

## ***APPENDICES***

## **Appendices**

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Member List of the Study Team

(1) Field Study of the Basic Design

Name	Designation	Affiliation
Mr. Shigetada KAYUMI	Team Leader	Senior Adviser, Institute of International Cooperation, JICA
Mr. Katsuya KUGE	Project Coordinator	Rural Development and Environment Team, Project Management Groupe II, Grant Aid Management Department, JICA
Mr. Yuzo MIZOTA	Project Manager/ Flood Forecasting and Warning System Planner/ Cost Estimator for Facilities	CTI Engineering International Co., Ltd.
Mr. Kenichiro KONDO	Flood Forecasting and Warning Equipment Planner	CTI Engineering International Co., Ltd.
Mr. Yoshiharu MATSUMOTO	Flood Forecasting and Warning Facility Planner/ Natural Condition Surveyor	CTI Engineering International Co., Ltd.
Mr. Takeshi SASAHARA	Flood Hazard Mapping & Evacuation Planner	CTI Engineering International Co., Ltd.
Mr. Yoshiaki HIRONAKA	Telecommunication Planner	CTI Engineering International Co., Ltd.
Mr. Makoto MITSUKURA	Cost Estimator for Equipment / Procurement Planner	CTI Engineering International Co., Ltd.

(2) Briefing of Draft Basic Design Report

Name	Designation	Affiliation
Mr. Nobuyuki YAMAURA	Team Leader	Resident Representative, JICA Pakistan Office
Mr. Katsuya KUGE	Project Coordinator	Rural Development and Environment Team, Project Management Groupe II, Grant Aid Management Department, JICA
Mr. Yuzo MIZOTA	Project Manager/ Flood Forecasting and Warning System Planner/ Cost Estimator for Facilities	CTI Engineering International Co., Ltd.
Mr. Kenichiro KONDO	Flood Forecasting and Warning Equipment Planner	CTI Engineering International Co., Ltd.
Mr. Takeshi SASAHARA	Flood Hazard Mapping & Evacuation Planner	CTI Engineering International Co., Ltd.

## Study Schedule

### (1) Field Study of the Basic Design

No	Date	Day	Activity
1	8/23	Mon	Tokyo → Islamabad (PK853, 14:00-21:05)
2	24	Tue	Courtesy Call to Embassy of Japan (EOJ) and JICA Holding Steering Committee in Federal Flood Commission (FFC)
3	25	Wed	Courtesy Call to Pakistan Meteorological Department (PMD)
4	26	Thu	Field Survey ( Rainfall Gauging Stations )
5	27	Fri	Field Survey ( Rainfall Gauging Stations, Warning Stations and so on )
6	28	Sat	Field Survey ( Water Level Gauging Stations, Warning Stations and so on ) Review of the results of studies concerned
7	29	Sun	- Ditto -
8	30	Mon	Field Survey (Water Level Gauging Stations), Survey on the observation system
9	31	Tue	Data Collection, Survey on the observation system and forecasting and warning system
10	9/1	Wed	Data Collection, Survey on the forecasting and warning system
11	2	Thu	Data Collection, Survey related to evacuation
12	3	Fri	Data Collection, Survey related to evacuation
13	4	Sat	Data Collection, Survey on the operation and maintenance system
14	5	Sun	Data Collection
15	6	Mon	Survey on project benefit and equipment procurement conditions
16	7	Tue	Survey on project benefit and equipment procurement conditions
17	8	Wed	Field Survey, Examination of basic concept of the Project
18	9	Thu	Field Survey, Examination of basic concept of the Project
19	10	Fri	Field Survey, Basic design for equipments and facilities
20	11	Sat	Field Survey, Basic design for equipments and facilities, Estimation of project cost
21	12	Sun	Field Survey, Estimating Project Cost
22	13	Mon	Field Survey, Survey on Pakistan side responsibility and issues of the Project
23	14	Tue	Courtesy Call to JICA, EAD, MWP and CDA
24	15	Wed	Courtesy Call to and meeting with PMD, Field Survey
25	16	Thu	Holding Steering Committee
26	17	Fri	Report to EOJ
27	18	Sat	Signing of the M/D
28	19	Sun	Preparation of report on the results of field survey
29	20	Mon	Preparation of report on the results of field survey Islamabad → Karachi → Bangkok (PK309, 19:00-20:55), (CX2700, 23:30-6:30)
30	21	Tue	Bangkok → Tokyo (JL708, 8:35-16:35)

## (2) Briefing of Draft Basic Design Report

No	Date	Day	Activity
1	2/20	Sun	Tokyo → Bangkok (JL717, 10:55 – 15:55) → Lahore (TG505, 19:45 – 22:45)
2	21	Mon	Lahore → Islamabad (PK356, 8:00 – 8:50) Courtesy Call and meeting with JICA
3	22	Tue	Meeting with PMD
4	23	Wed	Meeting with TMA
5	24	Thu	Meeting with RDA
6	25	Fri	Meeting with Cantonment Board
7	26	Sat	Meeting with MWP
8	27	Sun	Internal Meeting
9	28	Mon	Meeting concerning project cost with PMD
10	3/1	Tue	Meeting concerning project cost with TMA and Cantonment Board
11	2	Wed	Meeting concerning project cost with Director of PMD
12	3	Thu	Holding Steering Committee in FFC Islamabad → Lahore (PK381, 19:30 – 20:20) → Bangkok (TG506, 23:50 – 6:20+1)
13	4	Fri	Bangkok (6:20) → Tokyo (JL708, 8:35 – 16:35)

List of Parties Concerned in the Recipient Country

Department	Name	Position	Telephon
1. Federal Flood Commission (FFC)	Mr. Illahi. B. Shaikh	Chief Engineering Advisor	
	Mr. Rehmat Kamal	Superintending Engineer(Floods)	92244061
	Mr. Yugo Matsuda	JICA Expert / Irrigation	9213455
2. Pakistan Meteorological Department (PMD)	Dr. Qamar-Uz-Zaman	Director General	9257314
	Chaudhry	Chief Meteorologist	9257313
	Mr. Anjum Bari	Deputy Director	9257316
	Mr. Jan Muhammad Khan	Deputy Director	9257316
	Mr. Hazrat Mir	Engineer	
3. Tehsil Municipal Administration Rawalpindi (TMA)	Mr. Khawaja Javaid Latif	(TMO )	5774649
	Mr. Aftab Ahmad Chohan	Chief Officer	5770886
	Mr. G.M Naz	Assistant Fire Officer	5774649
4. Rawalpindi Development Authority (RDA) Water and Sanitation Authority (WASA)	Mr. Pervez Mehmood	Managing Director	5539073
	Mr. Aslam Sabazwari	Deputy Managing Director	5774444
	Mr. M Shahid Azhar	Director Sanitation & Drainage	5554531
	Mr. Sher Alizaidi	Director Engineer	5556580
	Mr. Shahid Azhar	Director (S&D), WASA	5554531
	Mr. Raja Shaukat	Director(Admin), WASA	5554151
5. Capital Development Authority (CDA)	Mr. Shafiq Ali Siddiqui	Director, Regional Planning	9202595
6. Cantonment Board, Rawalpindi	Mr. Niaz A. Shaikh	Chief Engineer	9270162
7. Ministry of Water and Power	Mr. Muhammad Akram		9209566
8. Small Dams Organization, Irrigation & Power, Punjab	Mr. Ijaz Kashif	Design Engineer	9219609
9. Headquarter Engineers 10-Corps, Rawalpindi	Mr. Najib	Brigadier	5092350
10. Embassy of Japan	Mr. Kazunobu Shimura	Second Secretary	2279320
11. JICA Pakistan Office	Mr. Nobuyuki Yamaura	Resident Representative	2829473/8
	Ms. Sachiko Misumi	Sr. Deputy Resident Representative	
	Mr. Makoto Takahashi	Deputy Resident Representative	
	Mr. Mahmood A. Jilani	Chief Programming Officer	

Minutes of Discussions

- M/D1 Field Study of the Basic Design
- M/D2 Briefing of the Draft Basic Design Report

MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY  
ON  
THE LAI NULLAH FLOOD FORECASTING AND WARNING SYSTEM PROJECT  
IN  
ISLAMIC REPUBLIC OF PAKISTAN

In response to a request from Islamic Republic of Pakistan (hereinafter referred to as "Pakistan"), the Government of Japan decided to conduct a Basic Design Study on the Lai Nullah Flood Forecasting and Warning System Project (hereinafter referred to as "the Project" ) and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Pakistan the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Shigetada KAYUMI, Senior Adviser, Institute for International Cooperation, JICA, and is scheduled to stay in the country from 23 August to 20 September, 2004.

