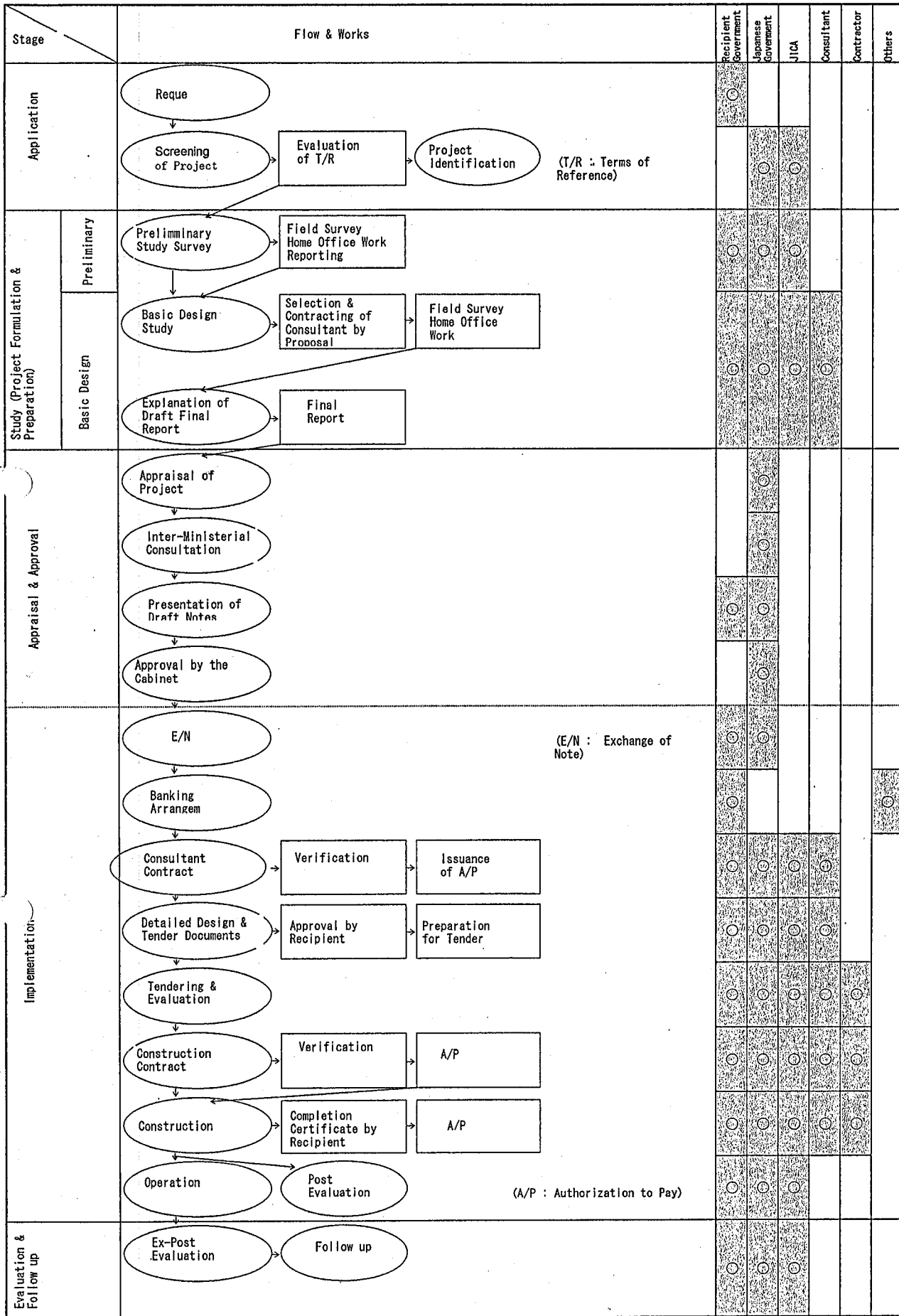
b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

10) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



SEA

Major Undertakings to be taken by Each Government

| No. | Items | To be covered by Grant Aid | To be covered by Recipient Side |
|-----|--|----------------------------|---------------------------------|
| 1 | To secure land | | ● |
| 2 | To clear level and reclaim the site when needed | ● | ● |
| 3 | To construct gates and fences in and around the site | | ● |
| 4 | To construct the parking lot | ● | |
| 5 | To construct roads | | |
| | 1) Within the site | ● | |
| | 2) Outside the site (if necessary) | | ● |
| 6 | To construct the building | ● | |
| 7 | To provide facilities for the distribution of electricity , water supply , drainage and other incidental facilities | | |
| | 1) Electricity | | |
| | a) The distributing line to the site | | ● |
| | b) The drop wiring and internal wiring within the site | ● | |
| | c) The main circuit breaker and transformer | ● | |
| | 2) Water Supply | | |
| | a) The water distribution main to the site | | ● |
| | b) The supply system within the site (receiving and elevated tanks) | ● | |
| | 3) Gas Supply | | |
| | a) The gas main to the site | | ● |
| | b) The gas supply system within the site | ● | |
| | 4) Telephone System | | |
| | a) The telephone trunk line to the main distribution frame/panel (MDF) of the building | | ● |
| | b) The MDF and the extension after the frame/panel | ● | |
| | 5) Furniture and Equipment | | |
| | a) General furniture (operational purpose) | | ● |
| | b) Project equipment | ● | |
| 8 | To bear the following commissions to the Japanese foreign exchange banking services based upon the B/A | | |
| | 1) Advising commission of A/P | | ● |
| | 2) Payment commission | | ● |
| 9 | To ensure unloading and customs clearance at port of disembarkation in recipient country | | |
| | 1) Marine (Air) transportation of the products from Japan to the recipient country | ● | |
| | 2) Tax exemption and custom clearance of the products at the port of disembarkation | | ● |
| | 3) Internal transportation from the port of disembarkation to the project site | ● | |
| 10 | To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work | | ● |
| 11 | To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts | | ● |
| 12 | To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant | | ● |
| 13 | To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment | | ● |

COMPONENTS REQUESTED BY BANGLADESH SIDE

*The definition of priority;

A : Necessary

B : Less necessary than "A" (More examination and evaluation shall be required at Basic Design Study Stage.)

C : Low necessary (Necessity and Validity shall be reconfirmed at Basic Design Study Stage.)

D : Unnecessary (It is not an object of Basic Design Study.)

| APPLICATION FORM FOR GRANT AID | | PRELIMINARY STUDY STAGE | | REMARKS |
|---|---|---|---------------------------------------|---------|
| Components | quantity/scale | Components | quantity/scale | |
| 1 Kallyanpur Pumping Station | | | | |
| (1) Construction of Additional Kallyanpur Pumping Station | Q=10m ³ /sec φ 1500mm × 2 units Head=4.40m | (1) Construction of Additional Kallyanpur Pumping Station | to be confirmed in Basic Design Study | A |
| 2 Kallyanpur Branch Khal | | | | |
| (1) Bridge Culvert K15-1(a) | 4600B × 3900H × 2 sections L=45m | (1) Bridge Culvert | - | D |
| K15-2(a) | 3200B × 3400H L=45m | | | |
| (2) Trapezoidal Channel with Brick Protection K15-1(b) | 3200Bb × 10200Bu × 4200H L=1055m | (2) Trapezoidal Channel with Brick Protection | - | D |
| K15-2(b) | 1500Bb × 8900Bu × 3700H L=555m | | | |

① The Design scale should be adjusted based on actual condition of the site (rainfall and land-use condition etc.)
② Existing Pumps should be examined from technical point of view detailedly by Basic Design Study Team.
③ It is necessary for DWASA, DCC and RAJUK to control land-use of Regulating Reservoir near Kallyanpur pumping station.

① After discussion regarding Kallyanpur Branch Khal and Segunbagicha Khal improvement, both sides agreed to improve the canals by DWASA. So DWASA requested the Team to include the concerned equipments as components to be studied in Basic Design Study Stage.
② It is necessary for DWASA, DCC and RAJUK to control land-use around channels in order to keep proper capacity of Kallyanpur Branch Khal and Segunbagicha Khal.

| | | | | |
|---|--|--|---------------------------------------|---|
| (3) Operation/Maintenance Road K15-1(b)&K15-2(b) | Width; 5.0m(left bank) 3.0m(right bank) | (3) Operation/Maintenance Road | - | D |
| 3 Segunbagicha Khal | | | | |
| (1) Rectangular Channel with RC retaining wall K5-0(a) | 12500B × 5000H L=150m | (1) Rectangular Channel with RC retaining wall | - | D |
| (2) Bridge Culvert K5-0(b) | 5000B × 4700H × 2 sections L=60m | (2) Bridge Culvert | - | D |
| K5-1(a) | 4700B × 4700H × 2 sections L=60m | | | |
| (3) Trapezoidal Channel with Brick Protection K5-0(c) | 8000Bb × 18000Bu × 5000H L=790m | (3) Trapezoidal Channel with Brick Protection | - | D |
| K5-1(b) | 7000Bb × 17000Bu × 5000H L=640m | | | |
| (4) Operation/Maintenance Road | Width; 5.0m(left bank) 3.0m(right bank) | (4) Operation/Maintenance Road | - | D |
| 4 Operation and Maintenance Equipment | | | | |
| (1) Off-road Type Car | 4WD(above 2500cc) 1 No. | (1) Off-road Type Car | - | D |
| (2) Pickup Car | Double Cabin (above 2500cc) 2 No | (2) Pickup Car | - | D |
| (3) Sludge removal Truck with crane | 8 to 10 ton, 1 No. | (3) Sludge removal Truck with crane | to be confirmed in Basic Design Study | B |
| (4) Sludge removal Truck | 8 to 10 ton, 1 No. | (4) Sludge removal Truck | ditto | B |
| | | (5) Backhoe (Wheel-type) | ditto | B |
| | | (6) High Water Pressure Jetting Machine | ditto | B |

DWASA has responsibility of preparing all the necessary equipment for monitoring.

