APPENDICES

1. Member List of the Study Team

(1) Field Study of the Basic Design

Name	Designation	Affiliation
Mr. Shigetada KAYUMI	Team Leader	Senior Advisor, Institute for International Cooperation, JICA
Mr. Kazuyoshi KAGEYAMA	Chief Consultant / Sewerage and Drainage Planner	CTI Engineering International Co., Ltd.
Mr. Toshizo MAEDA	Cleaning and Pumping Equipment Planner	CTI Engineering International Co., Ltd.
Mr. Kunio ISHIKAWA	Sludge Disposal Planner / Environmental and Social Consideration	CTI Engineering International Co., Ltd.
Mr. Akio OKAZAKI	Cost Estimator / Procurement Planner	CTI Engineering International Co., Ltd.

(2) Briefing of Draft Basic Design Report

Name	Designation	Affiliation
Mr. Nobuyuki YAMAURA	Team Leader	Resident Representative, Pakistain Office, JICA
Mr. Kazuyoshi KAGEYAMA	Chief Consultant / Sewerage and Drainage Planner	CTI Engineering International Co., Ltd.
Mr. Toshizo MAEDA	Cleaning and Pumping Equipment Planner	CTI Engineering International Co., Ltd.

2. Study Schedule

(1) Field Study of the Basic Design Study

No.	Date	Day	Activity
1	8/3	Tue	TOKYO (TG647/11:00) ⇒ Bangkok (TG505/20:00) ⇒ Lahore (22:40)
2	4	Wed	Lahore(PK356/08:00)⇒Islamabad(08:50) Courtesy Call to Embassy of Japan(EOJ), JICA and Economic Affairs Division of Ministry of Economic Affairs & Statistics(EAD) Islamabad(PK381/19:30)⇒Lahore(20:20)
3	5	Thu	Courtesy Call to ➢ Planning & Development Department (PDD) and Housing, Urban Development and Public Health Engineering Department (HUD & PHED) ➢ City District Government of Lahore (CDG) ➢ Lahore Development Authority (LDA) Water & Sanitation Agency (WASA)
4	6	Fri	Meeting on WASA; Site Survey on Mehamood Booti Disposal Center / Mehamood Booti / Shad Bagh / Main Outfall / Glushan-e-Ravi Disposal Station
5	7	Sat	Discussion on M/D with PDD, PHED, CDG, LDA and WASA Signing of the M/D
6	8	Sun	Team Leader and Chief Consultant leave for Islamabad. Consultants hold meeting with WASA.
7	9	Mon	Team Leader and Chief Consultant hold discussion on M/D with EAD.
8	10	Tue	Team Leader leaves for Japan ; Islamabad (PK892/11:45)⇒Hong Kong (20:40)
9	11	Wed	Team Leader leaves for Japan; Hong Kong (CX508/16:05)⇒Tokyo (21:25) Consultants: Site Survey（Area-G）
10	12	Thu	Site Survey (Ravi Town）
11	13	Fri	Site Survey（Central Deainage）
12	14	Sat	Data Arrangement
13	15	Sun	Internal Meeting
14	16	Mon	Site Survey on Main Outfall D/S / Multan Road D/S
15	17	Tue	Meeting with WASA
16	18	Wed	Data Collection
17	19	Thu	Data Collection
18	20	Fri	Data Collection
19	21	Sat	Data Collection
20	22	Sun	Internal Meeting
21	23	Mon	Meeting with WASA Sludge Disposal Planner leaves for Islamabad (Tokyo⇒Islamabad)
22	24	Tue	Survey on Drainage Cleaning Work, Sludge Disposal Planner arrives at Lahore
23	25	Wed	Survey on Sewerage Cleaning Work
24	26	Thu	Data Collection
25	27	Fri	Meeting on Action Plan with WASA, Site Survey (Kharak XEN Office)
26	28	Sat	Survey on Sewerage Cleaning Work
27	29	Sun	Internal Meeting
28	30	Mon	Site Survey on Automatic Trash Rake System in Main Outfall D/S
29	31	Tue	Meeting with SWM
30	9/1	Wed	Data Collection
31	2	Thu	Data Collection
32	3	Fri	Survey on Dry Port
33	4	Sat	Data Arrangement
34	5	Sun	Internal Meeting
35	6	Mon	Meeting on Technical Note with WASA
36	7	Tue	Signing of Technical Note
37	8	Wed	Report to EAD
38	9	Thu	Lahore(PK356/08:00)⇒Islamabad(08:50) Two consultants leave for Islamabad to report to EAD, EOJ and JICA. Islamabad (PK381/19:30) ⇒ Lahore(20:20)
39	10	Fri	Meeting with WASA / Lahore (TG506/23:50)⇒Bang Kok (6:20)
40	11	Sa	Bang Kok (TG640/11:20)⇒Tokyo (19:30)

(2) Briefing of Draft Basic Design Report

No.	Date	Day	Activity
1	11/5	Fri	Tokyo (TG647/11:00) ⇒ Bangkok (TG505/20:00) ⇒Lahore(22:40)
2	6	Sta	Courtesy Call to PDD Joint Meeting with HUD & PHED, LDA, WASA and CDG Meeting with WASA
3	7	Sun	Site Survey / Internal Meeting
4	8	Mon	Joint Meeting with HUD & PHED, LDA, WASA and CDG Meeting with WASA
5	9	Tue	Internal Meeting
6	10	Wed	Signing of the M/D
7	11	Thu	Meeting with WASA / Site Survey Lahore⇒ Islamabad (PK388)
8	12	Fri	Meeting with JICA Countersigning of the M/D in EAD Report to Japan Embassy
9	11	Sta	Islamabad ⇒ Kararch ⇒ Tokyo

3. List of Parties Concerned in the Recipient Country

Name	Designation	Affiliation
Ministry of Economic Affairs & Statistics		
Mr. Muhammand Ashraf Khan	Joint Secretary	Economic Affair Division
Mr. Yasmin Masood	Deputy secretary	Economic Affair Division,
Mr. Muhammand Arshad Sultan	Deputy secretary	Economic Affair Division
Government of Punjab		
Mr. Arshad Bin Ahmed	Member	Planning & Development Department
Mr. Muhammad Ahsan Raja	Secretary	Planning & Development Department
Mr. Mukhatar Ahmad Chaudhry	Senior Chief	Planning & Development Department, Civil Secretariat
Mr. Nasim Riaz	Chief of Section ECA	Planning & Development Department
Mr. Amjad Duraiz	Assistant Chief ECA-II	Planning & Development Department
Mr. Mazhar Ali Khan	Special Secretary	Public Health Engineering Department
Mr. Javed Aslam	Secretary	HUD & PHE Department
Mr. Mian Amer Mahmood	District Nazim	City District Government of Lahore
Mr. Farooq Amjad Meer	Acting Dstrict Nazim	City District Government of Lahore
Mr. Akhlaq Ahmad Tarar	Director General	Lahore Development Authority, City District Government of Lahore
Mr. Khalid Majeed	Dy. District Officer (P)	S.W.M, City District Government Punjab
WASA		
Mr. Anam Qadir	Managing Director	
Mr. Pervaiz Iftikhar	Deputy Managing Director	Operation & Maintenance
Mr. Asif Javed Qureshi	Director	Finance
Mr. Ghulam Haiden Zaidi	Director	Operation & Maintenance (Allama Iqubal Town)
Mr. A. Farooq Mirza	Director	Operation & Maintenance (Ravi Town)
Mr. Riaz Hakeem	Deputy Managing Director	Finance Revenue & Administration
Mr. Abdu Rchman Siddiui	Deputy Managing Director	Engineering
Mr. Shahzada Galaluddin M. Akbar	Executive Engineer	Head Quarters
Mr. Syed Zahid Aziz	Executive Engineer	Head Quarters
Mr. Khalid Mehmood	SDO, PMU	Head Quarters
Mr. Hamid Sattar	SDO, PMU	Head Quarters
Embassy of Japan		
Mr. Ken Mtsunaga	First Secretary	
Mr. Kazunobu SHIMURA	Second Secretary	
Mr. Teruo KOBAYASHI	Second Secretary	
JICA Pakistan Office		
Mr. Nobuyuki Yamaura	Resident Representative	
Mr. Ryo Takahashi	Deputy Resident Representative	
Mr. Mahmood A. Jilani	Deputy Resident Representative/ Chief Program Officer	

4. Minutes of Discussion

(1) Field Study of the Basic Design

MINUTES OF DISCUSSION
ON
THE BASIC DESIGN STUDY
ON
PROJECT FOR THE RETRIEVAL OF SEWAGE AND DRAINAGE SYSTEM
IN LAHORE CITY
IN
THE ISLAMIC REPUBLIC OF PAKISTAN

Based on the results of the Preparatory Study, the Government of Japan decided to conduct a Basic Design Study on Project for the Retrieval of Sewage and Drainage System in Lahore 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 Pakistan the Basic Design Study Team (hereinafter referred to as " the Team "), which is headed by Mr. Shigetada KAYUMI, Senior Advisor, Institute for International Cooperation, JICA and is scheduled to stay in the country from August 3 to August 11,2004.

The Team held a series of meetings and discussion with the officials concerned of the Government of Pakistan / Government of the Punjab and conducted field survey at the study area.

In the course of discussion and field survey, both parties confirmed the main items as described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Lahore, August 7, 2004

MR. SHIGETADA KAYUMI
Leader
Basic Design Study Team
Japan International Cooperation Agency

MR. JAVED ASLAM
Secretary
Housing, Urban Development & Public Health Engineering Department
Government of the Punjab

MR. FAROOQ AMJAD MEER
Acting District Nazim
City District Government of Lahore

MR. MUHAMMAND ASHRAF KHAN
Joint Secretary
Economic Affair Division
Ministry of Economic Affairs & Statistics
The Government of Pakistan

MR. MUHAMMAD AHSAN RAJA
Secretary
Planning & Development Department
Government of the Punjab

MR. AKHLAQ AHMAD TARAR
Director General
Lahore Development Authority
City District Government of Lahore

MR. ANAM QADIR
Managing Director
Water & Sanitation Agency
Lahore Development Authority
City District Government of Lahore

ATTACHMENT

1. OBJECTIVE OF THE PROJECT

The objective of the Project is to retrieve the capacity of the sewerage and storm water disposal system in Lahore city through provision of desilting and cleaning machinery and replacement of disposal pumps.

2. PROJECT SITE

The sites of the Project (A, B, G, H1) are located in Lahore city as shown in **ANNEX 1**.
(The Project Site will be subject to minor change as result of this study.)

3. RESPONSIBLE AGENCY AND IMPLEMENTATING AGENCY (ANNEX 2)

3-1. The Sponsoring Agency : Government of the Punjab.

3-2. The Responsible Agency : City District Government Lahore

3-3. The Implementing Agency : WASA

WASA has revised organization chart of the Project Management Unit (hereinafter referred to as "PMU") and WASA will set up 2 units of PMU as shown in **ANNEX 3.**

PMU-I: in charge of design, planning, coordination, procurement, monitoring and installation of pumps

PMU-II: in charge of implementing the cleaning of sewer pipes and open channels/drains using the machinery and equipment.