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

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

Islamabad, 18 September, 2004

家子重正

Shigetada Kayumi  
Leader  
Basic Design Study Team  
Japan International  
Cooperation Agency  
Japan

I. B. Sheikh

I. B. Sheikh  
Chairman  
Federal Flood Commission  
Ministry of Water and Power  
Islamic Republic of Pakistan

H.M.

Raja Tariq Kiani  
Zila Nazim  
Rawalpindi  
Islamic Republic of Pakistan

M.A. Khan

Muhammad Ashraf Khan  
Joint Secretary  
Ministry of Economic Affairs  
and Statistics  
Islamic Republic of Pakistan

Anjum Bari Farooqi

Anjum Bari Farooqi  
Chief Meteorologist  
Pakistan Meteorological  
Department  
Islamic Republic of Pakistan

H.M.

Hamid Nawaz Raja  
Tehsil Nazim/Chairman  
Rawalpindi Development  
Authority, Rawalpindi  
Islamic Republic of Pakistan





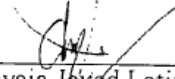
Bashir Ahmad  
Deputy Director  
Islamabad Capital Territory,  
Islamic Republic of Pakistan



CM Habib Ullah  
District Officer (Revenue)  
Rep. of D.C.O. District  
Government, Rawalpindi  
Islamic Republic of Pakistan



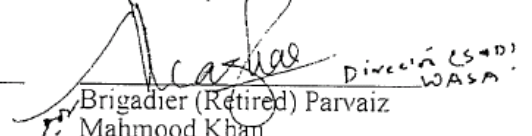
Shafiq Ali Siddiqui  
Director Regional Planning  
Capital Development  
Authority  
Islamic Republic of Pakistan



Khawaja Javed Latif  
Tehsil Municipal Officer  
Tehsil Municipal  
Administration, Rawalpindi  
Islamic Republic of Pakistan




Niaz Ahmad Shaikh  
SCE/PD, KDP  
Rawalpindi Cantonment  
Board, Rawalpindi  
Islamic Republic of Pakistan



Brigadier (Retired) Parvaiz  
Mahmood Khan  
Managing Director  
WASA, Rawalpindi  
Islamic Republic of Pakistan

Director (S&D)  
WASA



## ATTACHMENT

### 1. Objectives of the Project

The objective of the Project is to strengthen the flood forecasting and warning system in Lai Nullah Basin for mitigation of flood damage.

### 2. Project Site

The Project sites are in Islamabad and Rawalpindi, Pakistan, as shown in Annex-1.

### 3. Responsible and Implementing Agency

- 3-1. The responsible and coordination agency is Federal Flood Commission (hereinafter referred to as "FFC"), Ministry of Water and Power. The organization chart of FFC is shown in Annex-2.
- 3-2. The implementing agencies are Pakistan Meteorological Department (hereinafter referred to as "PMD") and Tehsil Municipal Administration, Rawalpindi (hereinafter referred to as "TMA"). The organization charts of PMD and TMA are shown in Annex-3 and 4.
- 3-3. Both sides agreed to include PMD as a new member in the existing list of the Steering Committee for the Project, as shown in Annex-5.

### 4. Japan's Grant Aid Scheme

The Pakistani side has understood the Japan's grant aid scheme explained by the Team, as described in Annex-6.

### 5. Project Management Unit

- 5-1 The Pakistani side shall establish the Project Management Unit (hereinafter referred to as "the PMU") for the coordination, guidance and supervision for the smooth implementation and operation/ maintenance of the Project. The organization chart of the PMU is shown in Annex-7.
- 5-2 The Pakistani side shall confirm the task sharing of their undertakings for construction and maintenance among the PMU as shown in Annex-8.
- 5-3 The PMU shall set up the operational code such as the staged flood warning code including followings.
  - (1) Role of each related agency
  - (2) Standard of flood warning announcement
  - (3) Responsible person for flood warning announcement

### 6. Items requested by the Government of Pakistan and the agency responsible for operation and maintenance of each item

- 6-1. After discussions with the Team, the items shown in Annex-9 were finally requested by the Pakistani side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

6-2. The responsible agency is shown in Annex-9 for operation and maintenance of each requested item.

#### 7. Schedule of the Study

7-1 The Team will proceed to further survey and study in Pakistan until 20 September, 2004.

7-2 JICA will prepare the Draft Final Report in English and dispatch a mission in order to explain its contents around November, 2004.

7-3 In case that the contents of the Draft Final Report are accepted in principle by the Government of Pakistan, JICA will complete the final report and send it to the Government of Pakistan by January, 2005.

#### 8. Other Relevant Issues

8-1. The Pakistani side promised to allocate the necessary budget and personnel for operation and maintenance for the Project. The Team promised that the additional cost and personnel for the operation and maintenance for the Project would be estimated and reported to the Pakistani side in the Draft Final Report.

8-2. The Pakistani side confirmed that all pieces of land for the Project except Golra site are state property, and the land of Golra site is private property. The PMU shall obtain the written agreement for the land use with the concerned authorities and land owner by the end of October, 2004.

8-3. The Pakistani side requested the following technical supports to promote further results of the Project. The team will consider the necessity, appropriateness and contents of the technical support in the further study.

(1) Planning of flood risk management including improvement of staged flood warning code

(2) Flood hazard mapping

(3) Public Awareness of evacuation plan including popularization of flood hazard map