DWASA has two trucks with crane at present.

DWASA has two trucks at present.
Necessity and Validity shall be confirmed based on the Action Plan for Dredging and Retrieval Works.

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| | | | | | | |
|---|---------------------------|--|--|---------------------------------------|---|--|
| | | | (7) Sludge Sucker Machine | ditto | B | Necessity and Validity shall be confirmed based on the Action Plan for Dredging and Retrieval Works. |
| | | | (8) Equipments for cleaning existing Box Culverts | ditto | B | |
| 5 | OJT and/or Soft Component | | (1) Technical Supports (OJT/Soft Component) for Operation and Maintenance Work of pumps and other equipments | to be confirmed in Basic Design Study | B | |

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Condition of Existing Machinery and Equipment

○: Good, △: Fair, ×: Not functioned

| Equipment & Machinery | Donor | Equipped Year | Main Specification | No. | Status | Responsible Office Circle or Division |
|--|-------|---------------|--|------------------|--------|---------------------------------------|
| Pumps & Auxiliary Equipment | | | | | | |
| -Pump | JICA | 1991 | Vertical Axial Flow Pump 3.4m ³ /sec | 3 Nos. | ○ | DWASA Drainage Circle |
| -Motor | JICA | 1991 | Axial Squirrel Cage Induction Motor: 180Kw x AC 3.3KV, 50H | 3 Nos. | ○ | Ditto |
| -Discharge Valve | JICA | 1991 | 1,200mm dia., manual | 3 Nos. | ○ | Ditto |
| -Flap Valve | JICA | 1991 | 1,500mm dia. | 3 Nos. | ○ | Ditto |
| Screen | | | Manually operated Bar Screen | 3 Nos. | ○ | Ditto |
| Electric Panel | | | | | | |
| -11kv Panels | JICA | 1991 | 11kv Receiving Panel, 11kvLA Panel, 11kv VCB Panel, 11kv No. 2TR Feeder Panel, 11kv No. 1 TR Feeder Panel, 11kv No. 1 TR Panel | 1 Unit | ○ | Ditto |
| -3.3kv Panels | JICA | 1991 | 3.3kv Incoming Panel, No.1 Main Pump Starter, No.1 SC Panel, No.2 Main Pump Starter, No.2 SC Panel, No.3 Main Pump Starter, No.3 SC Panel, Station TR Panel, Low Voltage Panel | 1 Unit | ○ | Ditto |
| Other Panel | JICA | 1991 | Battery & Battery Charger, Local Panel | | ○ | Ditto |
| Crane | JICA | 1991 | Electrical Overhead Crane | 1 Nos. | ○ | Ditto |
| Water Level Detector | JICA | 1991 | Intake water level detector Discharge water level detector | 1 Nos. 1 Nos. | × ○ | Ditto Ditto |
| Sludge Removal Equipment | | | | | | |
| -Sludge Sucker with Water Tank | ADB | 1998 | Truck-mounted type, | 1 Nos. | △ | Ditto |

| | | | | | | |
|---------------------------------|------|------|--|--------|---|-------|
| - Water Tank & Pressure Machine | A DB | 1998 | Truck-mounted type | 1 Nos. | △ | Ditto |
| - Engine Pump | A DB | 1998 | Discharge Volume 1cf/sec, 3cf/sec(Water cooling) | 9 Nos. | × | Ditto |
| Bucket Machine | JICA | 1992 | | 2 Nos. | ○ | Ditto |
| Dump Truck | JICA | 1992 | Total Weight 8t | 1 Nos. | ○ | Ditto |
| Crane mounted Truck | JICA | 1992 | 5 ton | 2 Nos. | ○ | Ditto |
| Pick up | JICA | 1992 | 2,100cc | 1 Nos. | △ | Ditto |
| Off Truck Vehicle | JICA | 1992 | Total Weight 5ton | 1 Nos. | △ | Ditto |

協議議事録

○ 日時： 2005年8月13日（土）9：30～10：30

場所： DWASA 本部

面会者： Mr. Shahidur Rahman Prodhan, Cheif Engineer, DWASA,
S. D. M. Quamrul Alam Chowdhury, Superintending Engineer,
Drainage Circle, Dhaka WASA Segunbagicha

調査団： 野沢逸男（排水施設・機材計画）、奥澤信二郎（環境社会配慮）

JICA バングラデシュ事務所： 武士俣明子所員

協議骨子： 表敬訪問および本件調査方針・方法について意見交換

協議内容要旨：

1. 調査団よりインセプションレポートに沿って、予備調査の目的、調査工程、本調査にあたってバ国への要望事項、調査項目等について概要を説明。
2. DWASA 側の C/P 責任者として Chowdhury 氏を、補助者として Habib 氏を紹介された。
3. 引き続き、セグンバギチャにある雨水排水施設管理事務所 (Drainage Circle) に移動し、現地調査期間でのスケジュール及び質問状の内容説明を行った。
4. Kallyanpur ポンプ場及び排水路、Segunbagicha 排水路を視察。

○ 日時： 2005年8月14日（日）11：30～12：00

場所： 在バングラデシュ国日本大使館

面会者： 鶴田晋也二等書記官

調査団： 野沢逸男（排水施設・機材計画）、奥澤信二郎（環境社会配慮）

JICA バングラデシュ事務所： 武士俣明子所員

協議骨子： 表敬訪問および本件調査方針・方法について意見交換

協議内容要旨：

1. 調査団側よりインセプションレポートに沿って、予備調査の目的、主旨、現地調査のスケジュールなどを説明。
2. 同書記官から、以下のコメントがあった。
 - ① 今回の予備調査で無償資金協力の対象範囲をよく見極めてほしい。
 - ② 雨水排水路改修予定地を一度見てみたい。
 - ③ 第 1 期の無償資金協力（ダッカ市雨水排水施設整備計画事業）の効果分析調査（国土交通省、（社）国際建設技術協会、2005年3月刊）の報告書に関心がある。
 - ④ 大使館としても、ダッカ市内の洪水対策や排水路改善案件には強い関心を持っている。

○ 日時： 2004年8月16日(火) 9:30~10:30

場所： JICA バングラデシュ事務所

面会者： 新井明男所長、永友紀章次長、武士俣明子所員

調査団： 野沢逸男(排水施設・機材計画)、奥澤信二郎(環境社会配慮)

協議骨子： 表敬訪問および本件調査方針・方法について意見交換

協議内容要旨：

1. 調査団より、新井所長に予備調査のインセプションレポートの概要と、現地調査予定及び前日の DWASA 訪問の結果を報告した。

2. 所長から、以下のアドバイスがあった。

①バ国では、JICA のプレゼンスは日本側が考える以上に大きく、住民や政府機関の期待も高いので、それらの点に配慮して行動する必要がある。

②本案件の要請内容に関して、雨水排水路改修の意義、ポンプ場の増設の効果、維持管理機材の供与の扱いなどの要請の根拠や、改修場所の状況等がいまひとつ明確でないので、今回の現場調査で十分に把握する。

③ダッカ市での土地問題の特性(土地がないこと、洪水被害の少ない土地の価格は数十倍にも跳ね上がっている)から、雨水排水路改修の場所も不動産業者の関心事にもなっており、住民も敏感に反応する。土地収用や住民移転問題には、住民や NGO も敏感に反応し、トラブルの因になりかねない。したがって、今回の世帯調査で、土地収用や住民移転を設問内容に取り上げるのはリスクが大きすぎるので、土地収用、住民移転に関する項目は除外した方がよい。

○ 日時： 2005年8月23日(水) 11:00~11:30

場所： ダッカ市と市計画局(Urban Planning Department, Dhaka City Corporation)

面会者： Mr. Sirajul Islam, Chief Town Planner

. Mr. Dilbahar Ahmed, Assistant Town Planner,

Urban Planning Department, Dhaka City Corporation,

Nagar Bhaban (10th Floor), Fulbaria, Dhaka

E-mail: upddcc@agni.com

調査団： 奥澤信二郎(環境社会配慮)

用件： ダッカ市の都市計画について

1. ダッカ市の都市計画は1995年に RAJUK が2015年を目標年度として作成したのものがあるが、DCC 独自のものは無い。

2. 都市計画局では、事業のひとつとして、GIS に基づく区ごとの地図(縮尺 2500

分の1)を作成中であり、これまで90の区(Ward)のうち、3分の1ぐらいが作成済みである。JICAが2004年に作成した5000分の1の地形図より精密で、個別の家屋が識別できる。*

* 入手した地図は、通常の地形図とは異なり、日本の住居地図表示地図に近いもの。

3. 市域の地図とターナベースの地図、区の地図は、地理部で購入できる。

○日時： 2005年8月24日(水) 11:30~12:30

場所： UNDP バングラデシュ事務所

面会者： Ms. Shireen Kamal Sayeed, Assistant Resident Representative,
IDB Bhaban, Agargaon, Dhaka, Mail: UNDP, GPO Box 224, Dhaka-1000,
Bangladesh

E-mail: shiren.sayeed@undp.org

調査団： 奥澤信二郎(環境社会配慮)

協議骨子： UNDP のバ国における環境分野の活動について

協議内容骨子：

1. UNDP では、バングラデシュで、持続可能な環境管理プログラム(Sustainable Environment Management Programme, SEMP)などで、多くの環境関連プロジェクトを実施してきている。SEMP は、バ国で1992年の環境政策(Environment Policy, 1992)に対応して提示された国家環境行動計画(National Environmental Action Plan)を、環境教育・啓蒙や住民参加分野で推進するために、UNDP が環境森林省を支援し、市民団体と協同で、取り組んできているものである。総額2億6千万米ドルの予算で、現在、(1)政策及び組織強化(Policy and institution)、(2)参加型生態系管理(Participatory Eco-system management)、(3)地域コミュニティに対応した環境衛生(Community-based Environmental Sanitation)、(4)広報と啓蒙(Advocacy and awareness)*、(5)研修と教育(Training and education)の5テーマで26のプロジェクトが実施中である。
2. 同女史は、環境関連プロジェクトのリーダーおよびコーディネーターで、SEMP の推進では、UNEP の”Global 500”(世界中から環境分野の活動家500人を表彰)やUN Poverty Award(2002年)も受賞している。
3. *広報の一環として、UNDP と環境森林省の支援で刊行された以下の資料を入手。
 - ① People's Report 2002-2003 BANGLADESH ENVIRONMENT Vol.1 main Report, Vol.2. Database (Atiur Raman, M. Ashraf Ali, Farooque Chowdhury and