3-4. The Steering Committee

Government of the Punjab will establish the Steering Committee after the Exchange of Notes for the Project. The Committee will include Secretary Planning and Development Department and Government of the Punjab, Secretary Housing District Nazim, Additional Director General LDA and Managing Director WASA and any other concerned person according to the requirement in due course of time for smooth implementation / monitoring / completion of the Project. In case of any delay or difficulties in implementation stage, the Steering Committee will arrange timely decisions and resources.

4. ITEMS REQUESTED BY THE GOVERNMENT OF THE PAKISTAN

The Government of Pakistan explained the requested components, including technical supports, with priority as per described in **ANNEX 4.** It remains same as the component at the Preparatory Study. JICA will assess the appropriateness of the request and will summarize it into the draft report.

5. JAPAN'S GRANT AID SCHEME

5-1. The Government of Pakistan understood the Japan's Grant Aid Scheme explained by the Team, as described in **ANNEX 5.**

5-2. The Government of Pakistan will take necessary measures described in **ANNEX 6,** for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. SCHEDULE OF THE STUDY

6-1. The Team will proceed to further studies in Pakistan until September 11, 2004 and prepare the technical note to clarify design criteria, technical specification, etc. which are to be used in the analysis in Japan.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents at the end of October 2004.

6-3. When the contents of the daft report is accepted by the Government of Pakistan, JICA will complete the final report and send it to the Government of Pakistan at the beginning of January 2005

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7. OTHER RELEVANT ISSUES

7-1. The Team reconfirmed the objectives of the Basic Design Study mentioned in the Inception Report and the Government of Pakistan understood them.

7-2. The Government of Pakistan will be responsible for clearance of the custom duties and other taxes for the machinery, equipments and materials etc. at dry-port Lahore. The Government of Pakistan will bear the cost for the internal transportation of the machinery, equipments and materials from dry-port Lahore to the Project Site, as well as other Counterpart Funding for accomplishment of the tasks to achieve the objectives.

7-3. The Government of Pakistan will take all possible measures to secure the safety for the concerned people during the study and implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7-4. Action Plan for Retrieval Work and Implementation System

1) The Government of Pakistan explained the draft of the Action Plan for Retrieval Work and Implementation System that were handed over to JICA Pakistan Office on July 22, 2004 as shown in **ANNEX 7.**

2) The Team recommended Pakistan Side to revise the draft of the Action Plan to put more detailed and realistic plans. The framework of the revision is shown in ANNEX 8. The Government of Pakistan will finalize it by Sep. 1, 2004 through discussion with the Team and attach it to the technical notes.

7-5. Initial Environmental Examinations (IEE)

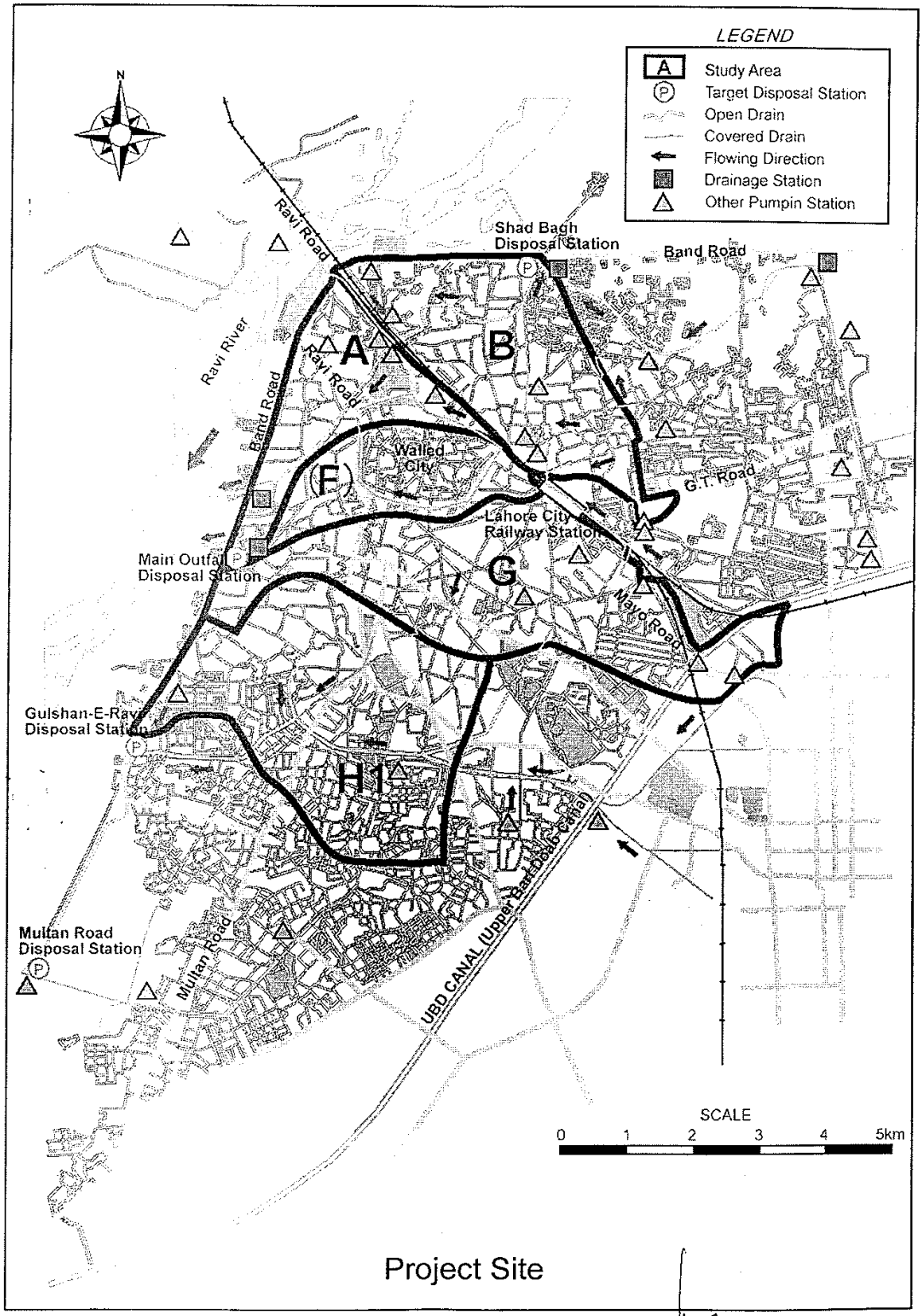
1) Following the Environmental Protection Act 1997, WASA completed the IEE report and submitted to the Punjab Environmental Protection Department on Aug. 3, 2004. The Punjab Environmental Protection Department will issue No Objection Certificate within 3 weeks after examination. Refer to **ANNEX 9** :a copy of the application letter No.MD/4336-37.

2) The Team explained the concept of the "JICA Guideline for Environmental and Social Considerations" to WASA. The Government of Pakistan/Government of the Punjab understood it.

List of ANNEX

ANNEX 1: Project Site map (A, B, G & H1)
ANNEX 2: Concerned Authorities Involved in WASA Projects
ANNEX 3: Proposed Organizational Chart of PMU for Implementing of the Project
ANNEX 4: Requested Components by the Government of Pakistan
ANNEX 5: Japan's Grant Aid Scheme
ANNEX 6: Major Undertakings to be taken by each Government
ANNEX 7: Action Plan for the Project made by WASA and handed over to JICA on July 22, 2004
ANNEX 8: Framework of the Revision of the Action Plan
ANNEX 9: A copy of the IEE application letter No.MD/4336-37

ANNEX-1


LEGEND
Study Area
Target Disposal Station
Open Drain
Covered Drain
Flowing Direction
Drainage Station
Other Pumpin Station
N
Ravi Road
Shad Bagh
Disposal Station
Band Road
Ravi River
Ravi Road
Band Road
A
B
F
Walled
City
G.T. Road
Lahore City
Railway Station
Main Outfall
Disposal Station
G
Mayo Road
Gulshan-E-Ravi
Disposal Station
H1
Multan Road
Disposal Station
Multan Road
UBD CANAL (Upper Bari Doab Canal)
SCALE
0 1 2 3 4 5km
Project Site