(4) Flood discharge analysis

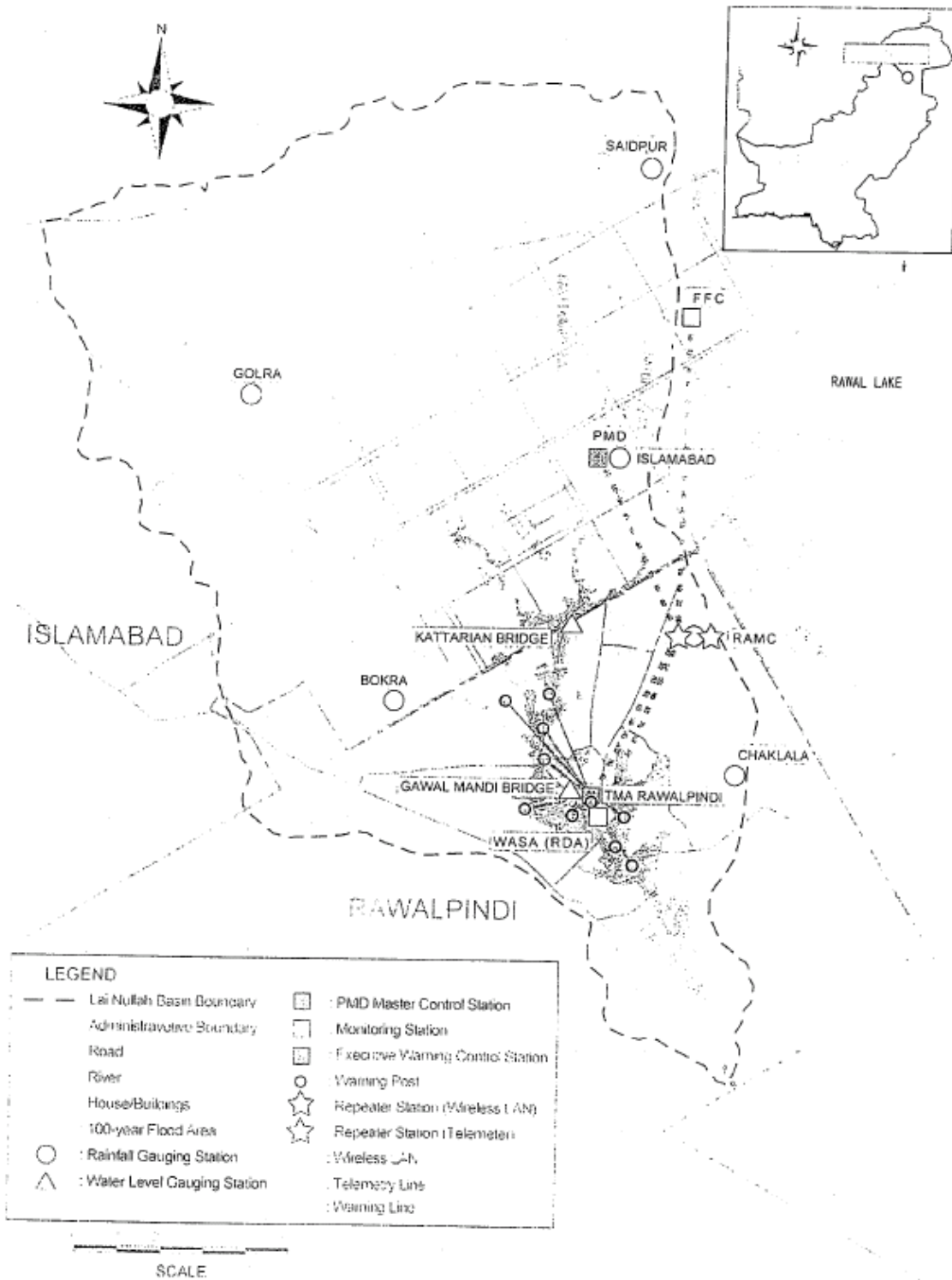
(5) System operation and maintenance

8-4. Both sides agreed that the security houses for the gauging stations should be constructed by the Pakistani side.

8-5. Both sides agreed that the installation of monitoring station and water level stations in Fatima Jinnah Park should be excluded from the scope of the Project.

8-6. The Pakistani side confirmed that PMD shall obtain the official approval for the usage of the proper frequency of the telemetry and LAN systems for the Project from the Frequency Allocation Board, Pakistan Telecommunication Authority.

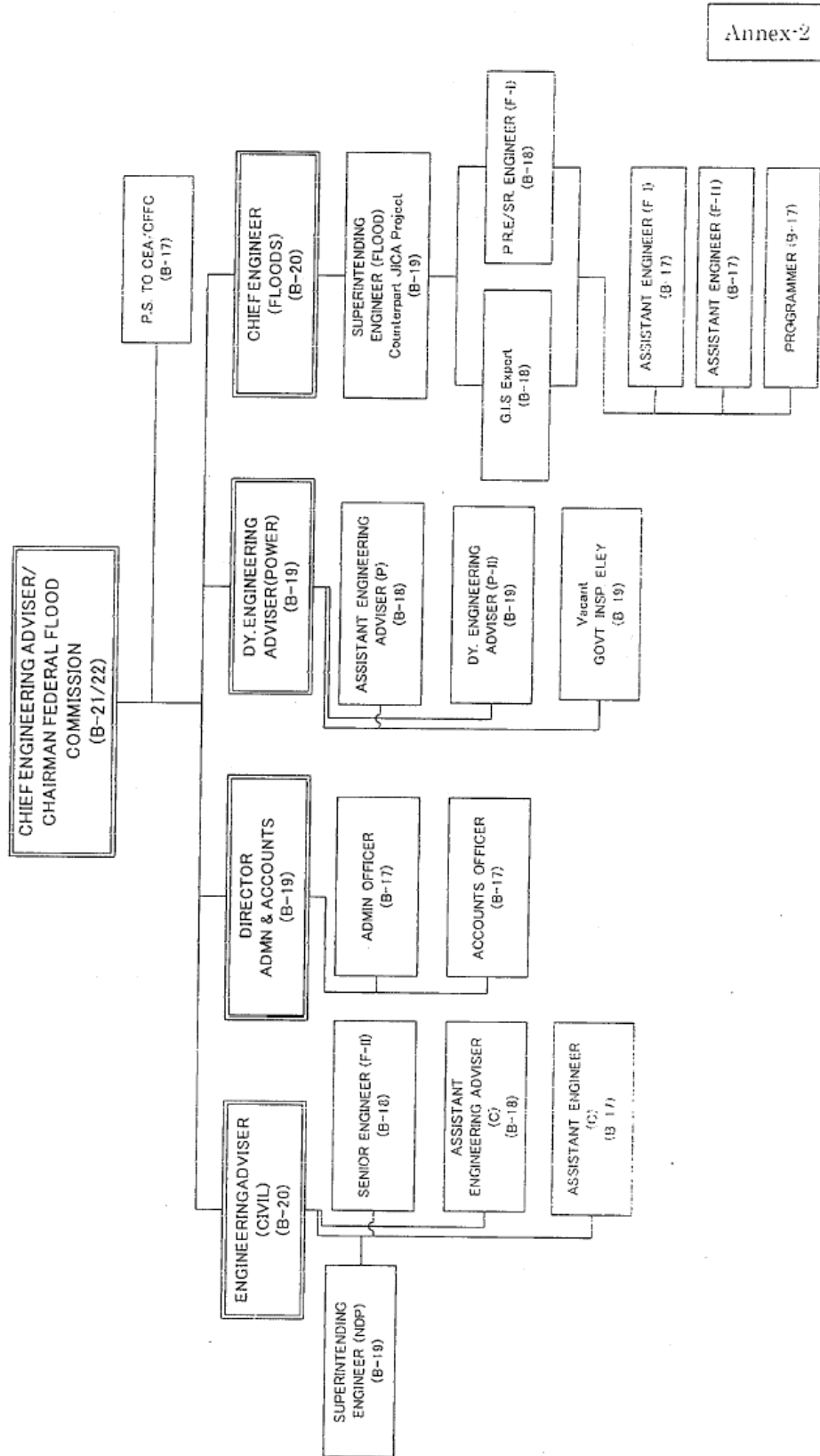
8-7. The Pakistani side promised that, in case the need for revision of the PC-1 for the Project arises, then the revision shall be got approved from concerned forum (ECNEC) of Planning & Development Division, Government of Pakistan.