Manboob Hassan ed.) published by Unnayan Shamannay, 2004.12

- ② People's Report BANGLADESH ENVIRONMENT 2001 Vol.1 Main Report, Vol.2. Database (Atiur Raman, M. Ashraf Ali and Farooque Chowdhury ed.) published by Unnayan Shamannay, 2001

○ 日時： 2005年8月27日(土) 9:30~11:00

場所：地方自治・農村開発省

面会者：地方自治局長：Mr. Sharful Alam 他

調査団：高樋俊介（JICA 無償資金協力部）、鎌田（技術参与、JICA 国際専門員）、野沢逸男（排水施設・機材計画）、奥澤信二郎（環境社会配慮）

JICA バングラデシュ事務所：武士俣明子所員

協議骨子：表敬訪問および本件調査内容の説明、意見交換

協議内容要旨：

1. 調査団側より予備調査のインセプションレポートの概要と現地調査工程を説明

2. 地方自治局長より、カラヤンプルポンプ場及び排水路、セグンバギチャ排水路の現況、都市開発の現況について、以下の説明があった。

①急増しているダッカ市の人口に対して、都市開発が秩序だてて進められていないので、カラヤンプルポンプ場雨水調整池、同上の両排水路用地に住居が不法に建設されている。また、低地部が埋め立てられ雨水調整池面積が縮小している。

②バ国の首都として、都市開発のマスタープランが必要である。

③ダッカ市の都市開発問題で間近に迫っているものとしては、運営上の問題がある。適切な運営システムを構築しなければ、2025年には廃墟になってしまう。

○ 日時： 2005年8月27日(土) 15:00~15:30

場所：経済協力局（Economic Relation Dept.）会議室

面会者：Mr. M Emdadul Haque、経済協力局副セクレタリー

調査団：高樋俊介（JICA 無償資金協力部）、鎌田（技術参与、JICA 国際専門員）、野沢逸男（排水施設・機材計画）、奥澤信二（環境社会配慮）、

JICA バングラデシュ事務所：武士俣明子所員

協議骨子：表敬訪問および本件調査内容の説明

協議内容要旨：

1. 調査団より予備調査の概要および現地調査工程の説明と協議議事録への署

名人についての質問をした。

2. 経済協力局から以下の説明と質問があった。

①協議議事録への署名人は、私、M Emdadul Haque と地方自治・農村開発省の Deputy Chief であろう。

②本案件の予算規模はどの程度か。

3. 調査団より予算規模は、本予備調査結果によって変わるが、要請ベースでは16億程度と説明。

○ 日時： 2005年8月28日（日）9：30～10：00

場所：JICA バングラデシュ事務所

面会者：新井所長、永友所長代理、武士俣所員

調査団：高樋俊介（JICA 無償資金協力部）、鎌田（技術参与、JICA 国際専門員）、野沢逸男（排水施設・機材計画）、奥澤信二郎（環境社会配慮）

協議骨子：本件調査内容、現地調査概要の説明と進め方についての協議

協議内容要旨：

1. 調査団側より、以下の内容を説明した。

①最近の機材支援の動向として、維持管理は先方負担事項であること、機材援助を行っても壊れたままに放置している国もあるとの認識から、維持管理機材の予算が付きにくい傾向にある。

②現地調査の概要を説明し、前回の無償資金援助で改修したカラヤンプル排水開渠は水面下にあり評価が出来ない。

③カラヤンプルおよびセグンバギチャ排水路改修自体は、排水路用地への家屋の不法侵入や排水路用地に近接する家屋の存在、排水路に沿った地形測量データの欠如等のため、難しく、要請から除外せざるを得ない。

2. JICA バングラデシュ事務所長より、水質検査研究所は無償援助案件で取り組まれているが、実施段階で建設用地が確保できず苦慮している。本予備調査案件も、排水路の改修に伴い住民移転や土地収用の必要となるのであれば、実現は難しいのではないか。

3. JICA バングラデシュ事務所より、先方の維持管理能力や本案件に関わる土地収用、不法侵入の問題、他ドナーの援助動向等に留意して調査してほしい旨の意見があった。また、バ国やダッカ市、DWASA の実情をよく見て、妥当な判断に基づいた無理のない提案をして欲しい。

○ 日時： 2005年8月28日（日）10：30～11：30

場所：日本大使館

面会者：宇喜田秀俊公使、紀谷政彦参事官、鶴田晋也二等書記官

調査団：高樋俊介（JICA 無償資金協力部）、鎌田寛子（技術参与、JICA 国際専門員）、武士俣 JICA 事務所員、野沢逸男（排水施設・機材計画）、奥澤信二郎（環境社会配慮）、

協議骨子：現地調査の経過及びバ国政府側との協議結果の説明

協議内容要旨：予備調査の内容と進め方についての説明と協議

1. 調査団側より、予備調査の内容と進め方についての説明。
2. 大使館より以下のコメント、意見があった。
 - ①基本設計調査は、何時始まるのか。
 - ②ダッカ市の雨水排水処理は、プライオリティーの高い案件である。
 - ③グルシャン湖が氾濫した時には、バリダラ地区の人達はボートで脱出した。経済活動も停止した。この時は、ヒマラヤの雪が溶け出し、氾濫の原因になったと言われている。
 - ④目に見える援助効果を期待しているが、本案件はダッカ市で行なわれるので日本のプレゼンスという意味では、援助効果には期待が持てる。
 - ⑤ADB、WBG は上下水道分野に 400 億円規模の融資をしようとしているが、本案件もその一つにならなかったのか。本件で 16 億程度投資して一先ず終了なのかあるいはその後も継続して投資していくのか。雨水排水分野では、世銀がマスタープランを作成する予定著なっているが、その状況の中で日本がプレゼンスを示せる中長期的な協力はどのようにしたらよいか。
3. 調査団より、基本設計調査は 2006 年に実施される予定である旨説明した。また、カラヤンプルポンプ場施設建設とカラヤンプル排水路及びベゲンバリ排水路改修が 1991 年わが国の第一期無償援助で実施されており、他のドナーは日本が当然援助すべき案件と考えていると説明した。さらに、第一期でのカラヤンプルポンプ場施設は技術的に問題なく、運転維持管理も DWASA の技術で十分行なえること、運転維持管理を通して日本の技術の優秀さを認識していることから、今回も日本に要請する結果となった旨説明した。
4. 調査団より、本予備調査だけではダッカ市雨水排水分野に対する日本側の中長期的な協力方向を示すのは難しいが、今回の無償資金協力案件は、ダッカ市雨水排水施設改善計画の更新調査を日本側で実施した時に優先事業として提案されたものであり、冠水被害軽減に対するある程度の効果は期待できる旨説明した。

○ 日時： 2005年8月28日(日) 13:30～15:00

場所：DWASA 本部会議室

面会者：Dr. Engr. Kazi Ali Azam ; Managing Director、Mr. Sheikh Hasan Bakhsa ; Chief Training Officer、Mr. Md. Shamsul Arefin ; Secretary、Mr. A. K. M Zafurullah ; Superintending Engineer & Project Director (SPD) of Construction & Development Circle、Mr. Tazul Islam ; SPD & Coordinator, PPF Study Project、Mr. S. D. M Kamrul Alam Chowdhry ; SPD of Drainage Circle、Mr. Md. Shajahan ; SPD & SERP Project、Mr. Md. Sirajuddin ; SPD of 4th Dhaka Water Supply Project (Phase II)、Mr. M. A Jalil ; Deputy Chief Planning、Mr. Mahumud Hasan ; Joint Chief Training Officer、Mr. Md. Rasiqul Istan ; Sub-Division Engineer Planning & Development Sewer, PPF Project、Mr. Kazi Md. Habibullah ; Assistant Engineer

調査団：高樋俊介 (JICA 無償資金協力部)、鎌田寛子 (技術参与、JICA 国際専門員)、

野沢逸男 (排水施設・機材計画)、奥澤信二郎 (環境社会配慮)

JICA バングラデシュ事務所：武士俣明子所員

協議骨子：本予備調査の内容についての協議

協議内容要旨：

1. 日本側より本予備調査内容を説明した。また、DWASA の雨水排水施設概要との抱えている問題点について DWASA に概要説明を求めた。
2. DWASA から、カラヤンプルポンプ場、カラヤンプル排水路、セグンバギチャ排水路について、乾燥期には排水路にも水がそれほど流れていないので問題はないが、降雨期になると排水路からの越流や諸所の低地部での降雨の滞留が発生する旨の説明があった。そのためには、構造的な改良対策である排水路の改修が必要であると述べた。
3. カラヤンプルポンプ場については、土地利用状況の変化や人口増加等により一刻も早い能力増強が求められている旨の説明があった。
4. 調査団より、定期的な汚泥除去により両排水路の通水能力が回復できること、排水路への不法侵入住居や排水路に近接した住居・モスクの存在、狭小な住宅間を通っている排水路部分も見られること、排水路に沿った地形測量も行なわれていないこと等の理由から無償資金協力事業での排水路の改修は難しいことを説明した。
5. DWASA は、排水路自体の改修は困難であることを了承した。しかしながら、機材が不足しており、現況では定期的な汚泥除去は難しいと述べた。
6. 調査団は、要請された機材のうちオフロード車やピックアップ車は通常の運転維持管理機材であり供与機材の中には含めることが出来ない旨説明した。