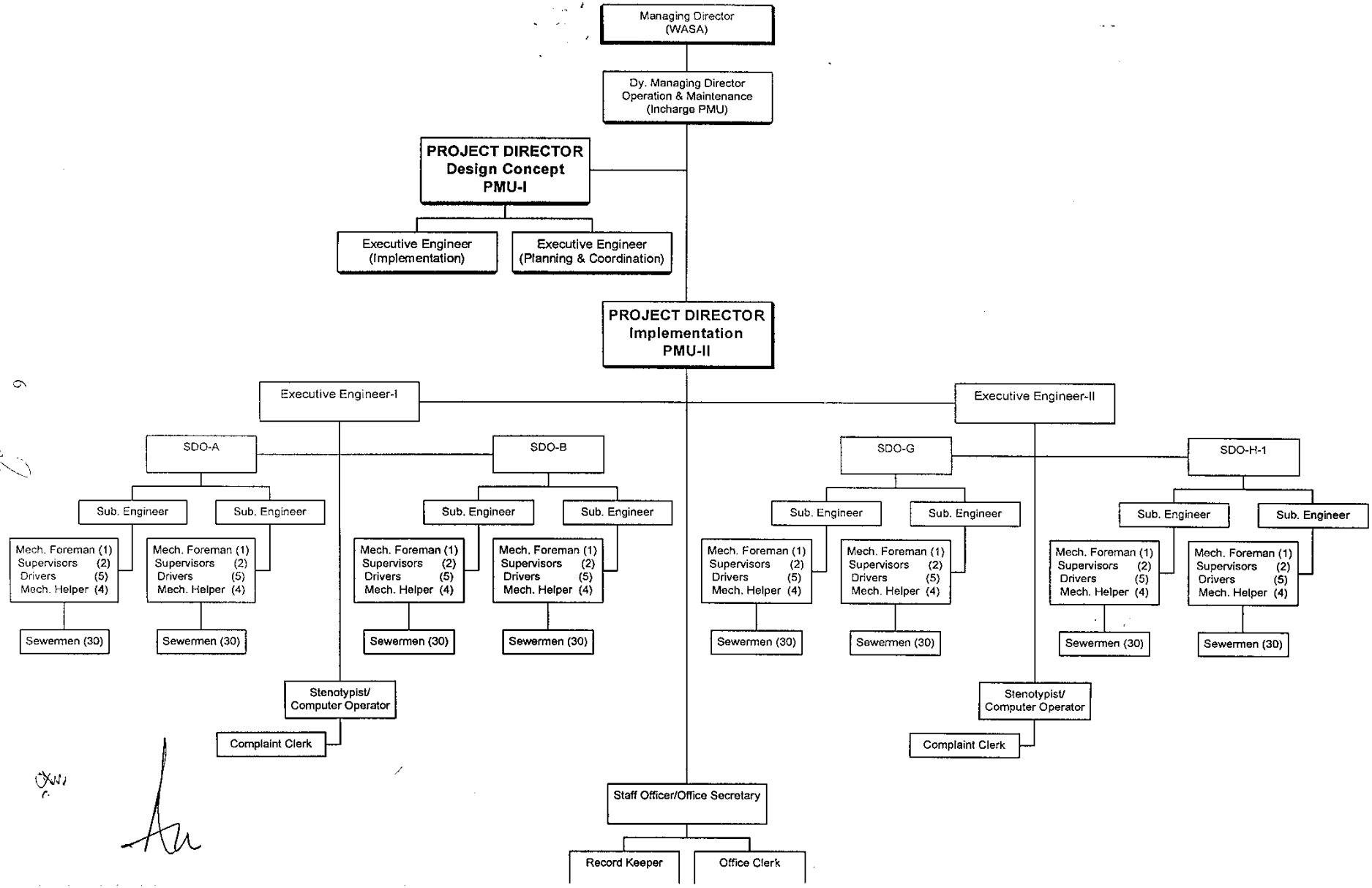
ANNEX-2

CONCERNED AUTHORITIES INVOLVED IN WASA PROJECTS

Administration		Non-Development Project	Development Project	For This Project
Govt. of Punjab	i) P&D Dept.	-	- Approval for Schemes upto Rs. 1,000Million. - In case more than Rs. 1,000Million, P&D Dept. examines and clear it then sends it to the Fed. Gov. for approval - In case where 25% or more of the total cost of the project is in foreign exchange or foreign assistance, the approving forum will be needed at CDWP/ ECNEC	- Liaison with Fed.Govt. - Provision for Counterpart funding (If required for Govt.) - Request to Fed.Gov. for exemption of duties/Taxes etc. for import of machinery in collaboration with implementing Agency. - Follow up of the project to ensure prompt implementation and sustainability. - Funding arrangement establishment of PMU set up for the projects. - Approval of Revision PC-1 at ECNEC with Fed.Gov.
	ii) HUD&PHED	-	- Forwarding of Schemes to P&D Dept. For approval. - Issuance of approvalsafter receiving from P&D Dept.	- Liaison with P&D Dept. to achieve above, mentioned objectives.
iii) CDG Lahore		- Approval of Budget for the Financial Year	- Approval for projects upto Rs. 200 Million for which funding is available.	- Liaison with concerned Dept. (GOP). - Provision of security and conceived atmosphere for the Japanese counterparts. - Help implementing Agency (WASA) for effective implementation of the project.
iv) LDA		-	- Liaison with HUD&PHED where required. - Institutional Support to WASA.	- Liaison with CDG & HUD&PHED. - Institutional Support to WASA.
v) WASA		- Identification of needs. - Approvals and execution. - Implementation Monitoring,, control and follow up.	- Identification of needs keeping of approvals and funds. - Implementation monitoring control and follow up.	- Liaison with all concerned Departments. - Implementation. - Monitoring, control and follow up include establishment of PMU.

P&D: Planning & Development Department
HUD & PHED: Housing, Urban Development & Public Health Engineering Department
CDG: City District Government Lahore
LDA: Lahore Development Authority
WASA: Water & Sanitation Agency

PROPOSED ORGANIZATIONAL CHART OF PMU FOR IMPLEMENTATION OF PROJECT



ANNEX-4

Requested Components (1/2)

(Figures shown on the following table or the nearest equivalent specification are acceptable.)

Requested Components	PC-I	Revised Request at (P/S)* & (B/D)**
Sewer cleaning and jetting machine (Truck mounted)	8 ton class, 300 L/min 4 units	8 ton class, 300 L/min 4 units Priority I
Sludge sucker (Truck mounted)	8 ton class, 6000 L 4 units	8 ton class, 6000 L 4 units Priority I
Water tanker	8 ton class, 7000 L 2 units	8 ton class, 7000 L 2 units Priority II
Truck for multipurpose transportation	4 ton class 6 units	Pick-up truck (Double cabin) 12units Priority I
Dump truck for sludge transportation	8ton class 8units	8ton class 8units Priority I
Crane type excavator	Drag line Bucket size 0.7-0.8 m3 2 units	Clam Shell, Wheel type Bucket size 0.7-0.8 m3 2 units Priority II
Submersible sludge pump	Non clogging type 4 units	Non clogging type 4 units Priority I
Generator for submersible pump	2 units	2 units Priority I
Hydraulic excavator	Crawler type Engine Horsepower 54 HP Bucket size 0.28 m3 class Boom length 3710 mm Arm length 1650 mm 2 units	Wheel type Engine Horsepower 54 HP Bucket size 0.28 m3 class Boom length 3710 mm Arm length 1650 mm 2 units Priority II
Hydraulic excavator	Wheel type Engine Horsepower 153 HP Bucket size 0.8 m3 class Boom length 5700 mm Arm length 2410 mm 1 unit	Wheel type Engine Horsepower 153 HP Bucket size 0.8 m3 class Boom length 5700 mm Arm length 2410 mm 1 unit Priority III
Wheel Loader	Engine Horsepower 85 HP Bucket size 1.2 m3 class With Bolt on teeth Rops canopy 8 ton class 2 units	Engine Horsepower 85 HP Bucket size 1.2 m3 class With Bolt on teeth Rops canopy 8 ton class 2 units Priority III

Requested Components (2/2)

Vertical type volute sewage pump with intermediate shaft Vertical type squirrel cage induction motor Suction manual operated sluice valve with extension handle Swing type check valve Discharge motor operated sluice valve with extension handle Pipes and fittings	Main Outfall Disposal Station Pump (Q:34m3/min (20cusec) H:12m (36feet)) Motor (115kW 400V 50Hz) Suction valve (500mm (20 inch)) Check valve (500mm (20inch)) Discharge valve (500mm (20 inch)) Pipes (350-500mm (14-20 inch)) respectively 6 units	Shad Bagh Pump Station Pump (Q:68m3/min (40cusec) H:12m (36feet)) Motor (180kW 415V 50Hz) Suction valve (700mm (28 inch)) Check valve (600mm (24 inch)) Discharge valve (600mm (24 inch)) Pipes (600mm (24 inch)) respectively 2 units Priority I Multan Road Pump Station Pump (Q:68m3/min (40cusec) H:12m (36feet)) Motor (180kW 3300V 50Hz) Suction valve (700mm (28 inch)) Check valve (600mm (24 inch)) Discharge valve (600mm (24 inch)) Pipes (600mm (24 inch)) respectively 2 units Priority II Gulshan-E-Ravi Pump Station Pump (Q:68m3/min (40cusec) H:12m (36feet)) Motor (180kW 3300V 50Hz) Suction valve (700mm (28 inch)) Check valve (600mm (24 inch)) Discharge valve (600mm (24 inch)) Pipes (600mm (24 inch)) Respectively 2 units Priority III
Automatic trash rake system	Main Outfall Disposal Station	Main Outfall Disposal Station Priority I
Electrical Panel	Main Outfall Disposal Station Low voltage panel 8 units Local control panel 8units	Shad Bagh Disposal Station Low voltage panel 2units Priority I Multan Road Disposal Station High voltage panel 2 units Priority II Gulshan-E-Ravi Disposal Station High voltage panel 2 units Priority III
Instruments	Main Outfall Disposal Station Level meter 1 unit	Shad Bagh Disposal Station Level meter 1 unit Priority I
Technical training	3 month	1 month training on the field of operation & maintenance and safety management for the requested cleaning equipment and pump facilities

(P/S)* : the Preparatory Study (B/D)**: the Basic Design Study

JAPAN'S GRANT AID

【Japan's Grant Aid Scheme】

The Grant Aid Scheme 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. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedure

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

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan 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 Preparatory 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.

9) 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.

ANNEX-6

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 when needed		●
2	To clear level and reclaim the site when needed		●
3	To construct gates and fences in and around the site when need		●
4	To construct the parking lot when need		●
5	To construct roads (Within the site & Outside the site)		●
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 city water distribution main to the site		●
	b) The supply system within the site (receiving and elevated tanks)		●
	3) Drainage		
	a) The city drainage main(for storm sewer and others to the site)		●
	b) The drainage system (for toilet sewer, ordinary waste, storm drainage and others)		●
	4) Gas Supply		
	a) The city gas main to the site		●
	b) The gas supply system within the site		●
	5) 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		●
	6) Furniture and Equipment		
	a) General furniture		●
	b) Installation of equipments		●
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 under the verified contract their entry into the recipient country and stay therein for the performance of the 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 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 installation of the equipment		●

ANNEX-7

GOVERNMENT OF PUNJAB
CITY DISTRICT GOVERNEMNT
LAHORE

ACTION PLAN
FOR
RETRIEVAL OF SEWERAGE AND DRAINAGE SYSTEM IN LAHORE

JAPAN INTERNATIONAL COOPERATION AGENCY

GRANT IN AID PROJECT

WATER AND SANITATION AGENCY,
LAHORE DEVELOPMENT AUTHROITY

LIST OF ABBREVIATIONS

1.	SWM:	-	Solid Waste Management
2.	CDG:	-	City District Governemnt
3.	WASA:	-	Water and Sanitation Agency
4.	PMU:	-	Project Management Unit
5.	DMD:	-	Deputy Managing Director
6.	O&M:	-	Operation and Maintenance
7.	MD.	-	Managing Director

CONTENTS

PROJECT MANAGEMENT UNIT FOR RETRIEVAL OF SEWERAGE AND DRAINAGE SYSTEM IN LAHORE

A Project Management Unit will be established for planning coordinating Organization, implementation and control of the Project. PC-I has already been prepared and submitted .This selection of PMU will be as under:-

1.	Deputy Managing Director (Operation & Maintenance), WASA	Overall Incharge
2.	Director O&M (Iqbal Town) WASA	Project Director
3.	Executive Engineer Headquarter (O&M)	Executive Engineer Implementation
4.	Dy. Director P&D (Mechanical)	Executive Engineer Planning and Coordination.

RESPONSIBILITY OF PMU:

COORDINATION WITH RESPECTIVE GOVERNMENT AGENCIES AND JICA TEAM FOR MATURATION OF THE PROJECT

- Planning and Implementation
- Organizing the activities for Implementation
- Monitoring of Project.
- Reporting of the progress and feedback.

DEPLOYMENT OF VEHICLES.

The vehicles will be deployed in respective Zones as shown below:-

SR.	EQUIPMENT	ALLOCATION	PARKING YARD
01	Jetting Machine	Zone A = 1 Zone B = 1 Zone G = 1 Zone H = 1	Mainoutfall Dispsoal Station XEN (O&M-II) Ravi Town/XEN O&M-I GB- Town, Rehmanpura Reservoir
02	Sludge Sucker	Zone A = 1 Zone B = 1 Zone G = 1 Zone H/I = 1	Mainoutfall Dispsoal Station XEN (O&M-II) Ravi Town XEN O&M-I (GBT) Rehmanpura Reservoir
03	Water Tanker	Zone A/G/H-I/I Zone B = 1	Mainoutfall Dispsoal Station XEN-O&M-I (GBT) Director Ravi Town
04	Pickups for Transportation	Zone A = 2 Zone B = 2 Zone G = 4 Zone H/I = 4	Mainoutfall Dispsoal Station XEN (O&M-II) TR/SDO(Data Nagar) SDOs Office Islampura, Shimla Hill. SDOs Office (Ichhra)
05	Dump Trucks.	Zone A = 1 Zone B = 2 Zone G = 3 Zone H/I = 2	Mainoutfall Dispsoal Station Shad Bagh Disposal Station Mainoutfall/Upper Mall (XEN-O&M-II) Rehmanpura.
06	Drage Line (Clam Shell)	Zone G/H-I = 1 Zone A/B = 1	WASA Training Center Shadbagh/Bagh Munshi Ladha Revenue Office.
07	Submersible Sullage Pump	Zone A = 1 Zone B = 1 Zone G = 1 Zone H/I = 1	SDO Office (Ravi Road) SDO Office (Data Nagar) SDO Office (Islampura/Shimla Hill) SDOs Office (Ichhra)
08	Excavator Small	Zone G/H-I = 1 Zone A/B = 1	WASA Training Center/Gulshan-e-Ravi, Shadbagh/Mainoutfall
09	Excavator Large	Zone A/B/G/H = 1	Gulshan-E-Ravi/Mainoutfall Disposal Station.
10	Generator	Zone A/B = 1 Zone H/I = 1	SDO Office Ravi Road/Data Nagar SDO Office Islampura/Shimla Hill/Ichhra
11	Wheel Loader	Zone G/H = 1 Zone A/B = 1	WASA Training Center/Gulshan-e-Ravi Shadbagh Disposal Station.
12	Pump Sets	-	Respective Disposal Station.