**Project Site**

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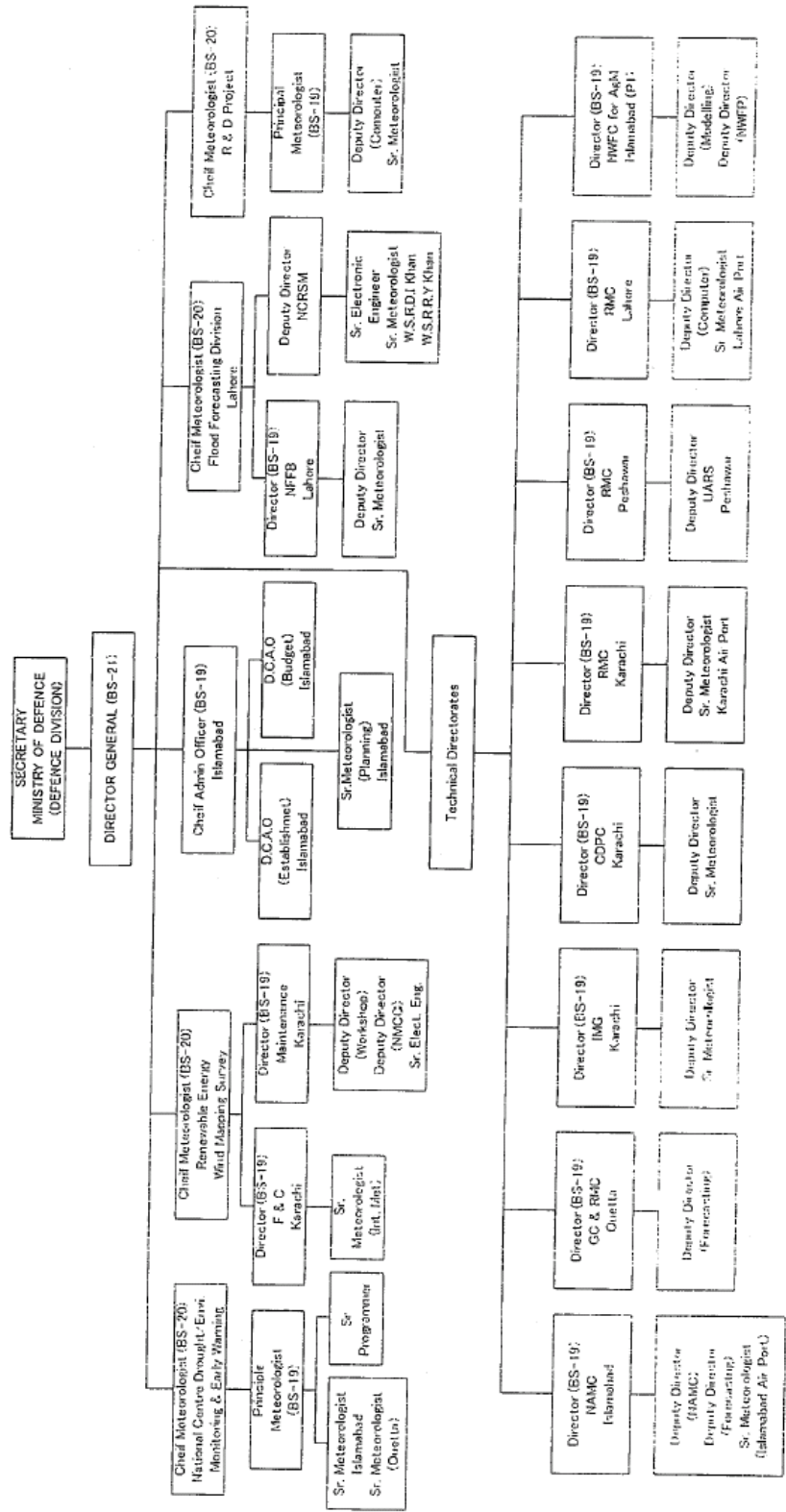
# Organization Chart of Office of FFC



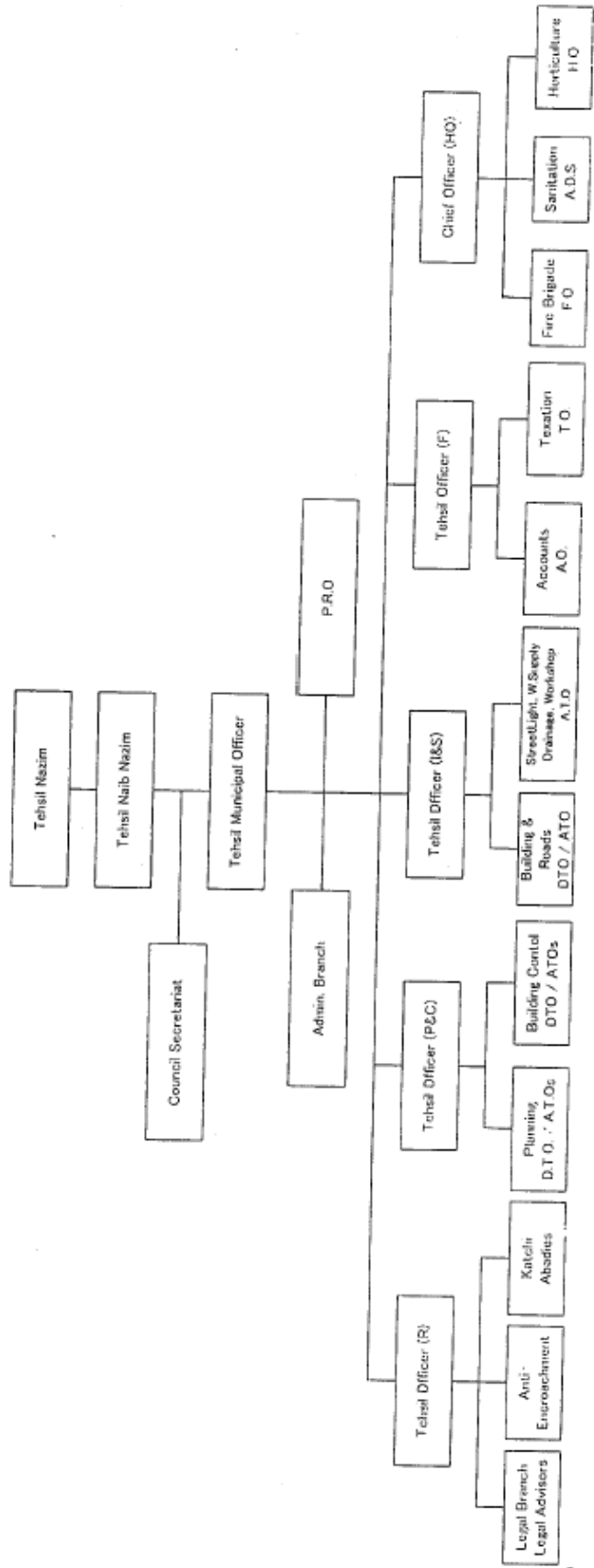
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Organization Chart of  
Pakistan Meteorological Department



**Organization Chart of  
Tehsil Municipal Administration, Rawalpindi**



Annex-4

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*[Handwritten signatures]*

Table A-1 Members of the Steering Committee

Designation		Position
Chief Engineering Adviser (Grade-21)	:	Chairman
Chairman of Federal Flood Commission	:	Member
Representative of Engineering Directorate, GHQ, Rawalpindi	:	Member
Representative of 10-Corps, Rawalpindi	:	Member
One Representative each from RDA, TMA, RCB, CDA.	:	Members
Small Dam Organization of PID Punjab	:	Member/Secretary
Chief Engineer (Floods)	:	Member
Representative of PMD	:	Member



## 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 (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 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.

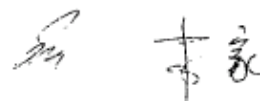
4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

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"

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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

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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.

### PROJECT MANAGEMENT UNIT

The Project Management Unit (PMU) to be set up under the Steering Committee for the implementation of construction of the Lai Nullah Flood Forecasting and Warning Project (hereinafter called as "the Project") shall consist of members from the Federal Flood Commission (FFC), the Pakistan Meteorological Department (PMD), and the Tehsil Municipal Administration of Rawalpindi (TMA-Rawalpindi) during the installation stage. The organizational setup in this stage is shown in **Figure A-1**.