しかしながら、排水路汚泥除去機材として、開水路汚泥除去用のバックホウや追加要請のあった管路・ボックスカルバートの清掃機材については供与機材計画として検討する旨伝えた。

7. DWASA 側から調査団の説明内容を了承する旨回答があった。

○ 日時： 2005年8月30日(月) 15:00~16:00

場所： 環境森林省環境局

面会者：環境局技術担当部長(技術部門のトップ) Mr. Mohammad Reazuddin, Director (Technical)

Department of Environment, Ministry of Environment and Forest,
Paribesh Bhaban, E-16, Agargaon, Dhaka-1207, Bangladesh

調査団：高樋俊介(無償資金協力部)、奥澤信二郎(環境社会配慮)

協議骨子：計画変更に伴う環境適合認証および IEE の必要性

協議内容要旨：

1. DWASA の計画が縮小され、カラヤンプル支線排水路、及びセグンバギチャ排水路の改修がなくなり、既存のカラヤンプルポンプ場の増設だけとなっても、IEE は必要かどうかを確認した。
2. 同氏によれば、どんな開発案件でも少なくとも IEE は必要。ただし、既存情報・データをもとにした IEE でよい。IEE 実施後、DOE の審査に合格すれば、環境保全法に基づく環境適合認証の取得が可能になり、プロジェクトの実施が認可される。審査に要する期間は、15 日程度(これは通常—緑色カテゴリーの開発事業に相当するもの)でよいのではないかとのコメントもあった。

○ 日時： 2005年8月31日(水) 15:00~16:00

場所：世界銀行

面会者：Mr. Alif Ahamed ; Project Analyst, Energy & Infrastructure Sector,
Mr. Zahed H. Khan; Senior Urban Specialist

調査団：高樋俊介(JICA 無償資金協力部)、鎌田寛子(技術参与、JICA 国際専門員)、野沢逸男(排水施設・機材計画)

協議骨子：ダッカ市雨水排水施設についての協議

協議内容要旨：

1. JICA 調査団より日本が 1991 年に実施した第一期無償資金事業内容を説明するとともに、第一期事業の更新として位置づけられる本予備調査内容・目的を説明した。

2. 世銀は雨水排水および下水道施設分野の調査のために、2005年の6月から7月にかけて2度にわたりミッションを派遣したと述べた。2005年2月に、アジア開発銀行が給水分野を分担するとの話があったので、世銀としては雨水排水と下水分野を分担することにしていると述べた。
3. 調査団がカラヤンプルポンプ場の現況能力は不足しているため増設を計画していると述べたことに対して、世銀としても同ポンプ場の増設は必要と認識していると応えた。また、降雨時には雨水の滞留が定常的に見られ、日常の維持管理が大切である旨話していた。
4. 世銀による雨水排水及び下水道施設のマスタープランを作成において、日本側で計画しているカラヤンプルポンプ場増設計画を前提条件として組み込むか否かの問いかけに対して、同上計画は当然前提条件の一つと考えたと述べた。
5. 世銀はダッカ市の雨水排水及び下水道施設の現況を分析し、その結果を基本にして、国際入札によりマスタープラン策定コンサルタントを選定する予定である。マスタープランはDWASAの組織制度改善も含め、7つのパッケージからなり、総額百四十万USD程度を予定しているとのことであった。
6. また、DWASAの協力の基に、恒久的排水ポンプ施設が差し迫って必要であるジャンパスとランプーラの2ヶ所のポンプ施設の詳細設計予算も検討していると述べた。
7. その他、ダッカ市土地開発公社(RAJUK)は汚職腐敗がひどい機関であるとも話していた。

○ 日時： 2005年8月31日(水) 16:30~17:00

場所： ユニコンサルタントインターナショナルおよびテクノコンサルタントインターナショナル

面会者：(1) Uniconsult International Ltd.

Mr. M. M. Amir Hossain, President

Mr. Narendra Kumar Saha, Director

Dr. Md. Lutfur Rahman, Vice President

Mr. Javed Hossain, Senior Manager

Ms. Latifun Nessa (Helen), Community Development Specialist

(2) Technoconsult International Ltd.

Mr. Sukharanjan Suter, President

Sena Kalyan Bhaban (7th Floor), 195 Motijheel C/A, Dhaka-1000

Tel: +880-2-9565122 to 9565125

Website: www.ucil-bd.com, www.tcil-bd.com

調査団：高樋俊介（無償資金協力部）、野沢逸男（排水施設・機材計画）、奥澤信二郎（環境社会配慮）

協議骨子：世帯調査の進捗状況と同社の活動内容

協議内容要旨：

1. 「ユ」社は、今回行われた世帯調査の委託先ローカルコンサルタントである。世帯調査の進捗状況の確認を兼ねて、同社を訪問した。
2. 同社は、農林および農村開発、水資源・土木、漁業、環境保全などの分野で、バ国およびアジア地域で活動している。スリランカで JICA の津波被害支援プロジェクトも受託。
3. また、「テ」社は、ユ社の子会社で、エンジニアリングコンサルタント企業である。過去に、洪水保護行動計画(Flood Action Plan)の一環として実施されたダッカ市総合洪水保護計画(Dhaka Integrated Flood Action Plan, FAP-8B)に参画した実績がある。同レポートのコピーを入手した。

*

* Ministry of Irrigation, Water Development & Flood Control/ Flood Plan Coordination Organization (1991.9) “Dhaka Integrated Flood Protection, FAP-8B Final Report” submitted by Louis Berger International, Inc., Associated Consulting Engineers (Bangladesh) Ltd., and Technoconsult International Ltd.

○ 日時： 2005年9月5日（月）11：30～12：30

場所：水資源計画機構

面会者：Mr. Md. Arzel Hossain Khan, Principal Scientific Officer, Water Resources Planning Organization (WARPO),

House-103, Bonani Road -1, Mohakhali Chairman Bari Road, Dhaka-

調査団：奥澤信二郎（環境社会配慮）、DWASA Mr. Kobri 氏技術者同行。

協議骨子：水資源省の洪水制御、雨水排水管理分野での EIA ガイドライン

協議内容要旨：

1. 予備調査の目的、主旨、現地調査の主旨説明。
2. WARPO で作成した EIA ガイドライン冊子(National Water Management Plan Projects, Guidelines for Environmental Assessment of Water Management (Flood Control, Drainage and Irrigation) Projects, water Resources Planning Organization, 2005.2) と洪水防御行動計画要約レポート (Summary Report, Based on studies carried out under The Flood Action

- Plan, Flood Action Plan Coordination organization, 1995.12) を入手。
3. 水資源省の「洪水、雨水排水管理、灌漑分野」の開発に係るEIAガイドラインの骨子を確認した。それによれば、
- ① DOE の EIA に関するカテゴリー分類によれば、分野のプロジェクトはすべて、赤色カテゴリーになり、IEE だけでなく EIA も要求されることになる。しかし、小規模、あるいは大きな環境影響が予想されない場合には、IEE だけで十分であると考えられる。DOE のガイドラインは、あくまでも目安であるので、実際は個々のプロジェクトごとに DOE に確認しているし、今後もそうするのが望ましい。
 - ② IEE/EIA における対象空間範囲の設定方法：水資源管理関係では、事業サイト周辺の集水域が最低限の対象空間範囲にする場合が多い。
 - ③ 水資源管理分野のプロジェクトでは、水資源開発・管理はバ国の国家的課題であり、水資源省ではあらゆる段階で住民の理解と住民参加・関与がきわめて重要であるとして、早くから住民参加による計画策定・プロジェクトの実施を図ってきており、1999 年の国家水資源政策 (National Water Policy) おいても、水資源の計画・管理の推進の際には、地域住民だけでなく、あらゆるステークホルダーの積極的な関与・参加が義務付けられている。したがって、環境影響評価のすべてのステップで住民参加は不可欠となっている。

○日時： 2005 年 9 月 6 日 (火) 9:30~10:00

場所： ダッカ市上下水道公社本部

面会者： Mr. Md Serajuddin, Superintending Engineer & Project Director, SWTPP Phase II, DWASA, 98, Kazi Nazrul Islam Avenue kawran Bazar, Dhaka-1215

E-mail: suddin@global-bd.net

調査団： 奥澤信二郎 (環境社会配慮)、DWASA Chowdhury 氏同行。

用件：サイダバード上水供給処理プラントの EIA

内容：

1. 同氏は、1984 年頃、広島市水道局に JICA 研修生として派遣された経験がある。
2. サイダバード (Saidabad) の上水供給処理プラントの EIA については、1994 年に第一期の建設に係るものが作成されている。現在、第二期の計画があり、来年初めには EIA 報告書が出来上がる予定である。
3. 第一期の EIA 報告書コピーを入手。*

* BCEOM and EPC (1994, 4) “Dhaka WASA IV ad Saidabad Surface Water

Treatment Plant, Environmental Impact Assessment Final Report”

○日時： 2005年9月6日（火）11:30～12:00

場所： 地方自治・農村開発・協同組合省 公衆衛生・土木局

面会者： Mr. Abdul Quader Chowdhury, Managing Director,
Department of Public Health and Engineering, Ministry of Local
Government, Rural Government and Cooperatives

調査団： 奥澤信二郎（環境社会配慮）、DWASA Habib 氏同行。

用件： ダッカ市における洪水・冠水による疾病・健康被害について

1. ダッカ市の健康・衛生問題につき、DCC の担当者（Dr. Azizut Haque, Chief Health Officer, DCC）にヒアリングする予定であったが、同氏が出張中のため、DWASA Habib 氏の紹介で、DPHE の Chowdhury 部長を訪問した。

同部長によれば、洪水や冠水による健康被害で注目すべきは、統計上にあまり出てこないが、洪水や冠水時、下水、トイレや有害化学物質が混入して水が汚染され、直接汚染された水と皮膚が接触するため、皮膚系の疾患が多いとのことである。