The Parking areas is owned by WASA and there is little need for new construction of Parking areas or Ware-House. The watch and ward will be provided by concerned Sub Divisional Officer of Parking area.

LOGISTICS FOR DISPOSAL OF SILT AND SOLID WASTE

i- DISPOSAL OF EXTRACTED SOLID WASTE AND SILT

During cleaning operation the silt will be stacked on road side and it will be loaded into Dump Trucks for ultimate disposal to the Landfill sites of Solid Waste Management City Distt: Govt. Lahore. For bigger size drains where clambe shells and Excavators will be deployed, the extracted material will be directly loaded into Dump Trucks for ultimate disposal to the Landfill sites.

ii- DISPOSAL OF SILT AND SOLID WASTE EXTRACTED FROM NARROW STREETS.

Some of the Project area consists of narrow streets, where 9" and bigger size dia meter sewers need thorough desilting. It is not possible to deploy Dump Trucks and wheel loader in these congested areas. The desilting operation in these areas will be carried out with the help of regular sewermen available with the Agency and meeting the deficiency of desilting staff through workcharged employment. These employment will be made from WASA's own Budget. The extracted silt will be manually loaded into Pickups for ultimate disposal to the Landfill sites.

SCHEDULE OF WORK.

The Project will be completed in 3 years as per detail below.

Mechanical & Mannual Cleaning.

Zone	Description	1st Year												2nd Year												3rd Year									
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
	Procurement of Machinery																																		
A	With New and Existing Equipment																																		
B	With New and Existing Equipment																																		
G	With New and Existing Equipment																																		
H	With New and Existing Equipment																																		

Cleaning of Drains.

Zone	Description	1st Year												2nd Year												3rd Year									
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
A	With New and Existing Equipment																																		
B	With New and Existing Equipment																																		
G	With New and Existing Equipment																																		
	Model Implementaion																																		
H	With New and Existing Equipment																																		

FUNCTIONING OF PMU

PMU will consists of a team headed by DMD(O&M) supported by Project Director and Executive Engineer Implementation alongwith Executive Engineer Planning and Coordination.

SUPERVISORY TEAM

The Supervisory team will consist of field officer of the directorate in which the retrieval, of system, activities will take place. Director of the Town being overall incharge and Town Executive Engineer and SDO being Field Officers. The Town Director will report progress to Executive Engineer Implementation for compilation and reporting to PMU.

FIELD OPERATION TEAM

Field Operation Team will consist of field staff to be deployed by the Town Director of area from existing staff of the Town and additional workcharged staff from WASA's own budget. For all field operation the sewer cleaning Division alongwith its existing staff, machinery and equipment will make a part of this operation team to achieve progress with requisite safety measures and will be responsible to the Town Director of respective Zone.

For activities taking place simultaneously in more than one directorate the Sewer Cleaning Division will provide support to both the Towns for safety and desilting equipment and machinery. P.O.L will be issued/arranged by the Executive Engineer of respective Zone and consumption record will be maintained by concerned Sub Divisional Officer and Sub Engineer.

OPERATION, MAINTENANCE, DEPLOYMENT AND
INSTALLATION OF MACHINERY AND EQUIPMENT.

Executive Engineer Implementation PMU will be responsible for deputing sewer and drain cleaning machine with the Town Director of the area where desilting operations are taking place. Executive Engineer Implementation will be responsible for:

1. Drawing Machinery and equipment from Central Store supplied under this project.

2. Posting and transfer of drivers.

3. Preparation of cost estimate for maintenance of supplied equipment seeking approval from competent authority and getting the repair work done.

4. Preparation of cost estimate for installation of pumping machinery on designated pump station. Seeking approval from competent Authority and allotment of work as per delegation of power and execution of work.

COMMUNITY PARTICIPATION.

The Public Relation office of WASA Lahore will promote public awareness to improve the condition of sanitary and sewerage system through print and electronic media and will attract community participation for improvement of sanitary condition.

ANNEX-8

FRAMEWORK OF REVISION OF THE ACTION PLAN

Proposed Contents of the Action Plan

The Action Plan shall be revised and prepared by WASA with the assistance of the Study Team, and shall be submitted to JICA Pakistan Office by **September 1, 2004.** The Action Plan will contain following items:

Introduction

- Justification of the Project in the context of "Integrated Master Plan for Lahore – 2021"

1. Organization

(1) Organization of PMU
- Organizational structure of PMU
- Mandate of each staff, including Director (PMU), Executive Engineer, S.D.O, and others
- Director (PMU) shall be assigned exclusively for the Project.
- Total number of staff
- Establishment of Complaint Center
- Each operational unit in Zone A, B, G and H1

(2) Steering Committee
- Member of Steering Committee and mandate of each staff

2. Operational Scheme

(1) Existing Machinery and Equipment in WASA
- Exact location/jurisdiction of each machinery and equipment
- The specific machinery and equipment that can be utilized for the Project

(2) Requested Machinery and Equipment
- List of requested machinery and equipment
- The expected storing location of each machinery and equipment

(3) Sewer Pipes and Drains to be Cleaned in the Project
- Specifications of sewer pipes
- Specifications of covered drains and open drains
- Prioritization of each target sewer pipe and drain

(4) Disposal Site
- Transportation of sludge
- Location and condition of the disposal site

- Area and capacity of disposal site
- Environmental aspect of disposal site

(5) Operational Scheme

- Current methodology of cleaning procedures for sewer pipes, covered drains and open drains
- Methodology to be applied for the Project
- Number of machinery and equipment that is necessary for the Project
- Actual schedule of the Action Plan for three years
- Prioritization of each Zone A, B, G and H1

3. Monitoring System

(1) Setting Indicators for the Evaluation of the Project

- Number of complains reported by residents regarding drainage problem and contamination of drinking water
- Inundation survey data in terms of its rainfall amount recorded, particular inundated area, depth of inundation, and duration of inundation.
- Weight of sediment removed from sewer pipes and drains.

(2) Other Indicators

- Pump operational record, which includes the rainfall amount recorded, number and duration of pumps operated, and water level gauged at the inlet, at each pumping station.
- Daily amount of garbage removed at each pumping station.
- Maintenance record of each cleaning machinery and equipment.
- Record of the stock of spare parts.

4. Public Awareness Campaign

(1) Revision of Public Awareness Campaign in Pilot Project by DFID

(2) Public Awareness Campaign to be Employed for the Project

- Detailed schemes for possible measures, which include advertisement in daily newspapers, video campaign in schools, campaign on radio, banners and signboards, awareness meetings with representative of the areas, and door-to-door distribution handbills.

5. Cost Estimate

(1) Running Cost for the Project

(2) Expected Support by the Government of Punjab

ANNEX-9

WATER AND SANITATION AGENCY (LDA) LAHORE
4-A GULBERGE-V JAIL ROAD

The Secretary,
Punjab Environmental Protection Department,
Government of the Punjab,
Lahore.

No.MD/ 4336-37 Dated: Aug-03-2004.

Subject: **SUBMISSION OF IEE REPORT FOR ISSUANCE OF NOC PROJECT FOR THE RETRIEVAL OF SEWERAGE AND DRAINAGE SYSTEM OF LAHORE CITY**

WASA, Lahore intends to conduct desilting of its sewage and drainage network in order to retrieve its full carrying capacity with the grant Aid of Japanese Government. The project stands approved for Rs.789.823 Million, with a foreign exchange component of Rs.689.823. The foreign exchange component will mainly be spent on the supply of desilting machinery and equipment to WASA.

Environmental Protection Act 1997 requires conducting IEE/EIA of development projects prior to their implementation. The subject project falls in the category of IEE. IEE study has been conducted by WASA, Lahore and all the recommendations of the report have been incorporated in the project to minimize the impacts. The IEE report is submitted for issuance of No Objection Certificate please.

Necessary documents are attached.
(Two Copies of IEE, Reports, and application form for Env. Approval, under Taking)

ANAM QADIR
MANAGING DIRECTOR
WASA, LDA, LAHORE

CC:

- DMD(O&M) WASA.

(2) Technical Note on Field Study of the Basic Design

TECHNICAL NOTE

BASIC DESIGN STUDY ON THE PROJECT FOR THE RETRIEVAL OF SEWERAGE AND DRAINAGE SYSTEM IN LAHORE CITY

Based on the Minutes of Discussion for the captioned Study signed between the Pakistani side and Japanese side on August 7, 2004, the field study in Pakistan was completed in close cooperation between JICA study team and competent personnel of the Water and Sanitation Agency (WASA).

In the course of the study, technical issues have been discussed for the Project to be implemented under the Japan's Grant Aid, and both parties confirmed the main items described in the attached sheet.

Lahore, September 7, 2004

Kazuyoshi Kageyama
Chief of Consultants
Basic Design Study Team
CTI Engineering International Co.,Ltd.

Anam Qadir
Managing Director
Water & Sanitation Agency
Lahore Development Authority
City District Government of Lahore

1. Equipment to be provided under Japan's Grant Aid.

   JICA Study Team submitted to WASA a list of the equipment (**see attached document-1**), which was prepared as a result of discussions with counterpart personnel of WASA during the study. Basically WASA agreed with the Team about the equipment properly selected for the Grant Aid.

   There is a change in the previous request in the number of pick-up trucks reducing from 12 to 4 units, and it will make up for the increase in the number of 8-ton dump trucks from 8 to 10 units.

   It has been confirmed that 4-ton dump trucks and wheel loaders are not considered as the first priority for the project so they are marked as the second priority. With regard to automatic trash rake system for Main Outfall Disposal Station, inclined conveyor and loading hopper are categorized as the third priority, which means "preferable to install".

   There will be possibility to supply equipment from the third countries other than Japan and Pakistan if the cost and availability of product and its maintenance services are taken into consideration. Such items of equipment may be submergible sludge pumps, generators for sludge pump and trash raking system.

2. Construction of new parking area for the equipment.

   WASA should start construction work for the new parking area at Kharak (Sabzazar) at the beginning of November 2004 as per attached schedule (**see attached document-2**).

3. Budget allocation for the purchase of 10 dump trucks.

   WASA promised to purchase 10 units of dump trucks for the project implementation. The budget allocation will be made in the fiscal year 2005/2006 funding arrangement from the City District Government/Government of Punjab.