The PMU shall consist of members from the Federal Flood Commission (FFC), the Pakistan Meteorological Department (PMD), the Tehsil Municipal Administration of Rawalpindi (TMA-Rawalpindi) and Water and Sanitation Agency (WASA) under the Rawalpindi Development Authority (RDA), during the operation and maintenance stage of the Project, as shown **Figure A-2**

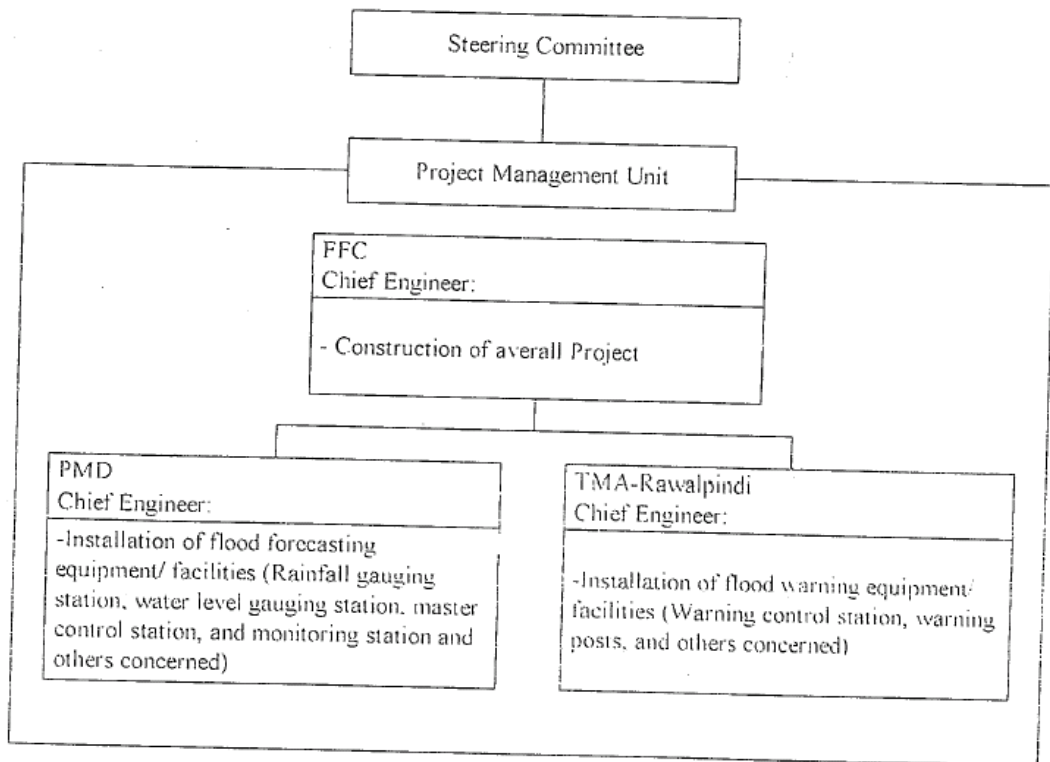


Figure A-1 Project Management Unit during the Installation Stage

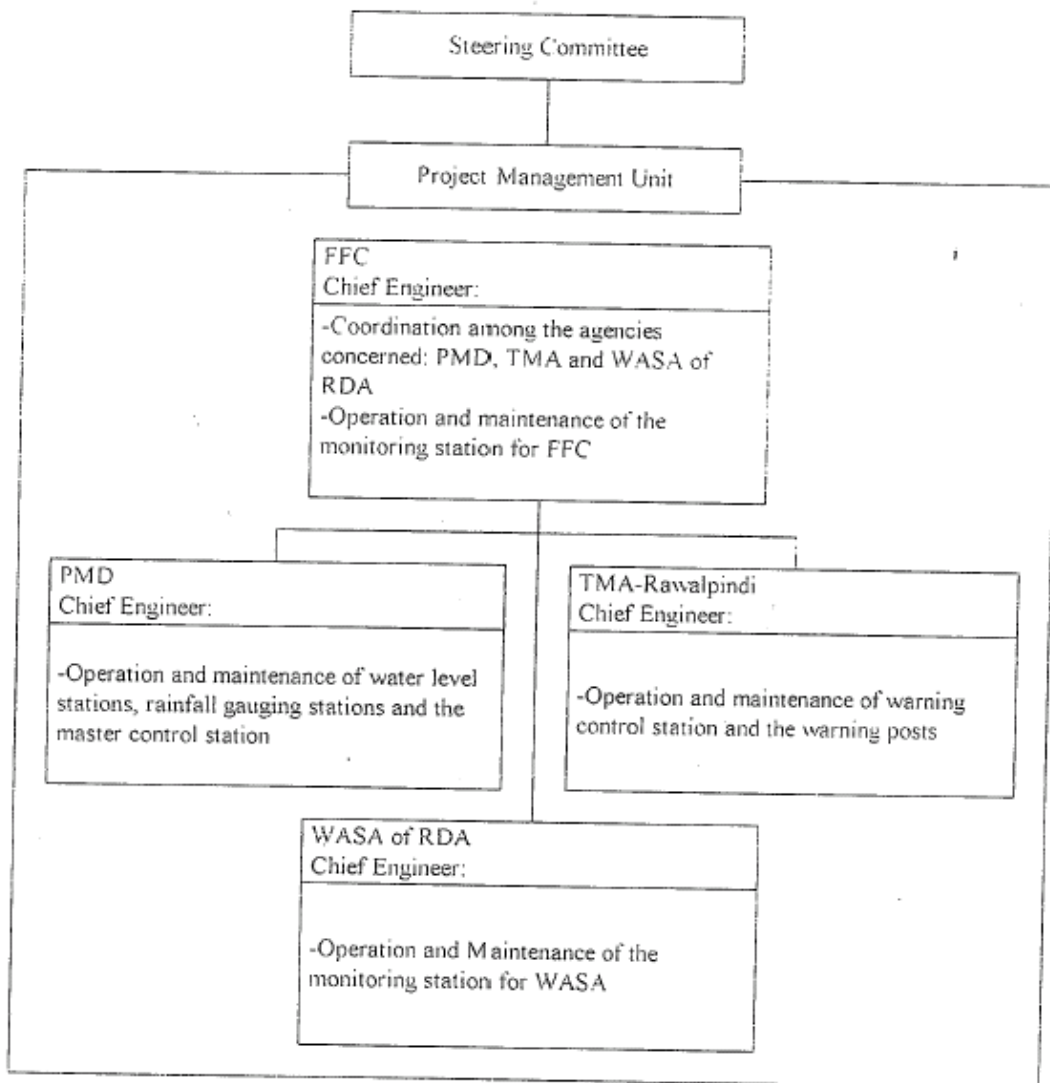


Figure A-2 Project Management Unit during the Operation and Maintenance Stage

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## Major Undertakings to be taken by Each Government for construction and maintenance

No.	Items	Japan	FFC	PMD TMA WASA
1	To secure land			
2	To clear level and reclaim the site		○	○
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			
6	To construct the station house	●	○	○
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) within the site	●		
	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) 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		○	○