2. Habib 氏によれば、同部長は、第一期の雨水排水施設改良プロジェクトのバ国側の責任者（たまたま現在の C/P と同名）であり、第一期のプロジェクトで建設されたポンプ場の維持管理が適切に行われているのは同部長の優れた管理能力によるところが多いとのことであった。

○日時： 2005年9月6日（日）14:30～15:30

場所： ADB バングラデシュ事務所

面会者： Mr. Ahmed Faruque, Project Implementation Officer, Bangladesh Resident Mission,

Asian Development Bank,

Plot E-31, Sher-e-Bangla Nagar, Dhaka-1207,

Bangladesh, GPO Box No. 2100

調査団： 奥澤信二郎（環境社会配慮）

協議骨子： バ国における非自発的住民移転および土地収用について

協議内容要旨：

1. ADB 側からみたバ国での住民住民移転対策と補償方式等の問題点
バ国の現行の土地収用法では、非自発的住民移転に関する規定がなく、非影響住民に対する移転先の確保、補償費用、移転後の生活保障などの扱いが、不十

分で、非影響住民の喪失を十分に償うことができない。この点で、ADBの方針とギャップがあり、ADBが支援する案件では、ADBの住民移転ガイドラインに基づく補償方式を適用させている。

2. 適切な非自発的住民移転政策の確立のために、バ国政府に「国家非自発的住民移転政策」の策定を提案している。*これについては、インフラ整備開発に係る省庁や関連機関、たとえば道路および高速道路庁、水資源開発委員会、電力開発委員会、村落電化委員会や石油・ガス開発企業などは、土地収用と非自発的住民移転の対応に苦慮しているため、彼らの強い支持を得ている。この件につき、ちょうど土地省関係者と協議したところである。今後、バ国側所管は土地省（Ministry of Land）となり、コンサルタントへの委託で作業が進められる予定。
3. 不法侵入家屋や土地不法占拠の場合の土地収用、住民移転（たとえば、雨水排水路のDWASA敷地内に数件みられる不法侵入家屋）については、ADBの方針では、土地代を補償するのではなく、他の適当な場所に移転する費用の補填や他の支援をする形である。

* 関連資料：

Asian Development Bank (2004.12) " Technical Assistance to the People's Republic of Bangladesh for the Development of a National Involuntary Resettlement Policy"

○ 日時：2005年9月6日（火）15：00～16：00

場所：アジア開発銀行バングラデシュ事務所

面会者：Mr. Md. Rafiqul Islam ; Project Implementation Officer

調査団：野沢逸男（排水施設・機材計画）

協議骨子：アジア開発銀行の援助動向についての情報収集

協議内容要旨

1. 調査団から本予備調査の内容と目的を説明するとともに、バ国に対するアジア開発銀行の援助方針について質問した。
2. アジア開発銀行から以下のような説明があった。
 - (1) アジア開発銀行は、ダッカ市の次に大きな都市域の給水分野に対する援助を主眼にしている。
 - (2) 新しい国別開発戦略報告書では、ダッカ市の給水分野に対する支援も織り込まれている。
 - (3) 今年12月の後半に、本部からミッションを送ってくることになっている。
 - (4) 案件形成予備技術援助（PPTA：Project Preparatory Technical

Assistance) なるプロジェクトファイディング調査を計画している。
このプロファイは、100万ドルの供与資金でADBが投資できるプロジェクトを
発掘するものである。

(4) この調査により、ダッカ市の給水衛生に関するマスタープランを策定す
るとともに、投資計画をまとめる予定である。

(5) DWASA との間で既に同上マスタープランに関するパイロットスタディー
を実施している。ADB は、ダッカ市では年間 3m も地下水が低下していること、
水源水質のよい表流水源が近くでないこと等をマスタープラン調査の前提条
件と捉えている。PPTA に 9 ヶ月の期間を予定し、同調査の結果に基づく調達
活動を 2006 年末から開始する方針である。

(6) 今年 7 月 11 日に、バ国主催で各ドナー間の援助調整会議が行なわれた。
DFID はスラム地区の改善、衛生環境改善に興味を示していたが拠出金額につ
いては言及していなかった。しかし、国別開発戦略報告書を今年の 9 月末か
10 月末にまとめるのと話していたとのこと。

第二期ダッカ市雨水排水処理施設改良計画予備調査 収集資料リスト

添付資料 3

| 地域 | プロジェクト ID | 調査団番号 | 予備調査 | 担当部課 | 無償資金協力部 |
|-------|-------------------------|--------|-------------------|------|---------|
| 南西アジア | 第二期ダッカ市雨水排水処理施設改良計画予備調査 | 調査の種類 | | | |
| 国名 | ハンガラデシユ | 現地調査期間 | 05/8/11 - 05/9/09 | 担当者名 | 高橋俊介 |

| 番号 | 資料の名称 | 形態 | 収集資料 | 専門家作成資料 | JICA作成資料 | テキスト | 発行機関 | 取扱区分 | 図書館記入欄 | 備考 |
|------------------------|---|-----|------|---------|----------|------|---|------|--------|----|
| ハンガラデシユ 政策・統計資料 | | | | | | | | | | |
| A-1 | Population Census 2001 National Report (Provisional), July 2003 | 書籍 | X | | | | Bangladesh Bureau of Statistic, Planning Division, Ministry of Planning | | | |
| A-2 | 2002 Statistical Yearbook of Bangladesh, 23 rd edition | 書籍 | X | | | | Bangladesh Bureau of Statistics, 2004. 11 | | | |
| A-3 | Bangladesh Economic Review 2004 | 書籍 | X | | | | Economic Adviser's Wing, Finance Division Ministry of Finance, 2004. 6 | | | |
| A-4 | Overcoming the Governance Crisis in Dhaka City | 書籍 | X | | | | Kamal Siddiqui, Jamshed Ahmed, Abdul Awal and Mustaque Ahmed ed., published by University Press Limited, 2000 | | | |
| A-5 | Statistical Pocket book: Bangladesh 2003 | 書籍 | X | | | | Bangladesh Bureau of Statistic, Planning Division, Ministry of Planning | | | |
| A-6 | National Workshop on Options for Flood and Damage Reduction in Bangladesh | コピー | X | | | | National Workshop Organizing Committee headed by Principal Secretary of Prime Minister's Office | | | |
| ダッカ市 政策・統計資料 | | | | | | | | | | |
| B-1 | Dhaka Metropolitan Development Plan (1995-2015) Vol. -I Dhaka Structural Plan | 書籍 | X | | | | PAJUK of Ministry of Housing and Public Works | | | |
| B-2 | Dhaka Metropolitan Development Plan (1995-2015) Vol. -II Urban | 書籍 | X | | | | PAJUK of Ministry of Housing | | | |

| | | | | | | | | | | | | | |
|-------------------|--|----|--|--|--|--|--|--|-------|--|--|--|--|
| C-10 | Yearly Project Staffing and Vehicle and Equipment Status report | | | | | | | | DWASA | | | | |
| C-11 | Dhaka and Chittagong Water Supply and sanitation Project | | | | | | | | DWASA | | | | |
| C-12 | PPF Budget Activities (世銀ファンド関係案件) | | | | | | | | DWASA | | | | |
| C-13 | Water Logging Problem Map Dhaka WASA | | | | | | | | DWASA | | | | |
| C-14 | Organization Chart(1) | | | | | | | | DWASA | | | | |
| C-15 | Organization Chart(2) | | | | | | | | DWASA | | | | |
| C-16 | Proposed Organization Chart | | | | | | | | DWASA | | | | |
| Bangladesh 環境関連資料 | | | | | | | | | | | | | |
| D-1 | Laws Regulating Environment in Bangladesh | | | | | | | | | | | | |
| | | 書籍 | | | | | | | | | | | |
| | 1. Mohiuddin Farooque and S. Rizwana Hasan, Bangladesh Environmental Lawyers Association (BELA), 2004. 12 | | | | | | | | | | | | |
| D-2 | Country Environment Review BANGLADESH: Toward an Environmental Strategy | | | | | | | | | | | | |
| | | 冊子 | | | | | | | | | | | |
| | M. Mastaller, R. D. Montgomery and J. A. Weinstock, Asian Development Bank, 2000 | | | | | | | | | | | | |
| D-3 | Compendium of Environment Statistics of Bangladesh 2004 | | | | | | | | | | | | |
| | | 書籍 | | | | | | | | | | | |
| | Bangladesh Bureau of Statistics, 2004 | | | | | | | | | | | | |
| D-4 | BANGLADESH Environment Facing the 21 st Century | | | | | | | | | | | | |
| | | 書籍 | | | | | | | | | | | |
| | Philip Gain ed., Society for Environment and Human Development (SEHD), 2002 | | | | | | | | | | | | |
| D-5 | People' s Report 2002-2003 BANGLADESH ENVIRONMENT Vol.1 main Report, Vol.2 Database | | | | | | | | | | | | |
| | | 書籍 | | | | | | | | | | | |
| | Atiur Raman, M. Ashraf Ali, Farooque Chowdhury and Manboob Hassan ed. published by Unnayan Shamannay, 2004. 12 | | | | | | | | | | | | |
| D-6 | People' s Report BANGLADESH ENVIRONMENT 2001 Vol. 1 Main Report. | | | | | | | | | | | | |
| | | 書籍 | | | | | | | | | | | |
| | Atiur Raman, M. Ashraf Ali and | | | | | | | | | | | | |

| | Action Plan | | | | | Coordination Organization, 1995.12 | | | |
|---------------|--|-----|---|--|--|---------------------------------------|--|--|--|
| F-3 | Baseline Information Study of the Dhaka Combined Flood Control cum Eastern Bypass Road Project Final Report Vol. I - Main Report, March 2000 | コピー | X | | | Surface Water Mmodeling Center | | | |
| F-4 | Daily Flood Bulletin | コピー | X | | | Bangladesh Water Development Board | | | |
| F-5 | Rainfall Record from BMD | コピー | X | | | Bangladesh Meteorology Department | | | |
| その他の資料 | | | | | | | | | |
| G-1 | Rajdhani Unnayan Kartipakkha (RAJUK) (RAJUKパンフレット) | 冊子 | X | | | RAJUK | | | |

**DWASA' s ANSWER
TO
QUESTIONNAIRE
FOR
THE PROJECT FOR THE IMPROVEMENT OF STORM
WATER DRAINAGE SYSTEM
IN
DHAKA CITY (PHASE II)
IN
PEOPLE'S REPUBLIC OF BANGLADESH**

AUGUST 2005

JAPAN INTERNATIONAL COOPERATION AGENCY

PRELIMINARY STUDY TEAM

QUESTIONNAIRE

The Preparatory Study Team shall be furnished with the following general and specific information on the requested project, in order to clarify the contents of the project and to appraise the scope of cooperation.