4. Share of work responsibility.

   The share of work responsibility or work demarcation for the installation of pumps as well as trash rake was determined as described in the drawings attached hereto (**see attached document-3**).

5. Customs and CIF designated site for the transportation of equipment.

Lahore dry-port will be the designated port for customs clearance for all equipment and materials arriving either from Japan or from other countries, and for the safety reason, it is recommendable that CIF designated site be WASA's parking area.

6. Use of web site for information dissemination to the public.

As an activity of the public awareness campaign, WASA intends to establish its own web site for information dissemination to the public. In this regard, one person specialized in this field will be placed in Planning and Evaluation Directorte to manage the system and to update information from time to time. Information required shall include cleaning activities, work schedule, work achievement, monitoring results, etc.

7. Letter of agreement for the use of Mahmood Booti landfill site.

WASA will make every possible attempt in order to obtain a letter of agreement from the City District Government for the use of Mahmood Booti landfill site as a disposal area of removed material.

8. Request for technical guidance services under the Grant Aid (Soft Component).

The following experts are requested to render technical guidance services at the initial stage of the project implementation:

- One expert to assist PMU Project Director and XENs in managing and operating the project.
- One expert to participate in public awareness campaign, and workshops will take place under his guidance.

9. Issuance of Non Objective Certificate from PEPD

As a result of Initial Environmental Examination, Non Objective Certificate will be issued from PEPD and submitted to the Study Team by September 7, 2004.

Attached Document-1 LIST OF EQUIPMENT (1/2)

	Machinery	Quantity	Specification	Priority*
1	Sewer cleaning and jetting machine	4	8 ton class, 250~300 L/min. (Truck mounted)	I
2	Sludge sucker	4	w/ compulsory dehydration systemHydraulic Tank: Approx. 4500L 8 ton class	I
3	Water tanker	2	8 ton class, 7000 ~8000L. (Truck mounted)	I
4	Pick-up truck	4	Double Cabin 2400~2800cc, Diesel	I
5	Dump truck for sludge transportation	10	8 ton class.	I
6	Dump truck for sludge transportation	3	4 ton class.	II
7	Clam shell	2	Wheel type, Bucket size 0.7~0.8 m^3	I
8	Submersible sludge pump	4	Non clogging type.	I
9	Generator for submersible pump	2	For running of the submersible sludge pump	I
10	Hydraulic excavator (I); (wheel type)	2	Bucket size 0.28 m^3 class, Boom length: Approx. 3700mm, Arm length Approx. 1700 mm	I
11	Hydraulic Excavator (II); (wheel type)	1	Bucket size 0.8 m^3 class, Boom length: Approx. 5500mm, Arm length: Approx. 2500 mm	I
12	Wheel loader	2	8 ton class, Bucket size 1.2 m^3 class, With Bolt on teeth	II
13	**Equipment for Shad Bagh Pump Station**			
13-1)	Pump	2	Vertical type volute sewage pump with intermediate shaft, Q: 68 m^3/min, H: 11m	I
13-2)	Motor	2	Vertical type squirrel cage induction; 180kW 415V 50Hz	I
13-3)	Suction valve	2	Manual operated sluice valve with extension handle; φ700mm	I
13-4)	Check valve	2	Swing type ; φ600mm	I
13-5)	Discharge valve	2	Motor operated sluice valve with extension handle; φ600mm	I
13-6)	Pipes and fittings	2	φ600mm	I
13-7)	Electrical panel	2	Low voltage panel (415V)	I
13-8)	Level meter	1	Floating Type	II
14	**Equipment for Multan Road Pump Station**			
14-1)	Pump	2	Vertical type volute sewage pump with intermediate shaft Q: 68 m^3/min, H: 11m	I
14-2)	Motor	2	Vertical type squirrel cage induction; 180kW 3300V 50Hz	I
14-3)	Suction valve	2	Manual operated sluice valve with extension handle; φ700mm	I
14-4)	Check valve	2	Swing type ; φ600mm	I
14-5)	Discharge valve	2	Motor operated sluice valve with extension handle; φ600mm	I
14-6)	Pipes and fittings	2	φ600mm	I
14-7)	Electrical panel	2	High voltage panel (3300V)	I

Attached Document-1 LIST OF EQUIPMENT (2/2)

	Machinery	Quantity	Specification	Priority*
15	**Equipment for Gulshan-E-Ravi Pump Station**			
15-1)	Pump	2	Vertical type volute sewage pump with intermediate shaft Q: 68 m^3/min, H: 11m	I
15-2)	Motor	2	Vertical type squirrel cage induction; 180kW 3300V 50Hz	I
15-3)	Suction valve	2	Manual operated sluice valve with extension handle; φ700mm	I
15-4)	Check valve	2	Swing type ; φ600mm	I
15-5)	Discharge valve	2	Motor operated sluice valve with extension handle; φ600mm	III
15-6)	Pipes and fittings	2	φ600mm	I
15-7)	Electrical panel	2	High voltage panel (3300V)	I
16	**Automatic Trash Rake System for Main Outfall Disposal Station**			
16-1)	Trash Raking Machine	1	Screen, Rake and Motor Unit	I
16-2)	Horizontal conveyor	1	For carrying the removed garbage out of screen room.	I
16-3)	Inclined conveyor	1	-	III
16-4)	Loading Hopper	1	-	III

Attached Document-2

SCHEDULE FOR CONSTRUCTION OF PM U OFFICE AND PARKING YARD FOR DESILTING MACHINERY.

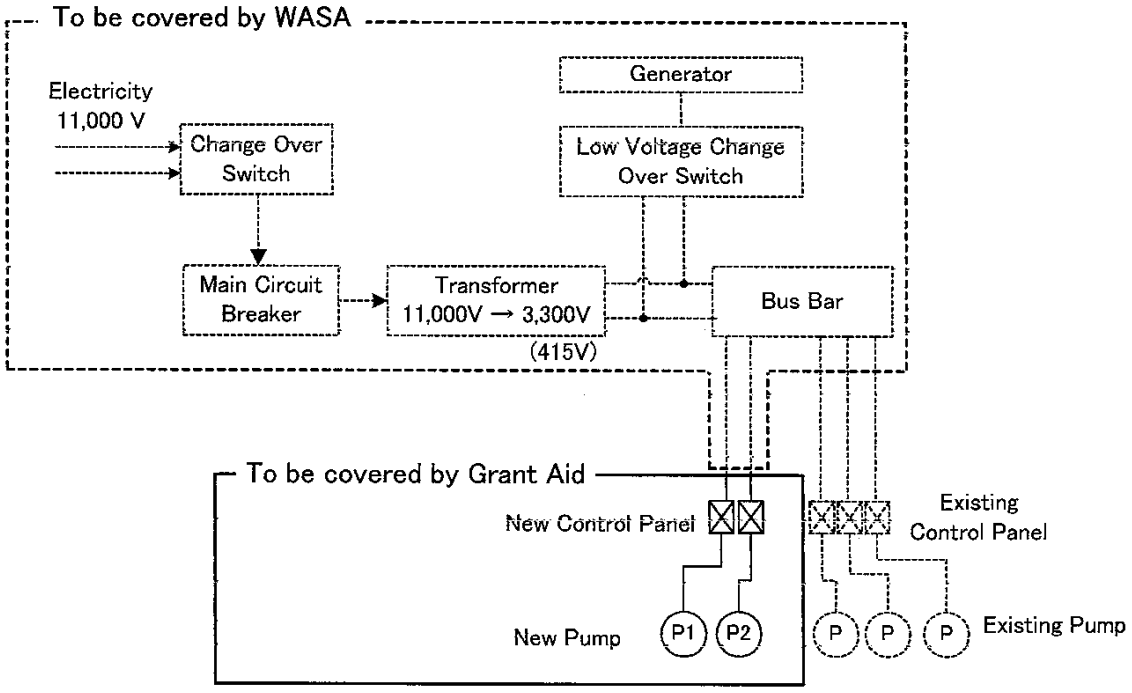
S.NO.	DESCRIPTION	YEAR 2004				YEAR 2005			REMARKS
		SEP	OCT	NOV	DEC	JAN	FEB		
1	PREPARATION OF COST ESTIMATE, APPROVAL AND ALLOCATION OF FUNDS.								
2	TENDERING & AWARD OF CONTRACT.								
3	CONSTRUCTION OF BULDING								

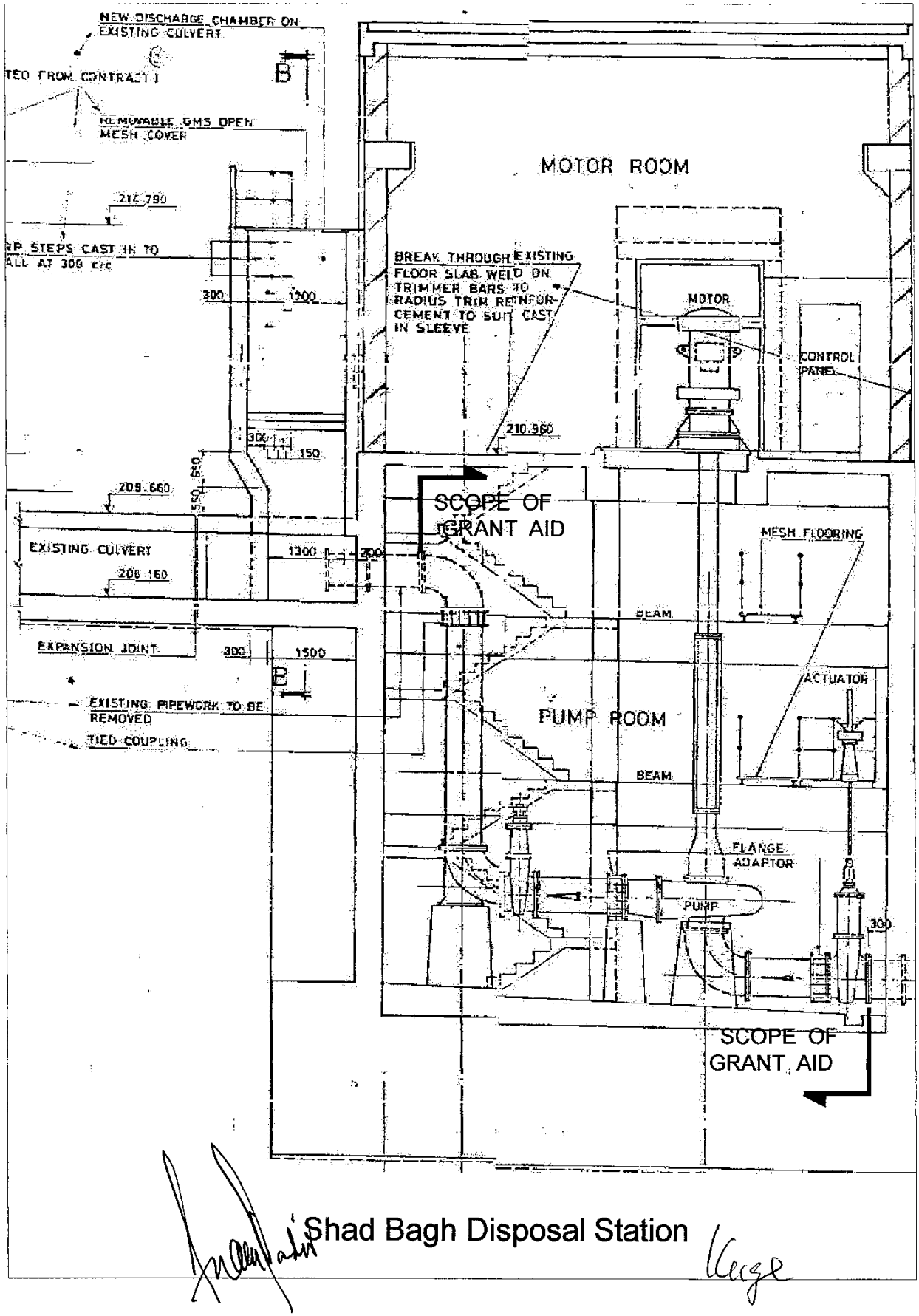
S.D.O _____ X.E.N _____ DIRECTOR (O&M) _____