## Responsible Agency for Operation and Maintenance

Location of Station	Function	Responsible Agency for O & M
<b>1. Master Control Station</b>		
PMD, Islamabad	<ul style="list-style-type: none"> <li>· Collection of hydrological and flood forecasting data</li> <li>· Data processing</li> <li>· Dissemination of flood information to concerned agencies through data transmission subsystem</li> </ul>	PMD
<b>2. Rainfall Gauging Station</b>		
2.1 PMD, Islamabad	Automatic observation of rainfall by radio telemetry subsystem	PMD
2.2 Saidpur		
2.3 Gorla		
2.4 Bokla		
2.5 RAMC		
2.6 Chaklala		
<b>3. Water Level Gauging Station</b>		
3.1 Kattarian Bridge	Automatic observation of water level by radio telemetry system	PMD
3.2 Gawal Mandi Bridge		
<b>4. Repeater Station</b>		
4.1 RAMC Telemetry Repeater	Repeating function of radio telemetry subsystem	PMD
4.2 RAMC Wireless LAN Repeater	Repeating function of data transmission subsystem	
<b>5. Monitoring Station</b>		
5.1 FFC	Monitoring of flood information through data transmission subsystem	FFC
5.2 WASA of RDA	Monitoring of flood information through data transmission subsystem	WASA of RDA
<b>6. Executive Warning Control Station</b>		
TMA Rawalpindi: - Warning Control & Supervisory - Flood Information Monitoring	Control and supervision of flood warning post Monitoring of flood information through data transmission subsystem	TMA
<b>7. Flood Warning Post</b>		
7.1 WP-1: TMA Rawalpindi Building	Dissemination of flood warning by siren and loudspeaker	TMA
7.2 WP-2: Christian Colony Arra Muhallah		
7.3 WP-3: Water Treatment behind MC Dispensary		
7.4 WP-4: Ratta Amral Bridge		
7.5 WP-5: Back of tube well, Gunj Mandi Bridge		
7.6 WP-6: Tube well near Pir Wdhai Bridge		
7.7 WP-7: Fire Station Pir Wadhai		
7.8 WP-8: Sector IV-B, Khayaban Park		
7.9 WP-9: Gawal Mandi Children's Park		
7.10 WP-10: Government Middle School, Dhoke Chiraghadin		

\* Three (3) units of 4WD type vehicles for emergency and operation/maintenance are required to install for FFC, PMD and TMA

## 主要面談者リスト

Name	Position	Organization
志村書記官		在パキスタン日本大使館
山浦所長		JICA パキスタン事務所
三角次長		JICA パキスタン事務所
高橋所員		JICA パキスタン事務所
Mr. Mahmood A. Jilani	Chief Program Officer	JICA パキスタン事務所
松田専門家		Federal Flood Commission (FFC)
Mr. I. B. Sheikh	Chairman	FFC
Mr. Rehmat Karnal	Superintending Engineer	FFC
Dr. Qamar Zaman Chaudry	Director General	Pakistan Meteorological Department (PMD)
Mr. Aujum Bari	Chief Meteorologist	PMD
Mr. Jan Muhammad Khan	Deputy Director	PMD
Mr. Khawaja Javaid Latif	TMO	Tehsil Municipal Administration, Rawalpindi (TMA)
Mr. Aftab Ahmad Chohan	Chief Officer	TMA
Mr. Parvaiz Mahmood Khan	Managing Officer	WAWA, Rawalpindi
	Secretary	Ministry of Water & Power
Mr. Raja. Tariq Kiani	Zila Nazim	Rawalpindi
Mr. Bashir Ahmad	Deputy Director	Islamabad Capital Territory
Mr. Shafiq Ali Siddiqui	Director Regional Planning	Capital Development Authority
Mr. Niaz Ahmad Shaikh	Chief Engineer	Rawalpindi Cantonment Board
Mr. Habib Ullah	District Officer	D.C.O
Mr. Muhammad Khan	Joint Secretary	Economic Affairs Division

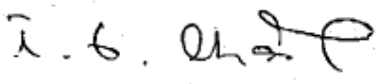
MINUTES OF DISCUSSION  
ON  
THE BASIC DESIGN STUDY  
ON  
THE LAI NULLAH FLOOD FORECASTING AND WARNING SYSTEM PROJECT  
IN  
ISLAMAIC REPUBLIC OF PAKISTAN  
(EXPLANATION OF DRAFT FINAL REPORT)

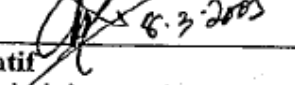
In September 2004, the Japan International Cooperation Agency (hereinafter referred as "JICA") dispatched the Basic Design Study Team on the Lai Nullah Flood Forecasting and Warning System Project (hereinafter referred to as "the Project"), and through discussion, field survey and technical examination of the study in Japan, JICA prepared a draft final report of the study.


In order to explain and to consult Islamic Republic of Pakistan (hereinafter referred to as "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 is headed by Mr. Nobuyuki YAMAURA, Resident Representative, JICA Pakistan Office and has been scheduled to stay in the country from 20<sup>th</sup> February to 3<sup>rd</sup> March 2005.

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


Islamabad, 3<sup>rd</sup> March 2005

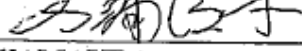
  
Mr. I. B. Sheikh  
Chairman / Chief Engineer (Administration)  
Federal Flood Commission  
Islamabad.

Signature:   
Khawaja Javid Latif  
Tehsil Municipal Administrator (TMA)  
Rawalpindi

Signature:   
Muhammad Ashraf Khan  
Joint Secretary  
Ministry of Economic Affairs and Statistics  
Islamic Republic of Pakistan

Signature: \_\_\_\_\_

  
Dr. Qamar-uz-Zaman Ch.  
Director General  
Pakistan Metrological Department  
Islamabad.

Signature:   
Nobuyuki YAMAURA  
Resident Representative  
JICA Pakistan Office  
Islamabad.

Signature: \_\_\_\_\_

## 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 as per Steering Committee minutes attached as Appendix-I.

### 2. Japan's Grant Aid Scheme:

The Pakistani side understood the Japan's Grant Aid Scheme and the necessary measures to be taken as explained by the Team and described in Annex-6 and Annex-8 of the Minutes of Discussion signed by both parties on 14<sup>th</sup> September 2004.

### 3. Schedule of the Study:

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Pakistan in March 2005

### 4. Other relevant Issues:

4-1. Both sides confirmed that it was one of the necessary conditions for implementing the Project in 2005 to obtain the approval of the PC-I of the Project from CDWP/ECNEC by the middle of March 2005. In case this is not possible Anticipatory Approval of CDWP/ECNEC shall accordingly be obtained by middle of March 2005 as otherwise a delay of at-least six (6) months in Project implementation is expected owing to Grant-in-Aid procedure of GOJapan.

4-2. The Pakistan side shall establish the Project Management Unit (PMU) by the end of March 2005, for the accommodation, guidance and supervision of the smooth implementation and operation / maintenance of the Project, described in the Minutes of Discussions signed by both parties on 14<sup>th</sup> September 2004.

4-3. The Pakistan side will allocate the necessary budget and personnel for the operation and maintenance for the Project securing on the basis of PC-I.

4-4. Both sides confirmed that the Pakistan Metrological Department (PMD) shall obtain the official approval for the usages of the proper frequency for the Telemetry and LAN Systems for the Project from the Frequency Allocation Board, Pakistan Telecommunications Authority (PTA) if the Project was accepted by the Government of Japan.

4.5 It was concluded that as the Water Flow Level before the raining session is generally upto 2 to 3 feet high but due to heavy rains, when the Flood Water Level increases to 16 feet the Tehsil Municipal Administration (TMA) Rawalpindi authorities give the signals/warnings and alert the population for their evacuation from en-catchments area. Now after the installation of new Project, the Warning System/Signals will be given to the population when the Water Level in Lai Nullah will reach 10 Feet High. The leading time accumulative is one to two hours from 10 feet to 24 feet high flood. Now the leading time will be increased on the observation of the analysis accumulative data from the new system.