Please answer in writing the following questions in detail as much as possible (Items A), and please kindly provide us with data and information requested herein (Items B) for the sake of smooth implementation of the preparatory study

Please hand your answer (including data and information) to the Study Team in August 18 2005.

QUESTIONS

1. Confirmation of the contents of the requested project (Project for the Improvement of Storm Water Drainage System in Dhaka City)

1-1 Background of the project

(1) The reason why this project is in high priority

The reason, however, is described as mentioned in your request, please explain the reason more clearly with drawings and quantities which show general plan, canal and box culvert layout and longitudinal profile, retarding pond area, necessary land for construction and maintenance and the areas with regard to sanitation and environmental issue, etc. in order to understand the urgent needs of the Project.

Together with the above, please show the background considering the related projects already implemented, superior plan or master plan for the Project.

(2) Local fund by DWASA, Bangladesh government or other organizations

The Japanese Government cooperation requires local cost for implementation of the Project and operation and maintenance thereafter. Any local cost necessary for land acquisition and compensation for resettlement, if any, has to be covered by the Bangladesh Government. Please provide the local fund allocation for this Project.

(3) Justification of the project from environmental viewpoint

Please explain in detail existing significant environmental issues in relation to the Project.

1-2 Outline of the project

(1) Project area:

Please clarify in detail the location of the requested facility and the project area with their drainage zones and the reason why those are selected.

(2) Requested component for the Project:

1) Please clarify the requested component for the Project in detail with the

quantitative information based on such current condition as socio-economy, topography, geography.

Answer

1-2 (2) Storm & waste water discharge capacity of existing kallyanpur pumping station is $10\text{m}^3/\text{sec}$. During heavy rainfall, suction level increases above 4meter though 03 number of pumps are kept in operation .As a result, low land & surroundings of city are affected by serious water logging . So, urgently additional pumps, equipments & machineries are required to discharge storm water effectively at kallyanpur pumping station. The catchment area of about 17 Sq. K.m suffered form serious water logging problem during the Urban flood of 2004, due to insufficient pumping facilities.

2) Please explain why additional pumps, and equipment & machinery for operation and maintenance are requested with quantitative supporting information in respect to discharge volume of storm water at the pumping station and removal of sludge volume from drainage, collection, transportation and disposal to the disposal site, etc..

(3) Benefits from the requested component

Referring to description of Benefit and Effect of the Project,

1) Please clarify the contents of benefits expected (ex. Reduction of water bone disease occurrence, decrease of flooded area etc.) and the number of beneficiary (if possible, with social and economic status) based on the current site conditions, and data and information.

Answer

1-2 (3) 1) By implementing the new project of $10\text{m}^3/\text{sec}$ capacity could be possible to remove water logging of city, Hence water born disease like Diarrhea, dysentery, skin disease etc. will be decreased. Transportation & communication will be easier. Business & employment opportunities will be created and people of the area will feel more comfort in living.

2) Please explain the available monitoring indicator to identify the benefits and how to monitor the indicator.

(4) Disposal plan of sludge

Please explain collection and disposal plan of sludge in comparison with existing collection method, responsible and relevant organization, number of staff, and relevant regulation.

(5) Please explain situation of the Project in relation to the related projects whichever are planned, underway or completed, such as master plan, other donors' projects and plan.

(6) Relevant request for financial assistance to international donors

Please explain relevant request for financial assistance to improve storm water

management to international donors both submitted and planned with regard to year/term, donors, content of request, results obtained, etc. in a chronological order.

2. Questions on Counterpart organization

- (1) Please explain the role and responsibility concerning the Project in financial, institutional and personnel, regarding DWASA, RAJUK and DOC.

3. Questions on storm water drainage system

Please explain the following questions in detail and provide the relevant material, if any:

- (1) When did you recognize the insufficient capacity of the Kallyanpur pumping station? Please provide the operation data and information for convincing the requested pump capacity.

Answer

3. (1) Dhaka City suffered serious flood damage in 1998 & recently 2004, During that time we observed the insufficient capacity of kallyanpur pumping station. Operation data & information's are enclosed accordingly

- (2) When did you recognize sludge problem in the existing storm water drainage system? Is there any chronological data/information and maintenance record in this regard?
- (3) Is there any other problem such as institutional problem, managerial problem, shortage of electrical supply which hampers the existing storm water drainage system to function?
- (4) What kind of countermeasures was ever taken to solve or mitigate the above problem?
- (5) Is there a master plan for storm water drainage system in Dhaka city?
- (6) How do you relate the storm water drainage system to the urban development plan, if any, of Dhaka city?
- (7) How is the demarcation of watershed between this project and other storm water drainage system in Dhaka city?
- (8) What kind of malfunction is there and where is it in the existing storm water drainage system, such as malfunction of mechanical and electrical equipment, deterioration of concrete structure, deterioration of sewer pipeline & manholes, leakage, etc.
- (9) Is there any ground water contamination due to the existing sewage and drainage system?

4. Questions on requested equipments

4-1 Present conditions on drainage pump and sludge removal and disposal equipment

(1) Referring to the operation and maintenance of the pumping station and sludge removal and disposal work,

1) How many operators and labor are engaged in the existing pumping station and sludge cleaning equipment are in DWASA at present? Please show the number of them level by level, with explanation of what kind of skill is required on each level.

ex. Operating supervisor : __ persons, manage operating team
Pump operator : __ persons, operate pump and accessory
Ordinary labor : __ persons, assist as an ordinary staff

Answer

4-1 (1) 1) Present setup of kallyanpur pumping station is as follows:

| | | |
|---|----|----------|
| i) a. Operating supervisor (A.E/ S.A.E) | 01 | Person |
| b. Pump Operator | 06 | Persons |
| c. Ordinary labour | 02 | Persons. |

Operating supervisor should be technically sound. He should be capable to solve all kinds of technical problem. Pump operators should be well oriented with pump operation, switch board & malfunctions. Ordinary labour will help technicians & pump operators for smooth running of pumping station.

There is no answer to sludge cleaning.

2) Please explain formation of the pump operation and sludge removal and disposal

Answer

4-1 (1) 2)

Pumps are running 24 hours in a day by 03 shifts. During pump operation time, sludge & garbage are deposited in front of screen of pumping station, sludge & garbage are removed by manual labour and deposited to DCC disposal area.

3) Please explain work shift on the above in a week.

Answer

3. (1) Total 21 number work shift in the pump station in a week. Per work shift two number of pump operator & one number of ordinary helper is engaged normally.

3 (2) Sometimes, existing storm water drainage system overflows and during that time we can recognize, there may be a sludge problem in existing drainage system. We have our Vigilance team, keeping all informations and maintenance records in this regard.

3 (3) There is no any institutional or managerial problem. But there is shortage of electricity supply which sometimes hamper the existing storm water drainage system to function properly.

- 3 (4) To solve electricity problem, Dhaka WASA procured movable Diesel Generator set as stand by.
3. (5) Yes, there is a master plan for storm water drainage system in Dhaka city.
3. (6) Yes, the urban development plan of Dhaka city is related with the storm water drainage system.
3. (7) Every canal of Dhaka city is demarcated with storm water drainage system and also with this project.
3. (8) Minor electrical & Mechanical malfunction has been observed such as level sensor, limit switches, relays, grease pump, vacuum pump, by pass gate & sluice gate mechanism. Some where a little bit deterioration of manholes, leakage of storm sewer pipe line.
3. (9) No, there is no any ground water contamination due to existing sewerage and drainage system. But sometimes ground water is contaminated due to water pipe leakage.
- 4) According to the law of Dhaka city or regulation of DWASA, is any license or certification of training on operating the pump and sludge removal and disposal equipment required?

Answer

- 4) Normally it is not required for any license or certification of training on operating pump & sludge removal & disposal equipments. But DWASA have their own training center. Sequentially, arranging various training program/ course for pump operators, technicians & labours.
- 5) How is the tendency of accident on the cleaning work? Please explain safety management and public health management for the labor on that work.
- (2) Referring to the requested operation and maintenance equipment,
- 1) Please explain dealer network and procurement of spare parts for the existing sludge removal and disposal equipment.

Answer

- 4-1 (2) , 1)
DWASA have their enlisted contractors, spare parts for sludge removal & disposal equipments are procured by NOTM/IOTM.
- 2) Please explain detail specifications of the existing sludge removal and disposal equipment. Are there any difference of specifications between the existing machines and the newly requested machines? If there are, what was the determining factor of the requested specifications?

Answer

4-1 (2), 2)

Presently, drainage circle has one number of sludge removal vacuum pump, one number of sludge removal truck & one pickup car. There is no any basic difference of specifications between existing machineries & newly requested for.

3) How is the deepest level of the canal or culvert from the ground?

4-2 Necessity of technical cooperation

(1) Referring to the technical cooperation requested,

1) Please explain in detail what kind of technical cooperation are required respectively for Project type cooperation, Short-term expert, and Acceptance of trainee.

Answer

4-2 (1), 1)

For smooth & trouble free running of the pumping station, its require to train our staffs on pump operation, maintenance & trouble shooting as short term basis by Japanese experts.