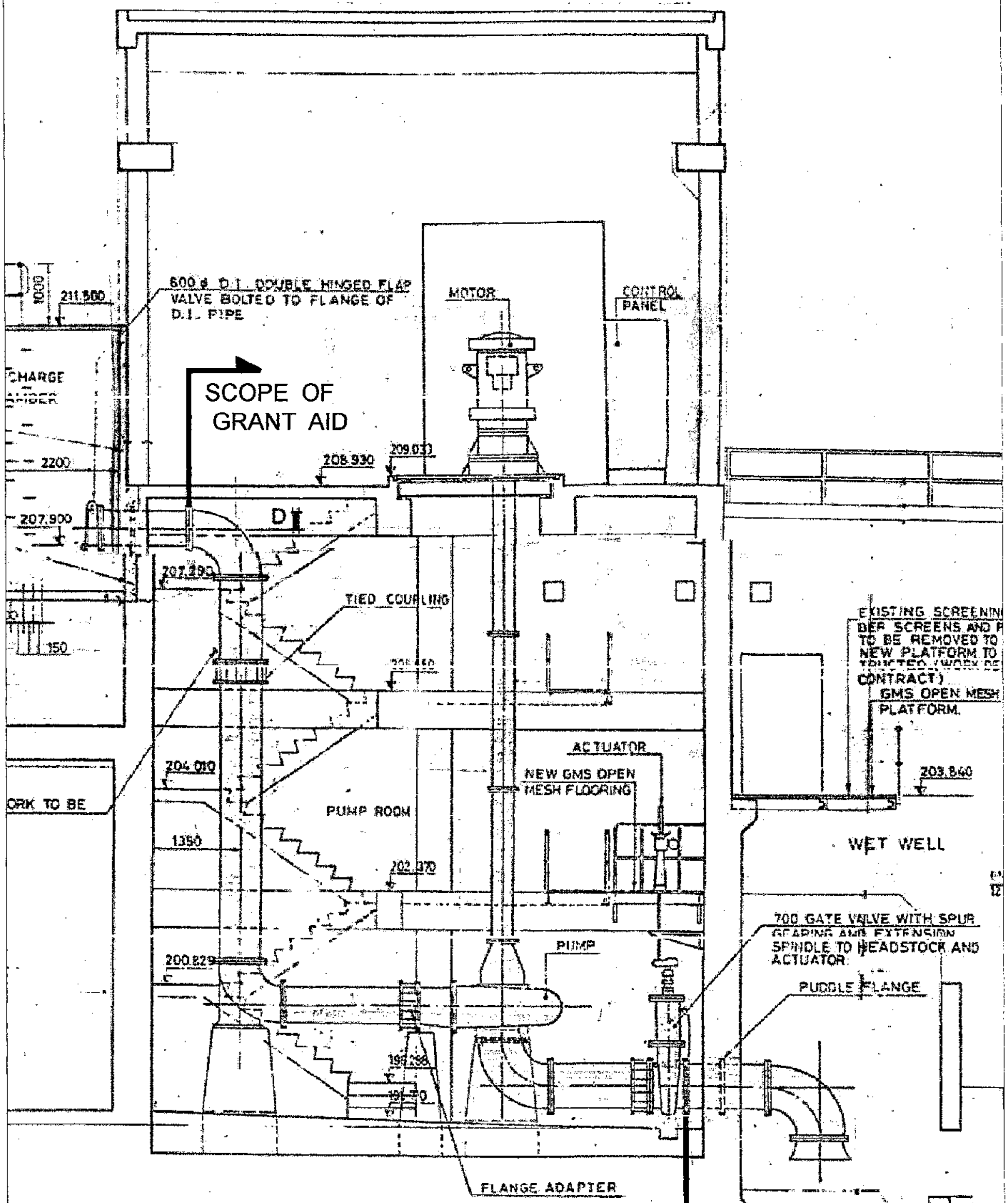
Demarcation of Pump Installation Work

Following work items relevant to pump installation will be demarcated between Pakistani Side (WASA) and Japanese side (Grant Aid).

Work Item	To be covered by
(1) Preparation of additional transformer for new pumps	WASA
(2) Any other relevant arrangement and procurement for electric source	WASA
(3) Wiring to Electric Panel from Transformer	WASA
(4) Wiring to Electric Panel from Pump	Grant Aid
(5) Installation of Pumps, Electric Panels, Valves and Pipes.	Grant Aid



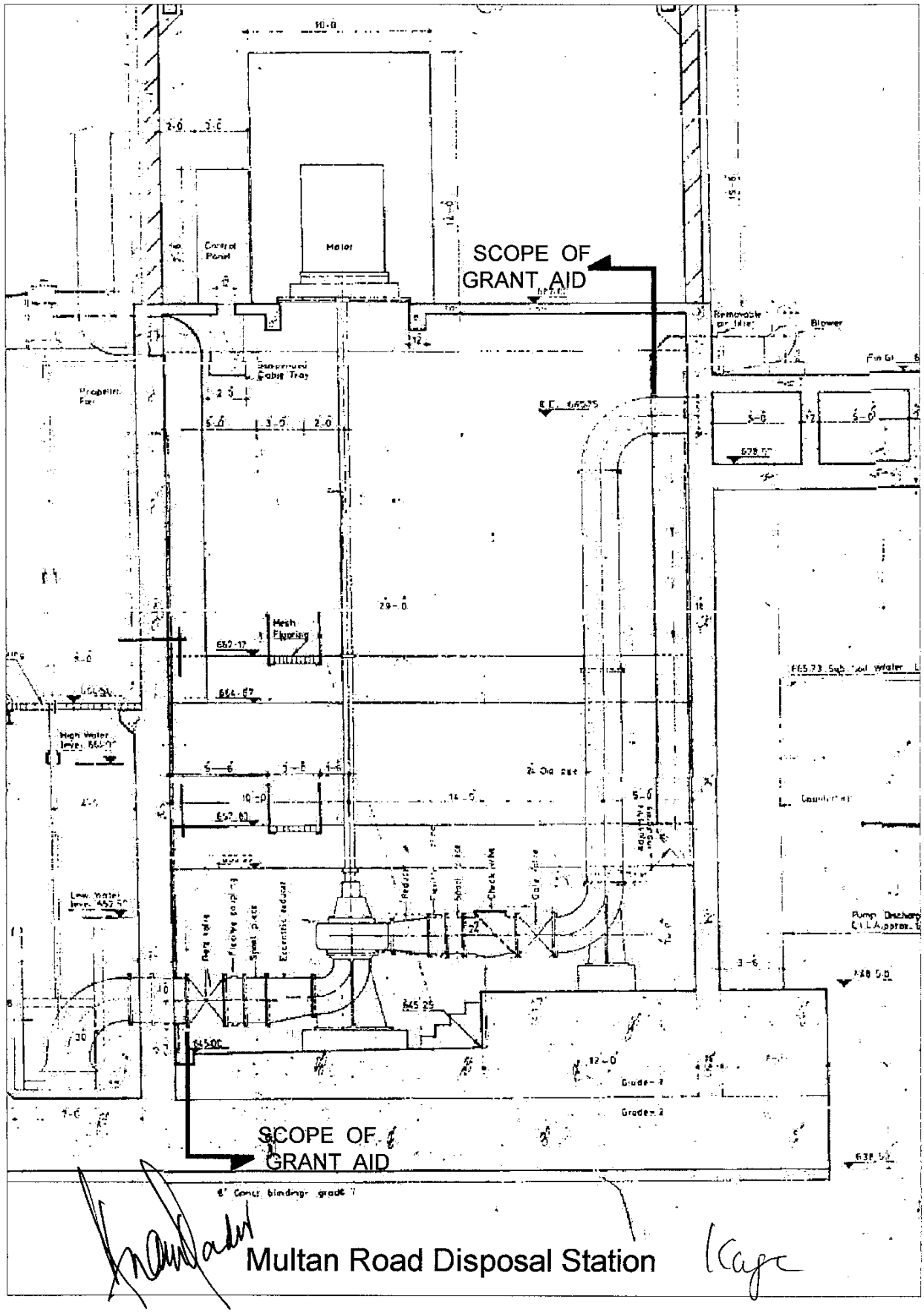

NEW DISCHARGE CHAMBER ON EXISTING CULVERT
TED FROM CONTRACT I
B
REMOVABLE GMS OPEN MESH COVER
MOTOR ROOM
210.790
NP STEPS CAST IN TO
ALL AT 300 C/C
300
1900
BREAK THROUGH EXISTING FLOOR SLAB WELD ON TRIMMER BARS TO RADIUS TRIM REINFORCEMENT TO SUIT CAST IN SLEEVE
MOTOR
CONTROL PANEL
210.360
300
150
550
209.660
SCOPE OF GRANT AID
MESH FLOORING
EXISTING CULVERT
1300
200
208.160
BEAM
EXPANSION JOINT
300
1500
ACTUATOR
EXISTING PIPEWORK TO BE REMOVED
PUMP ROOM
TIED COUPLING
BEAM
FLANGE ADAPTOR
PUMP
300
SCOPE OF GRANT AID
Shad Bagh Disposal Station



Note: Discharge Valve is not attached to exisiting pump in Gulshan-e-Ravi Disposal Station.

Gulshan-e-Ravi Disposal Station

Attached Document-3 (4/5)



Demarcation of Installation Work for Automatic Trash Rake System

Installation work of automatic trash raking system in Main Outfall Pumping Station will be demarcated as following table.

Work Item	To be covered by
(1) Preparation of additional transformer	WASA
(2) Wiring to Electric Panel from Transformer	WASA
(3) Any other relevant preparation for electric source	WASA
(4) Demolition and Removal of Existing Machinery	Grant Aid
(5) Relevant Civil Work (Reinforcement of Side Wall, Establishment of Base Concrete, e.t.c.)	Grant Aid
(6) Installation of New Trash Rake System	Grant Aid

(3) Briefing of Draft Basic Design Report

MINUTES OF DISCUSSION
ON
THE BASIC DESIGN STUDY
ON
PROJECT FOR THE RETRIEVAL OF SEWAGE AND DRAINAGE SYSTEM
IN LAHORE CITY
IN
THE ISLAMIC REPUBLIC OF PAKISTAN
(EXPLANATION ON DRAFT FINAL REPORT)

In August 2004, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on Project for the Retrieval of Sewage and Drainage System in Lahore City (hereinafter referred to as "the Project") to the Islamic Republic of Pakistan (hereinafter referred to as "Pakistan"), and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft final report of the study.