**MINUTES OF THE STEERING COMMITTEE MEETING ON EXPLANATION BY  
THE JICA BASIC DESIGN STUDY TEAM ON PROJECT ON FLOOD FORECASTING  
AND WARNING SYSTEM FOR LAI NULLAH BASIN  
(DRAFT FINAL REPORT)  
HELD IN THE O/O CEA/CFFC ON MARCH 03, 2005**

In pursuance to the meeting of JICA Basic Design Study Team with M/O Water & Power on February 26, 2005 and as desired by Ministry later on, a meeting of the Steering Committee on Lai Nullah was held on March 03, 2005 in the O/O the Chief Engineering Adviser/Chairman Federal Flood Commission under the chairmanship of CEA/CFFC. Main purpose of the meeting was to discuss contents of the Basic Design Study Report on Lai Nullah Flood Forecasting and Warning System as prepared by JICA Study Team and to finalize its cost estimate in consultation with Steering Committee in particular with PMD in the light of above meeting of the Basic Design Study Team with Ministry and with D.G PMD so that PC-I is accordingly amended and submitted for approval of CDWP/ECNEC well before mid March 2005. Steering Committee member from M/O Water & Power did not attend the meeting on account of some other official assignment by Special Secretary. List of the participants is attached as Annexure-I.

2. After welcoming the participants the Chair apprised the house about conducting the Steering Committee as a consequence of directions of M/O Water & Power. He then invited JICA Study Team Leader Mr. Mizota Yuzo for briefing on the contents of the Basic Design Study Final Draft Report to the participants.

3. Mr. Mizota explained to the participants, the objectives of the project and the components of the Final Draft Report, highlighting the silent features. He further apprised the house about the discussion held with Ministry of Water & Power on February 26, 2005 wherein the Ministry opined that the Project on Flood Forecasting & Warning should be pursued for implementation after seeking due comments from D.G PMD and that if PMD endorses the Project then Ministry will even request P & D Division for approval of PC-I well before mid March 2005 in order to ensure that Project implementation commences within minimum time frame which is September 2005 after fulfillment of necessary Grant-in-Aid formalities.

4. The Chair thereafter invited comments of various participants of the meeting on the Project. Participants from Tehsil Municipal Administration, Small Dams Organization of PID Punjab, CDA, DCO Rawalpindi, WASA Rawalpindi, RCB and ICT endorsed the contents of Basic Design Study Report on Lai Nullah Flood Forecasting and Warning System and were of the opinion that Project through Grant-in-Aid implementation would bring better flood management facilities in the context of Lai Nullah early flood forecasting and warning.

5. Director General, Pakistan Meteorological Department had the following comments on the Project:

- (i) Pakistan Meteorological Department (PMD) supports the implementation of the Project;
- (ii) Regarding the cost of the Project it was submitted that JICA Study Team, which in November 2004 increased the implementation cost of the Project from 715 million

yen to 900 million yen has agreed to the previous cost of 715 million yen (approximately Rs 360 million). As far as this figure was concerned this cost has been worked out by the Japanese themselves according to their own standards and procedures as such PMD was not in a position to comment on it;

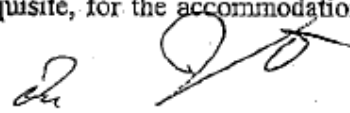
- (iii) Regarding scope of the Project, in the proposed Project, 10-warning posts have been proposed. This coverage may be reasonable in Japanese environment having high rise buildings/sky scrapers. Keeping in view our building patterns i.e. absence of high rise buildings in the area, this area coverage by each warning post can safely be increased from 1-km to 1.5-km and in turn the number of warning posts can be reduced from ten to seven. Each post was costing above 10 million yen; and
- (iv) Regarding scope of the Project, in the Project proposal beside the Master Control Station in PMD, Headquarters and Executive Warning Station at TMA-Rawalpindi, two Monitoring Stations have been proposed at FFC and WASA. In PMD's view these Monitoring Stations were not likely to serve any useful operational purpose. As such these could easily be deleted. At a later stage, if required, these monitoring facilities can be provided through national resources at the fraction of the proposed cost.

6. Commenting on the above, representative from WASA-Rawalpindi stated that since there were no such monitoring facilities provided with TMA-Rawalpindi, the inclusion of monitoring station for WASA was justified. Representative from TMA fully endorsed the comments of WASA representative. Regarding monitoring station at FFC, the chair opined that FFC has been entrusted with the task of coordination and for that matter the inclusion of monitoring station for FFC was justified. Regarding number of warning posts representatives from RCB, TMA-Rawalpindi and WASA were of the opinion that these have been kept in the Project after due site visits and consultation with them by the Japanese Study Team and in case of reduction in number the audible range of the warning system will be reduced.

7. JICA Study Team Leader explained the reduction in number of monitoring vehicles in the Project from three to two. He added that after the installation of the new Project, the Warning System/signals will be given to the population when the water level in Lai Nullah will reach 10 feet high instead of present practice of 16 feet. He further stated that the lead time accumulative was one to two hours from 16 feet to 24 feet high flood and now the leading time will be increased on the observation of the analysis accumulative data from the new system.

8. After detailed discussion following decisions were taken:

- (i) The components of the Draft Final Report as explained by the JICA Team were accepted as such for implementation.
- (ii) Necessary changes in the PC-I shall be made and every effort shall be made for its approval from concerned forum of GOP well within mid March 2005. For that matter request for Anticipatory Approval shall be made through M/O Water & Power as otherwise a delay of at-least six (6) months in Project implementation was expected owing to Grant-in-Aid procedure of GOJapan.
- (iii) Establishment of Project Management Unit (PMU) viz-a-viz approval of the Project PC-I from CDWP/ECNEC was necessary and pre-requisite, for the accommodation,



guidance and supervision of smooth implementation and operation / maintenance of the Project.

- (iv) Necessary budget allocation and personnel for the operation and maintenance of the Project on the basis of PC-I for PSDP 2005-06 shall be ensured.
- (v) Pakistan Metrological Department (PMD) shall obtain the official approval for the usages of the proper frequency for the Telemetry and LAN Systems for the Project from the Frequency Allocation Board, Pakistan Telecommunications Authority (PTA) if the Project was accepted by the Government of Japan.

9. The meeting ended with a vote of thanks to the participants.

Handwritten signature and initials in black ink, appearing to be 'D. S.' followed by a flourish and the number '2'.

**LIST OF THE PARTICIPANTS**

**Pakistan Side**

**Federal Flood Commission**

1. Mr. I. B. Shaikh In Chair  
Chief Engineering Adviser/Chairman  
Federal Flood Commission, Islamabad
2. Mr. Asjad Imtiaz Ali  
Chief Engineer (Floods)  
O/O CEA/CFFC, Islamabad.
3. Mr. Ahmed Kamal  
Superintending Engineer (Floods)  
O/O CEA/CFFC, Islamabad.
4. Mr. Amir Rahat,  
GIS Expert  
O/O CEA/CFFC, Islamabad.

**Pakistan Meteorological Department**

5. Dr. Qamar-uz-Zaman Ch.  
Director General  
Pakistan Meteorological Department  
H-8, Islamabad.
6. Mr. Jan Muhammad Khan  
Dy. Director  
Pakistan Meteorological Department  
H-8, Islamabad

**Islamabad Capital Territory, Islamabad**

7. Mr. Saifullah Aasi  
Executive Engineer  
Islamabad Capital Territory, Islamabad.

**Capital Development Authority, Islamabad**

8. Khaliq-ur-Rehman  
Dy. Director  
Capital Development Authority, Islamabad





Small Dams Organization, I & P Deptt. Punjab

9. Mr. Abid A. Qureshi  
Executive Engineer  
Small Dams Organization  
Rawal Dam Colony, Islamabad

District Government, Rawalpindi

10. Basheer Farooqi  
Executive District Officer, Revenue  
District Government, Rawalpindi

Tehsil Municipal Administration, Rawalpindi

11. Iqtidar Yaqoob  
Dy. Director  
Tehsil Municipal Administration,  
Rawalpindi
12. Aziz Ahmed  
Fire Officer  
Tehsil Municipal Administration,  
Rawalpindi

WASA, Rawalpindi



13. Mr. Aslam Sabzwari  
Managing Director  
WASA, Rawalpindi
14. Syed G. Abid Shah  
Senior Engineer  
Rawalpindi Cantonment Board  
Rawalpindi

Japanese Side

15. Mizota Yuzo (Team Leader)  
AGM (Instrument Management Division)  
2<sup>nd</sup> Project Management Department  
CTI Engineering International  
CO Ltd, Japan.