2) Please explain the training menu for operation of the relevant existing machinery and equipment to the Project, such as; year, training period, trainer's organization, trainee's organization (or department in DWASA that the trained staff was belonged to)

Answer

4-2 (1), 2)

There is no any particular training menu for operation of the relevant existing machineries & equipments but DWASA have their own training center .

Sometimes, arranging training program on pump operation for pump operators & Engineers.

4-3 Present Condition and Plan of Warehouse, Ware yard, Parking Shed and Operation and maintenance system

(1) Please clarify location and dimension of the existing warehouse, ware yard and parking shed and, if any, plan of those for the requested machinery and equipment.

Answer

4-3 (1)

DWASA have their central store at Pagla, Dhaka with Ware house, big Ware yard and Parking shed for storage of the requested machineries.

(2) Please clarify the operation, maintenance and management method, and required staff for the planned organization level by level with personnel cost.

Answer

4-3 (2)

Operation, maintenance & management will be done by DWASA Staffs. All of them are getting their salaries according to the Bangladesh Government service rules.

- (3) Please explain about the plan of management system for record and custody of information on operation and maintenance of the requested machinery and equipments, after they are procured and used.

Answer

4-3 (3)

After procurement of the requested machinery & equipments these will be stored at central store, Pagla, Dhaka. As per requirement of user division, machinery & equipments will be brought by an indent maintaining books & records properly in every charge.

4-4 Present conditions of the Kallyanpur Pumping Station

- (1) What kind of water is flowing into the pumping station in ordinary period and in flood season?(ex. sewerage water or storm water)

Answer

4-4 (1)

Normally in ordinary period, house used waste water is flowing into the pumping station. In flood season, storm & house used water flows into the pumping station.

- (2) How many hours are the pumps operated in a day?

Answer

4-4 (2)

Pumping station works about 8-10 hrs in a day at rainy season normally.

- 1) Is water flowing into the pumping station sufficient to start pump in dry season?

4-4 (2), 1)

Water flowing into pumping station is not sufficient to start pump in dry season.

- 2) Is there any case that they can not discharge water outside, because the water level of the discharge point is higher than the designed water level?

4-4 (2), 1)

No, there were never happened such any abnormal condition.

- (3) How much of trash are caught by trash rake in a day? (m³/day or kg/day)

No Answer

(4) What kind of trash is flowing to the pumping station?

No Answer

(5) Please explain the method of trash disposal from the pumping station to disposal site. Where is the disposal site?

No Answer

(6) Please explain the organization, technical level, personnel cost of staff in the pumping station at present and after the requested equipments are installed and used.

Answer

4-4 (6)

Presently, at pumping station we have six number of pump operators, two number of helper & six number of security guard and one engineer for overall supervision. All of them are getting their salaries as per Bangladesh Government service rules.

(7) Are excess and shortage of staff expected from the viewpoint of number and technical level for the requested equipments? If shortage, is there any necessity of pump operator training and electrician training?

Answer

4-4 (7)

There is shortage of staff from the view point of technical level and there is also necessity of training for pump operators & Engineers.

(8) Please explain the plan of management system for record and custody of information on operation and maintenance of the requested equipments in pumping station, after they are installed and used.

Answer

4-4 (8)

After installation of the equipments at pumping station, Drainage Circle of DWASA will place a complete setup for new installation who will be responsible for operating, maintaining the pumping station and will keep all data & informations properly.

4-5 Inventory and detail specification of the existing machinery and equipment

Please provide inventory and detail specification of the existing machinery and equipment with the explanation of the present operation and maintenance condition.

5. Questions on social and environmental issues

No Answer to All questions.

5-1 General information relating to sludge management in target site of requested component

- (1) Please clarify location, name and capacity of the disposal site utilized, and also clarify the status of permission to utilize the disposal site.
- (2) Please explain following basic information relating to the above disposal site.
 - 1) Responsible organization to manage the disposal site
 - 2) Number of staff and existing equipment to manage the disposal site
 - 3) Solid waste collection service area related with the disposal site
 - 4) Responsible organization to collect sludge and transfer to the disposal site
 - 5) Number of staff and existing equipment to collect sludge and transfer to the disposal site
 - 6) Relevant regulation for disposal of sludge from the storm water drainage system

5-2 Complaint or serious hygienic matter regarding waste management

- (1) Was there any complaint or hygienic issues occurred in the sludge disposal site which is planned to use for disposal of sludge from storm water drainage system? What kind of measure did you take to solve the matters when occurred?

5-3 Disease and Public Health

- (1) What kind of and how many water borne diseases were occurred in the past five years?
- (2) What kind of preventive measures against water borne disease are taken?
- (3) Please explain the occurrence of water borne disease in frequent flooded area in Dhaka city.

5-4 Status of environmental impact assessment (EIA)

Please provide the following information, if any.

- (1) EIA or IEE report and schedule regarding the Project

5-5 Fulfilling of Screening Form of Draft JICA Guideline

Please fulfill the attached sheet, "Appendix Screening Format", which is an environmental screening form of the "Draft JICA Guideline for Environmental and Social Consideration".

REQUIRED DATA AND INFORMATION (1/6)

| No. | Item | Avail- ability (Y/N) | Agency of Information Source | Name of Materials |
|------------|---|----------------------------|---------------------------------|--|
| 1. | Development Plan | | | |
| 1.1 | National and regional development plan 1) National development plan for water supply and sanitation sector 2) Regional development plan for Dhaka city | Y | RAJUK | Dhaka Metropolitan Development Plan(1995-2015) Vol.-I,II Ditto above |
| | 3) Land use plan of Dhaka city | Y | Ditto above | Ditto above |
| 1.2 | Sewage and storm water drainage system development plan of the project area 1) Feasibility study report, if any | Y | JICA | 1) Feasibility Study on Greater Dhaka Protection Project (Study in Dhaka Metropolitan Area) of Bangladesh Flood Action Plan No. 8A Main Report, June 1992 2) Dhaka Integrated Flood Protection FAP-8B |
| | 2) Any report concerning sewage and storm water drainage system development of the project area, if you have. | Y | JICA | 1) Updating Study on Storm Water Drainage System Improvement Project in Dhaka City Main Report, February 1990 |
| | | | JICA | 2) Updating Study on Storm Water Drainage System Improvement Project in Dhaka City Supporting Report, February 1990 |
| | | | DWASA | 3) National Workshop on Options for Flood and Damage Reduction in Bangladesh |
| | | | DWASA | 4) Summary Report, Based on studies carried out under The Flood Action Plan |
| | | | Surface Water Modeling Center | 5) Baseline Information Study of the Dhaka Combined Flood Control cum Eastern Bypass Road Project Final Report Vol. I- |

*Questionnaire for The Project for the Improvement of
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| | | | | |
|--|---|---|------------------------------------|---|
| | <p>1.3 Sludge management plan of the project area 1) Any report concerning development of sludge collection and disposal.</p> | N | | Main Report, March 2000 |
| <p>2. Counterpart Agency 2.1 Dhaka Water Supply and Sewerage Authority(DWASA)</p> | <p>1) Organization chart</p> <p>2) Number of personnel</p> <p>3) Budgetary arrangement</p> <p>4) Income and expenditures in water supply and sanitation/drainage works in the past three years</p> | Y | DWASA | DWASA Organization Chart |
| | 2) Number of personnel | Y | Ditto | DWASA Statistics of Civil Employers(Class I, II, III, IV) of the Government of Bangladesh |
| | 3) Budgetary arrangement | N | | |
| | 4) Income and expenditures in water supply and sanitation/drainage works in the past three years | Y | DWASA | Auditor's Report and Accounts |
| <p>3. Data and information regarding natural conditions of the project area 3.1 Maps and other information</p> | <p>1) Topographic maps; scale 1/500, 1/1,000 or 1/5,000</p> <p>2) Geological maps; scale 1/50,000 and 1/10,000</p> <p>3) Land use maps and vegetation maps</p> <p>4) Population distribution map</p> <p>5) Earthquake data</p> | N | | |
| <p>3.2 Meteorological and hydrological data</p> | <p>1) Meteorological data near the project area for the last 10 years</p> | Y | Bangladesh Meteorological Dept. | Rainfall record from BMD |
| | <p>2) Hydrological data of Turga, Burhi Ganga, Tongi khal and Balu river and small river in Dhaka city</p> <p>a. Discharge – daily, monthly & annual</p> <p>b. Water level – daily & monthly</p> <p>c. Water quality – SS, COD, BOD</p> | Y | Flood Forecasting & Warning Center | Daily Flood Bulletin |
| | 3) Location Map of Measurement Stations | Y | Ditto | |

REQUIRED DATA AND INFORMATION (2/6)

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| No. | Item | Avail-ability (Y/N) | Agency of Information Source | Name of Materials |
|------------|--|---------------------|------------------------------|--|
| 4. | Storm water drainage system | | | |
| 4.1 | General | | | |
| | 1) Map of the coverage of the sewage and drainage system (present and future) | Y | DWASA | Water Logging Problem Map Dhaka |
| | 2) Population covered by the system (present and future) | N | | WASA |
| | 3) Sewage discharge quantity a. Domestic sewage (per capita and total) b. Liquid industrial effluents | N | | |
| | 4) Map of inundation area and record of inundated days in the past 5 years | Y | DWASA | Water Logging Problem Map DWASA |
| | 5) Organization and the budget of DWASA for storm water drainage system and sewage system | Y ? | DEASA | |
| | 6) Demarcation of sewage and drainage improvement a. Present condition b. Future plan | Y | DWASA | Ditto |
| 4.2 | Facilities of storm water drainage system | Y ? | DWASA | To Confirm in the BD study. |
| | 1) Location map of the existing storm water drainage system with sewerage system including river, channel, pipelines, culverts and manholes, drainage pump stations, etc. | | | |
| | 2) Inventory sheets of storm water disposal and sewerage disposal facilities such sewer collector, drainage pipes, storm water disposal pumping station, etc. | | | |
| | 3) Brief specification, general layout, typical sectional drawings, construction cost and year of construction of the facilities | | | |
| | 4) Detailed drawings of storm water collector and drainage pipes including plan, longitudinal and sectional drawings | | | |
| | 5) History of improvement or rehabilitation of the facilities, or inspection record | | | |
| | 6) Operation and maintenance record of the system including pumping facilities, maintenance equipment and machinery for storm water pipelines, culverts and drainage channel, etc. ,electric power consumption, manpower arrangement, etc. | Y | DWASA | Partly obtained. To Confirm in the BD study. |