In order to explain and to consult Pakistan on the components of the draft final report, JICA sent to Pakistan the Draft Final Report Explanation Team (hereinafter referred to as "the Team"), which was headed by Mr. Nobuyuki Yamaura, Resident Representative, JICA Pakistan Office and was scheduled to stay in the country from November 5th to November 13th, 2004.

As a result of discussion, both parties confirmed the main items described on the attached sheets.

Lahore, November 10, 2004

MR. NOBUYUKI YAMAURA
Leader
Basic Design Study Team
Japan International Cooperation Agency

MR. JAVED ASLAM
Secretary
Housing, Urban Development & Public Health Engineering Department
Government of the Punjab

MR. MIAN AMER MAHMOOD
Chairman
Lahore Development Authority /
District Nazim
City District Government of Lahore

MR. MUHAMMAND ASHRAF KHAN
Joint Secretary
Economic Affair Division
Ministry of Economic Affairs & Statistics
The Government of Pakistan

MR. ARSHAD BIN AHMED
Member
Planning & Development Department
Government of the Punjab

MR. AKHLAQ AHMAD TARAR
Director General
Lahore Development Authority
City District Government of Lahore

MR. ANAM QADIR
Managing Director
Water & Sanitation Agency
Lahore Development Authority
City District Government of Lahore

ATTACHMENT

1. Components of the Draft Final Report

The Government of Pakistan agreed and accepted in principle the components of the draft final report explained by the Team.

2. RESPONSIBLE AGENCY AND IMPLEMENTING AGENCY

2-1. The Sponsoring Agency : Government of the Punjab

2-2. The Responsible Agency : City District Government of Lahore

2-3. The Implementing Agency : Water and Sanitation Agency (WASA)

WASA will set up PMU-II (**Annex-1**) with proper personnel arrangement immediately after the conclusion of Exchange of Notes between the two Governments.

PMU-II: in charge of implementing the cleaning of sewer pipes and open channels/drains using the machinery and equipment.

3. JAPAN'S GRANT AID SCHEME

Pakistan side has understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Pakistan as explained by the Team and described in Annex-5 and Annex-6 (except "9 3)") of the Minutes of Discussion signed by both parties on August 7, 2004 (refer to **Annex-2**).

4. Further Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Pakistan by the end of January 2005.

5. OTHER RELEVANT ISSUES

5-1. Pakistan side gave the Team their assurance that they would complete the following undertakings by the time as agreed upon:

(1) Construction of parking yard with PMU office by March 2005.

(2) Share of work responsibility for the equipment installation by November 2005.

(3) Preparation of sewage/drainage map by September 2005.

WASA will prepare the sewage /drainage map in accordance with requirements shown in **Annex-3**.

5-2. WASA explained to the Team the plan of disposal of the removed existing Automatic Trash Rake System as shown in **Annex-4**.

5-3. Both sides confirmed that internal transportation from the port of disembarkation to the project sites should be covered by Grant Aid. And the Government of Pakistan will be responsible for clearance of the custom duties and other taxes for the machinery, equipment and materials etc.

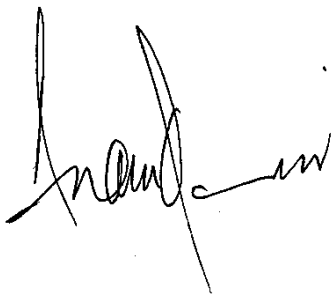
5-4. WASA explained to the Team about the utilization of monitoring pickup truck as shown in **Annex-5**.

5-5. Pakistan side explained to the Team to bear any operation and maintenance cost required for the Project. The District Government will provide financial supports to WASA as needs arise. The Team mentioned WASA was expected to improve their financial situation and to make the Project sustainable. WASA showed its financial recovery plan (**Annex-6**).

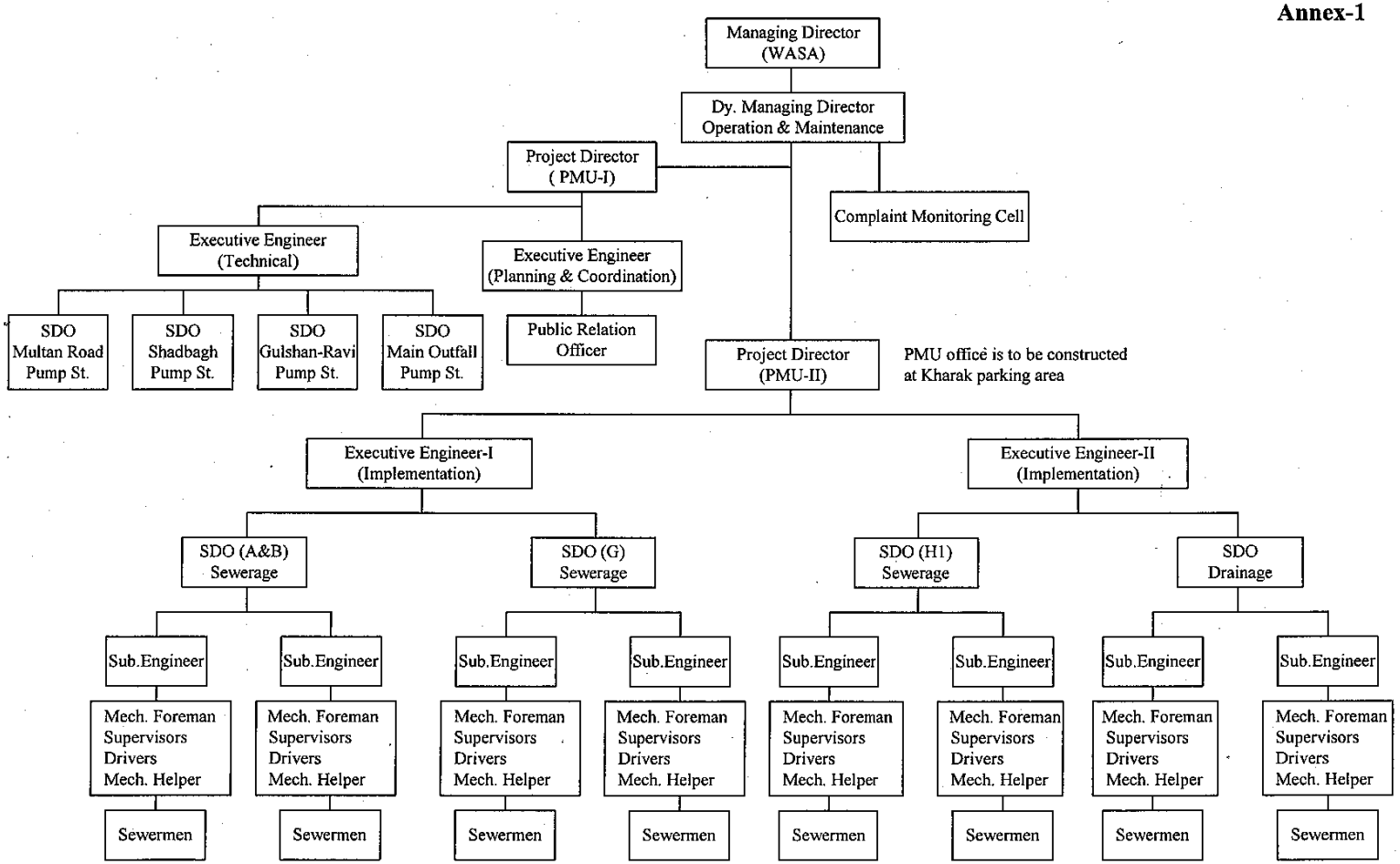
5-6. Pakistan side understood the Implementation Plan for technical guidance service (Soft-Component) as shown in **Annex-7** and the necessary measures to be taken by the Government of Pakistan as explained by the Team and described in **Annex-3**.

5-7. WASA explained that after the three years operation, the equipment would be repeatedly used in the same project area and if there would be not enough silt or garbage in pipes/channels, it might be used in other areas of the city.

5-8. The Team handed this draft quantity/specifications of the equipment and Draft Final Report to Mr. Pervaiz Iftikhar, Deputy Managing Director, Operation and Maintenance of WASA. Both sides agreed that the draft quantity/specifications and Draft Final Report are confidential and should not be duplicated or released to any outside parties.



Annex-1



Organizational Chart of PMU

JAPAN'S GRANT AID

【Japan's Grant Aid Scheme】

The Grant Aid Scheme 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. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedure

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

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan 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 Preparatory 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 th Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grar Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures ar necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guarantee even through they may fall outside of the jurisdiction of the organization in the recipient country actuall implementing the Project. Therefore, the implementation of the Project is confirmed by all relevan 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 procedur (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms o reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Desi anc 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 anc 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 re 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

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"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 refered 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.

9) 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.

ANNEX-6

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 when needed		●
2	To clear level and reclaim the site when needed		●
3	To construct gates and fences in and around the site when need		●
4	To construct the parking lot when need		●
5	To construct roads (Within the site & Outside the site)		●
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 city water distribution main to the site		●
	b) The supply system within the site (receiving and elevated tanks)		●
	3) Drainage		
	a) The city drainage main(for storm sewer and others to the site)		●
	b) The drainage system (for toilet sewer, ordinary waste, storm drainage and others)		●
	4) Gas Supply		
	a) The city gas main to the site		●
	b) The gas supply system within the site		●
	5) 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		●
	6) Furniture and Equipment		
	a) General furniture		●
	b) Installation of equipments		●
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 under the verified contract their entry into the recipient country and stay therein for the performance of the 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 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 installation of the equipment		●

WATER AND SANITATION AGENCY (LDA) LAHORE,PAKISTAN
4-A GULBERG-V

To,

JICA Basic Design Study Team,
For the Project for the Retrieval of
Sewerage and Drainage System in
Lahore City.

No. MD/ 6019-20 Dated: 08-11-2004

Ref: Project for Retrieval of Sewage and Drainage System in Lahore City.

Sub: Preparation of Design Drawings for Sewage & Drainage Systems of WASA Lahore City.

In the light of the discussions and consequent deliberations, WASA Management hereby agree to provide the Drawings as detailed below by September, 2005.

For Sewer Pipes

1) Target area: Zone A, B, G and H1

2) Target sewer pipe: Diameter 500 – 1,500mm

3) Total distance: L=79km (Zone A: 15km, Zone B: 15km, Zone G: 28km, and Zone H1: 21km)

4) Scale of drawings: S=1/2,400 (based on the drawings prepared by DFID in 1995)

5) Items to be identified: Location of sewer pipes with each diameter, distance and flow direction. Location of main manholes at each junction and turning corner. Available drains nearby for draining sewage during the cleaning work.

For Drains:

1) Target drain: Chota Ravi Drain, Central Drain, Lower Mall Drain, Edward Road Drain, Alfarah Drain, Gulberg Drain-1, Gulberg Drain-2, Gulshan-e-Ravi Drain, Mian Mir Drain and Babu Sabu Drain

2) Total distance: L=28km

3) Scale of drawings: S=1/2,400 (based on the drawings prepared by DFID in 1995)

4) Items to be identified: Width, depth, and distance of drain at every crossing object. Available roads along the drain for dredging work.

5) Other remarks: WASA, shall prepare drawings for target drains for planning a concrete drainage-cleaning schedule.