16. Makoto Takahashi  
Dy. Resident Representative  
JICA Office, Islamabad.
17. Mahmood A. Jilani  
Deputy Resident Representative/  
Chief Programme Officer,  
JICA Office Islamabad.
18. Yugo Matsuda  
JICA Expert  
O/O CEA/CFFC, Islamabad.
19. A. Majeed Mirza  
Local Representative  
CTI Engineering International

**Cost Estimation Borne by the Recipient Country**

Item	Thousand Rs.	Equivalent in Thousand Yen
1 Land Consolidation of Golra Rainfall Gauging Station		
a) Embankment (30m <sup>3</sup> )	43	89
Sub-total (1)	43	89
2 Construction Cost of Rainfall Gauging Stations except for Gauging Rooms		
a) Golra	1,722	3,565
b) Bokra	1,300	2,691
Sub-total (2)	3,022	6,256
Sub-total (1+2)	3,065	6,345
3 Electricity and Water Supplies		
a) Golra: Electricity Connection and Water Supply (Bore & Pump)	245	507
b) Bokra: Electricity and Water Supply Connection	150	311
c) Warning Posts (9 places) & TMA: Electricity Connection	500	1,035
Sub-total (3)	895	1,853
4 Fencing, etc.		
a) Water Level Gauging Stations (2 places)	386	799
b) Warning Posts (9 places)	3,512	7,270
c) Oil Tank of TMA	353	730
Sub-total (4)	4,251	8,799
5 Banking Arrangement (2.5% of the cost to be borne by Japan)	8,135	16,839
6 Administration Cost (1% of the cost to be borne by Japan)	3,254	6,736
<b>TOTAL (1+2+3+4+5+6)</b>	<b>19,600</b>	<b>40,572</b>

Note) 1Rs. = Yen 2.07

## **OUTLINE OF THE BASELINE SURVEY**

### **1. METHODOLOGY**

The Baseline Survey has been conducted to clarify project benefits and their verifiable indicators through the interview-survey of present issues concerning the existing flood forecasting and warning system and the satisfaction level and requirements of residents in flood prone areas and government officials concerned.

The target areas of the baseline survey were within Rawalpindi City. Out of the forty-six (46) union councils in Rawalpindi City, nineteen (19) union councils fall within areas vulnerable to flood devastation in the Lai Nullah Basin. Purposive sampling was the significant aide for the selection of respondents from representative samples of the 19 union councils situated on the banks of Lai Nullah and its tributaries. Interviewed were 12 government officials from TMA-Rawalpindi, Pakistan Meteorological Department (PMD) and Federal Flood Commission (FFC), and 60 respondents from the communities concerned.

A socio-economic form was used to gather data on area profile, while the Focused Group Discussion was conducted within the communities. Before starting the interview-survey, the TMA-Rawalpindi conducted an explanation meeting with the representatives of 19 union councils and obtained the cooperation of residents.

### **2. OUTLINE OF SURVEY RESULTS**

The researchers conducted the baseline survey with different stakeholders: firstly, with the government officials and secondly, with the communities.

#### **2.1 RESPONSES OF GOVERNMENT OFFICIALS**

To the question on whether they are satisfied with the existing flood forecasting and warning system facilities and equipment, ten (10) of the twelve (12) respondents from the concerned government agencies were not satisfied while only two (2) were satisfied.

When asked about the kind of facilities/equipment/system that are additionally required for the proposed flood forecasting and warning system, the following results were obtained:

- (1) Timely forecast shall be practiced.
- (2) Additional rainfall and water level gauge networks should be installed.
- (3) Equipment and facilities handling data processing and flood prediction are required in PMD.
- (4) Provision of Manual or Guidelines to operate/maintain the proposed facilities/equipment/system, as well as training of personnel on the proposed flood forecasting and warning system, is required.

To undertake warning operation effectively, local government officials had further suggested that the cooperation with mosque communities and planning to avoid panic during the evacuation practice or training will be required. Therefore, the evacuation practice of residents is recommended in the field with proper public educational campaign, and in the paper-practice.

## 2.2 RESPONSES OF COMMUNITIES/RESIDENTS

An abstracts of survey results from 60 respondents and the comments on the survey results are given below.

Abstract of Interview Survey Results	Comments on the Survey Results
Fifty-seven (57) respondents are aware that there is no flood forecasting and warning system facility/equipment in their town/union. Fifty-four (54) respondents have scarcely heard about the flood warning signals in the past.	Public educational and information campaign will be required to promote the proposed flood forecasting and warning system to the residents. The existing three (3) warning posts are not presently recognized.
Around 60% of the respondents had received flood information from the mass media such as television, radio and newspapers. Only about 10% of the respondents had received flood information from the local government.	Public educational and information campaign will be required to promote the proposed flood warning system to residents, while only about 10% of the respondents are amenable to the receipt of flood information from the local government.
Around 40% of the respondents gave a positive answer to the question on evacuation to a safer place immediately after receiving flood warning in case of a big flood event. Other opinions are to wait until the flood has reached the unsafe level, to wait for the arrival of rescue team, or to stay and wait for the flood to subside.	Many residents tend to stay or desire not to leave their houses even if the flood disaster might affect them. Hence, a flood hazard map is required to educate the residents on the risk of floods.
All of the respondents recognized that no flood information such as hazard map, flood observation and evacuation plan exists.	Flood information should be transmitted and published through public educational and information campaign.
On the question of required time for the evacuation to a safe place, 32 respondents gave the following answers: 14 persons require one (1) hour; 8 persons require two (2) houses; No person requires three (3) hours; and 10 persons require six (6) hours.	Based on an adequate flood evacuation plan, the required evacuation time to a safe place should shorten from 2-6 hours to around 1 hour.
57 out of 60 respondents expect to participate in the seminar on flood defense and flood evacuation activities.	Flood risk management plan and its public information campaign are required for residents because of the high requirement of residents on flood disaster mitigation
There is advisable opinion to cooperate with mosque communities on flood evacuation because of the high reliability and strong cooperative spirit of mosque community residents.	The cooperation with mosque communities and NGOs should be required for effective flood warning transmission to residents and for formulation of the flood evacuation plan.

### 2.3 SOCIO-ECONOMIC PROFILE OF THE TARGET AREA

The following table shows the socio-economic profile of the target areas.

Abstract of Survey Results	Comments on the Survey Results
Total population of the union councils selected for interview survey was 202,000 persons. Out of this population, 68% were considered literate, which is almost equivalent to the national average of 65% surveyed in 1998.	The literacy ratio is an important factor to consider in the formulation of the flood evacuation plan.
Road width in target areas is narrow, being passable to one vehicle only.	Vehicle is available for warning operation in limited areas considering traffic situations during flood time.
Present residents in target areas belong to the middle and lower-middle classes. The illegal poor dwellers in and around the river channels were moved out during the river improvement in 2003.	Flood risk management plan is required to prevent illegal dwellers from dwelling in the river channel, which causes the clogging of channel and the decrease of flow capacity of the channel.
Religious minorities, i.e., Christians and ethnic groups stay in target areas.	Minorities should be considered in case of formulating the flood evacuation plan.

### 3. RECOMMENDATION

Based on the results of the Baseline Survey, the survey on issues affecting the flood forecasting and warning system and the evaluation on satisfaction and requirements of residents in flood prone areas and government staffs concerned shall be conducted and monitored during construction and after the completion of the Project.

The results of the Baseline Survey also shall be utilized for formulation of the flood risk management plan, the flood evacuation plan and the public information and educational campaign plan.