REQUIRED DATA AND INFORMATION (3/6)

| No. | Item | Avail- ability (Y/N) | Agency of Information Source | Name of Materials |
|-----|--|----------------------------|---------------------------------|-----------------------------|
| 4.2 | <p>Facilities of storm water drainage system (continued)</p> <p>7) List of available equipment for cleaning and maintenance of sewerage pipelines and open drainage channels</p> <p>8) Design standard to be applied for storm water drainage systems such as rainfall intensity and coefficient of run-off, design velocity</p> <p>9) Design code and standard or design criteria to be applied for pumping station such as design high/low water levels, structural code, mechanical and electrical code, etc.</p> <p>10) Present conditions and Plans of warehouse, ware yard, parking shed for the requested machinery and equipment</p> <p>11) Present conditions and plans of operation and management staff organization, technical level, personnel cost for cleaning equipments and pumping station respectively</p> <p>12) Detail of the past technical training and necessity of technical training for the requested items regarding pumping station and operation and maintenance equipment respectively</p> <p>13) Management system for record and custody of information on operating and maintenance of the requested items regarding pumping station and operation and maintenance equipment respectively</p> | | | |
| 4.3 | <p>Data and information regarding water quality control</p> <p>1) Water quality standard for domestic and industrial effluents into the sewer pipe and public water body</p> <p>2) Inventory (name, location, kind of industry, and quantity and quality of waste water) of factories in the project area which discharge waste water into municipal sewerage system or rivers</p> <p>3) Location map of discharge point of municipal sewerage and storm water drainage into the river</p> <p>4) Organization for water quality control of the project area</p> | Y? | DOE or DWASA | To Confirm in the BD study. |

REQUIRED DATA AND INFORMATION (4/6)

| No. | Item | Availability (Y/N) | Agency of Information Source | Name of Materials |
|-----|--|-----------------------|---------------------------------|---|
| 4.3 | <p>Data and information regarding water quality control(continued)</p> <p>5) Present water quality monitoring system and water quality analysis record:</p> <ol style="list-style-type: none"> a. Wastewater from factory b. River water c. Ground water <p>6) Chemical analytical results of debris and silt in the wastewater system (heavy metals, COD or TOC, and other general characteristics) in project area and other area</p> <p>7) Present collection and disposal system of raw sewage of the area located outside the existing sewerage system</p> <p>8) Location map of the planned pumping station and sewage treatment plant</p> | Y | DOE or DWASA | |
| 5 | <p>Data and information regarding sludge management in Dhaka city</p> <p>1) Municipal regulations concerning sludge management</p> <p>2) Present sludge collection and disposal system</p> <ol style="list-style-type: none"> a. Map of sludge collection route b. Frequency of sludge collection c. Quantity/quality of sludge d. Location map of open dumping site and capacity of open dumping site <p>3) List of equipment used for sludge collection</p> <p>4) Organization and budget for sludge management</p> <p>5) Complaint on sludge management from resident</p> | Y | DCC | |
| 6. | <p>Tariff for public services and income per household</p> <p>1) Annual average income per household (Upper class, Middle class and Lower class)</p> <p>2) Tariff for public services</p> <ol style="list-style-type: none"> a. Water tariff per household/month b. Sewerage tariff per household/month | Y | DWASA | The Study on the Solid Waste Management in Dhaka City |

| | | | | |
|--|--|--|--|--|
| | <p>facility</p> <p>2) Agents dealing the above mentioned equipments and spare parts for them in Dhaka</p> <p>8.5 Construction materials</p> <p>1) List of typical domestic productions of pipe materials for sewerage/drainage works</p> <p>2) Any custom restriction on import of the possible construction materials</p> <p>8.6 Installation cost for equipment and machinery in pumping station</p> <p>1) Scaffold work and check of crane</p> <p>2) Adjustment of machine base</p> <p>3) Installation work for pumps and motors</p> <p>4) Auxiliary pipe work</p> <p>5) Replacement work for trash rake system</p> <p>6) Replacement work for electric panels and instruments</p> <p>7) Wiring work</p> <p>8) Test run and adjustment work</p> <p>8.7 Unit Price for construction</p> <p>1) Construction material for sewerage/drainage works</p> <p>2) Construction equipment, vehicles etc.</p> <p>3) Engineers for design and construction of sewerage/drainage works</p> <p>8.8 Work conditions</p> <p>1) Accessibility to the work site in the city (width of road, withstand load of road, paving and puddle in rainy season)</p> <p>2) Water source for water tanker (location, distance, time for filling and carry to the site)</p> <p>3) Disposal or treatment place of sludge (location, distance, time for waste & back)</p> <p>4) Average of actual working hour in a day (staying time at the site in a day)</p> <p>5) Working efficiency of sludge disposal (actual machine operating hour for actual team working hour in a day)</p> <p>6) Working team for one site ex. Jetting machine : 3 persons (technician, worker, operator) Sludge Sucker : 2 persons (worker, operator) Water tanker: 1 person (driver) total 3 vehicles & 6 persons for a team</p> | | | |
|--|--|--|--|--|

*Questionnaire for The Project for the Improvement of
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| | | | | |
|--|---|--|--|--|
| | <p>7) Working staff covering C ,H area and main outfall pumping station No.1 (number of staff and technical skill (level-by-level) who in charge of the project site, and working shift in a week)</p> | | | |
|--|---|--|--|--|

*Questionnaire for The Project for the Improvement of
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Appendix Screening Format

Name of a Proposed Project:

Project Executing Organization.

Name, Post, Organization and Contact Point of a Responsible Officer:

Name:

Post:

Organization:

Tel:

Fax:

Email:

Date:

Signature:

Check Items

Question 1

Address of a project site

Question 2

Outline of the project

Question 3

Is the project a new one or an on-going one? In the case of an on-going one, have you received strong complaints etc. from local residents?

- New On-going (there are complaints) On-going (there are no complaints)
 Others ()

Question 4

Environmental Impact Assessment including Initial Environmental Examination is required for the project according to a law or a guideline in a host government? In the case of necessity, is a procedure of EIA finished or is it planned to implement EIA?

- Necessity. (Finished Under implement on Und r planning
No plan)
 Not Necessity. Others ()

Question 5

Is there a sensitive area inside or the surrounding project site?

- YES NO

If yes, please mark corresponding items.

- National park, protection area designated by the government (coast line, wetlands, reserved area for ethnic or indigenous people, cultural heritage)
- Virgin forests, tropical forests
- Ecological important habitat area (coral reef, mangrove wetland, tidal flats)
- Habitat of valuable species protected by a domestic law or an international treaty
- Likely salts cumulus or soil erosion area on a massive scale
- Remarkable desertification trend area
- Archaeological, historical or cultural valuable area
- Living area of ethnic, indigenous people or nomads who have a traditional lifestyle, or special socially valuable area

Question 6

Does the project have adverse impacts on the environment and local communities?

- YES NO

Reason:

In the case of that both answers of Question 5 and 6 are “No”, there is no need to respond following questions, otherwise please proceed with them.

Question 7

Does the project need to deal with an emergency?

YES NO

Reason:

Question 8

Does the project come under following sectors?

YES NO

If yes, please mark corresponding items.

- Mining development
- Industrial development
- Thermal power (including geothermal power)
- Hydropower, dams and reservoirs
- River/erosion control
- Power transmission and distribution lines
- Roads, railways and bridges
- Airports
- Ports and harbors
- Water supply, sewage and waste treatment
- Waste management and disposal
- Agriculture involving large-scale land-clearing or irrigation
- Forestry Tourism

Question 9

Please mark related the environmental and social impact.

- Air pollution
- Water pollution
- Soil pollution
- Noise and vibration
- Ground subsidence
- Offensive odors
- Bottom sediment
- Biota and ecosystem
- Water usage
- Accidents
- Greenhouse gas
- Geographical features
- Involuntary resettlement
- Local economy such as employment and livelihood etc.
- Land use and utilization of local resources
- Social institution such as social infrastructure and local decision-making institutions
- Existing social infrastructures and services
- The poor, indigenous of ethnic people
- Equality of benefit and losses, and equality in the developing process
- Gender
- Children's rights
- Cultural heritage
- Local conflict of interests
- Infectious diseases such as HIV/AIDS etc.

Question 10

Is the project planned to deal with following items?

YES NO

If yes, please mark following items.

- Involuntary resettlement (scale: _____ persons)
- Ground water pumping (scale: _____ m³ /year)
- Land reclamation, land development and land-clearing (scale: _____ hectors)
- Logging (scale: _____ hectors)

Question 11

In the case of that environmental impact assessment was taken steps, was EIA approved by relevant laws in a host country? If yes, please mark date of approval and the competent authority.

Approved (without a supplementary condition) Approved (without a supplementary condition) Under appraisal Not yet started an appraisal process.

Date of approval:

Competent authority:

Question 12

If it is requested to another authorization regarding the environment and society other than EIA, please indicate a name of authorization.

Already authorized Need authorization but not yet done Not requested Others

Name of authorization:

Question 13

When environmental and social conditions are requested, is it possible to secure information disclosure to stakeholders and a meeting with them?

YES NO

Question 14

When environmental and social conditions are requested, is it possible to open a request from a recipient government to the public?

Question 15

Please note a scale of the project (development area, facility capacity, production, power generation, distance etc.).