MANAGING DIRECTOR
WASA,LDA,LAHORE

Copy to:

1. Dy. Managing Director (Engg.)
2. Dy. Managing Director (O&M)

ANNEX-4

WATER AND SANITATION AGENCY (LDA) LAHORE, PAKISTAN
4-A GULBERG-V

To,

JICA Basic Design Study Team,
For the Project for the Retrieval of
Sewerage and Drainage System in
Lahore City.

No. MD/ 6017-18 Dated: 08-11-2004

Sub: Disposal of Old/Dismantled Trash Rake of Mainoutfall Pump Station

The existing trash rake system at Main-out-fall Pumping Station, will be dismantled and will be planned to repair and reuse it at some other WASA pumping station. In case the repair is not feasible, the same would be disposed off through auction as unserviceable material in accordance with the rules as practiced to the competitive bidders.

MANAGING DIRECTOR
WASA,LDA,LAHORE.

Copy to:

DMD (O&M)/ Incharge PMU

WATER AND SANITATION AGENCY (LDA) LAHORE, PAKISTAN
4-A GULBERG-V

To,

JICA Basic Design Study Team,
For the Project for the Retrieval of
Sewerage and Drainage System in
Lahore City.

No. MD/ 6015-16 Dated: 08-11-2004

Sub: Deployment Detail of Pick-up Trucks for Monitoring of the Project

It is intimated that following is the deployment plan of pick-up trucks to be received for monitoring of the Project in Lahore City:-

Sr. No.	No. of Vehicles	Responsible	User	Parking	Objective
1.	1	DMD (O&M)	Executive Engineer (CMC)	Head Office	Monitoring & Patrolling of Flooded areas and also for implementation of progress of the project.
2.	2	Project Director Implementation PMU-II	Executive Engineer-I SDO (A & B), SDO (G)	Shadbagh/ Mainoutfall	Monitoring & Patrolling of Flooded areas. Monitoring and inspection of the progress of the Project.
3.	1	Project Director Implementation PMU-II	Executive Engineer-II SDO H-I, SDO Drainage	Kharak	Monitoring & Patrolling of Flooded areas. Monitoring and inspection of the progress of the Project.

MANAGING DIRECTOR
WASA,LDA,LAHORE.

Copy to:

DMD (O&M)/Incharge PMU

WATER AND SANITATION AGENCY, LDA
4-A, GULGERG, LAHORE

JICA Study Team,

Project for the Retrieval of
Sewerage and Drainage System
in Lahore City.

NO. MD/ 6020-21 Date:08-11-2004

Subject: **OPERATION AND MAINTENANCE COST OF THE PROJECT**

The Project "Retrieval of Sewage and Drainage System in Lahore City" is being undertaken through JICA Grant in Aid for improvement of drainage capacity of existing pumping stations and removal of sludge and garbage from open channels through the City of Lahore. The Government of Punjab has approved Rs.100 million as counterpart funds to complete the project in three years. Thereafter, WASA will have to bear additional O&M cost for proper maintenance of the equipments and utilization of the machinery in field, through its own non-development Budget, which shall be met by:

1. Making all out efforts to enhance present collection efficiency of the recovery of current water and sewerage bills;

2. Action Plan to recover outstanding arrears against general public; and

3. Increase of Water and Sewerage Tariff, with the approval of Government, as and when required to meet the operating expenditure.

Further it is anticipated that the implementation of the Project will improve WASA service level during and after the three years of Project period, enabling consumers to pay the water and sewerage charges.

MANAGING DIRECTOR
WASA, LDA, LAHORE

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Technical Guidance Service (Soft Component)

(1) Background

With the view of minimizing flood damage in Lahore city, WASA has been emphasizing the necessity of recovering and even increasing the drainage capacity of existing sewage and drainage facilities. To attain this objective, WASA prepared an Action Plan to implement the project in northern part of the city and requested to the Government of Japan for the supply of proper equipment under the Grant Aid.

It seems that WASA's staff members are trained in order to quickly respond to the emergency case but not well prepared for planning or designing overall work system with strategic approach. Financial constraints may be one of the main reasons. Therefore, at the time of establishing PMU-II, it is desirable to assist them in developing their technical capability for the project management and operation.

From the above considerations, the project will include not only the procurement and installation of equipment but also technical guidance service, which consists of two components, work planning and fieldwork management. It is expected to be a tool for overcoming difficulties that lie ahead and will contribute to the project with sustainable effects.

To protect drain pipes/channels from garbage dumping, public awareness campaign will need to be promoted. However, it will not be included in Soft Component for the following reasons:

(a) Support or assistance is available from local NGOs having experience in this field.

(b) Budget is allocated to WASA in PC-1 for the campaign and activities, and subsequently it will be met from the yearly allocation for public relations in WASA revenue/operation budget.

(2) Objectives

Objectives to be accomplished through the technical guidance service are as follows:

(a) To achieve work plan (cleaning/desilting) as well as operation plan which should be technically viable and acceptable by PMU.

(b) To establish sustainable fieldwork management system through model implementation.

(3) Outputs (Direct Effects)

The technical guidance service will be provided in the fields of work planning/operation planning and fieldwork management through the supervision of model implementation, and the following effects are expected after the completion of such services:

Work planning/operation planning

- To develop capacity of PMU personnel as a result of acquiring technical knowledge on planning work.

Supervision of model implementation

- To accomplish desilting work in the selected model area within the specified period.
- To develop capacity of PMU personnel as a result of acquiring knowledge on fieldwork management system.

(4) Confirmation of Outputs

Prior to the completion of the technical guidance service, the above outputs can be confirmed by the following ways:

Work planning/operation planning

- Accuracy of cleaning/desilting plan to be prepared on the map at a scale of 1/2,400 (to be checked by calculation sheet and equipment deployment scheme).
- Understanding of the manual's description on mechanical check and inspection (to be checked by a test).

Supervision of model implementation

- Volume of desilted material (record available from the final disposal site).
- Number of accidents occurred under the safety control during the work (setting zero as a target).

(5) Activities (Inputs)

Work planning/operation planning

One Japanese consultant will be assigned to assist XENs and SDOs of PMU in preparing desilting work plan. A map showing existing sewage and drainage systems is extremely important for the subsequent planning work so it will be prepared by WASA by the end of September 2005, and then carefully reviewed by the Japanese expert to complete the map prior to the commencement of the planning. The required work will include the following:

(a) Review of the sewage/drainage map at a scale of 1/2,400 prepared by WASA (accuracy check and correction will be carried out together with Project Director and XENs).

(b) Preparation of desilting plan for the first year and the first quarter of the year (work schedule, equipment deployment plan, etc. will be prepared together with Project Director and XENs).

(c) Following monitoring works and analysis, which should be conducted together with XENs and SDOs:

- To observe flood coverage area, water depth and draining time at 20 designated sites when heavy rainfall hits the city.
- To totalize the number of complaints to WASA by creating systematic way.
- To estimate the volume of silt removed from sewage pipes and drainage channels (information will be available from the records of the final disposal site).

(d) Preparation of manual on routine check/inspection for the equipment (the work will be carried out together with XENs and SDOs).

The consultant to be assigned for the above work will serve his expertise for a period of two (2) months.

Supervision of model implementation

One Japanese consultant will provide technical assistance for the fieldwork management to XENs and SDOs through the model implementation. In this regard, particular attention will be paid to the work schedule and work progress rate, which may be observed on the basis of removed silt volume. It

is also extremely important that safety control and quality control be maintained as a priority during the whole project period as the work will be carried out in urban areas. The zone "A" will be selected for the model implementation by the following reasons: (1) area recurrently flooded in monsoon period, and (2) project effects observable even in a short period of implementation. As to drainage channels, there exists only small open channel in zone "A", so that a part of Central Drain in zone "H1" will be selected for the large channel cleaning/desilting. The consultant will be assigned for three months to supervise the work. Further details of the work are given below:

Sewage Pipes (Western part of zone"A")

Team	Pipe length [m]	Diameter [mm]	Estimated Volume [m^3]
1	1,300	ϕ 1,350, ϕ 1,500	600
2	1,000	ϕ 1,200	1,300
3	2,500	ϕ 600, ϕ 900	570
4	2,300	ϕ 600, ϕ 900	560
Total	7,100		3,030

Drainage Channel (Open Channel)

Team	Channel length [m]	Estimated Volume [m^3]	Observation
Chota Ravi (Zone A)	1,100	4,500	Small (width: less than 4m)
Central Drain (Zone H1)	1,900	26,300	Large (width: over 4m)
Total	3,000	30,800	

(6) Method of Service to be Provided

Japanese consultants will provide the technical guidance service for the following reasons:

- Pakistan is short of experts specialized in planning and operation/management for sewage and drainage system.
- There is a shortage of qualified engineers to supervise desilting and drainage works in WASA.
- As there is no donor in Pakistan in the sector of sewage and drainage

except Japan, experts are not available from the third countries.

(7) Implementation Work

Consultant to be assigned for the work planning/operation planning is scheduled to dispatch to Pakistan at the middle of October 2005, and will start preparing desilting plan in PMU office soon after the meeting with authorities of WASA. Sewage and drainage map at a scale of 1/2,400 will need to be prepared by WASA as a precondition by the end of September 2005.

Supervisor of the model implementation work will take up his assignment after the completion of desilting plan. It will be around the middle of December 2005 after OJT is properly provided to the equipment operators of PMU under the responsibility of the Contractor.

(8) Output Materials

The output material or products are as follows:

Work planning/operation planning

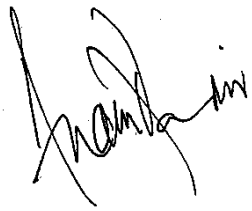
- Finalized sewage and drainage map covering the project area
- Cleaning/desilting plan (including work schedule, equipment deployment schedule, etc.)
- Monitoring record (flood situation, complaints from the residents)
- Manual for mechanical checkup and inspection

Supervision of model implementation

- Work schedule (real) and work achievement record (volume of removed silt and/or length of pipes/channels with the work completed).

(9) Obligation of the Recipient Side

WASA will assign its staff and responsible persons, who belong to PMU and will be in charge of actual operation and management of the cleaning plan, for the technical guidance (soft component) service presented by the Consultant.



5. Cost Estimate Borne by the Recipient Country

Preparatory Works by Pakistani Side and Their Expenses

Name of Pumping Station	Number of Existing Pumps	Number of Pumps to be Installed	Number of Automatic Trash Rake System to be Installed	Preparatory Works by Pakistani Side	Necessary Expenses [Rs. million]
Shad Bagh Pumping Station	4	2	-	Installation of wirings from the transformer to the control panel. Existing transformer (1500kVA) has a capacity for all of the pumps including new ones.	0.1
Gulshan-e-Ravi Pumping Station	12	2	-	Installation of wirings from the transformer to the control panel. Installation of a new transformer (630 kVA).	0.7
Multan Road Pumping Station	4	2	-	Installation of wirings from the transformer to the control panel. Existing transformer (1500kVA) has a capacity for all of the pumps including new ones.	0.1
Main Outfall Pumping Station	-	-	1	Installation of wirings from the transformer to the control panel. Existing transformer has a capacity for the new automatic trash rake system. Disposal of removed machinery.	0.1
Total	20	6	1		1.0