

討議議事録リスト

- M/D 1. 基本設計調査時
- M/D 2. ドラフト説明時

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

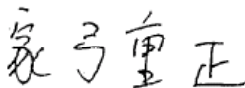
In response to a request from Islamic Republic of Pakistan (hereinafter referred to as "Pakistan"), the Government of Japan decided to conduct a Basic Design Study on the Lai Nullah Flood Forecasting and Warning System Project (hereinafter referred to as "the Project") and entrusted the study to the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

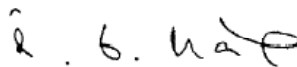
The Team held discussions with the officials concerned of the Government of Pakistan and conducted field survey at the study area.

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



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



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



Raja Tariq Kiani
Zila Nazim
Rawalpindi
Islamic Republic of Pakistan



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



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



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

C.M. 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

Director (S&D)
WASA

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

22 11 2018

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

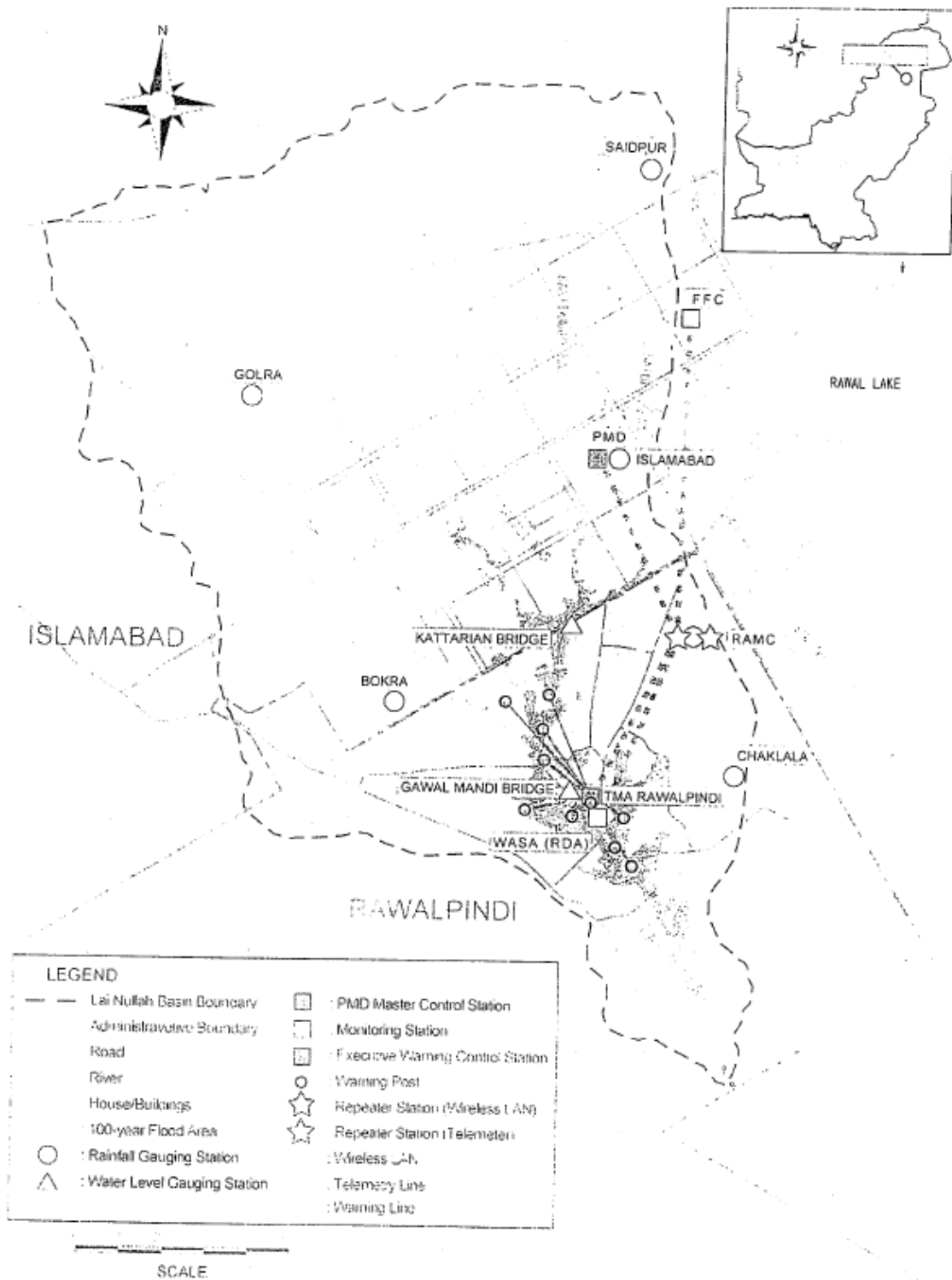
(5) System operation and maintenance

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.

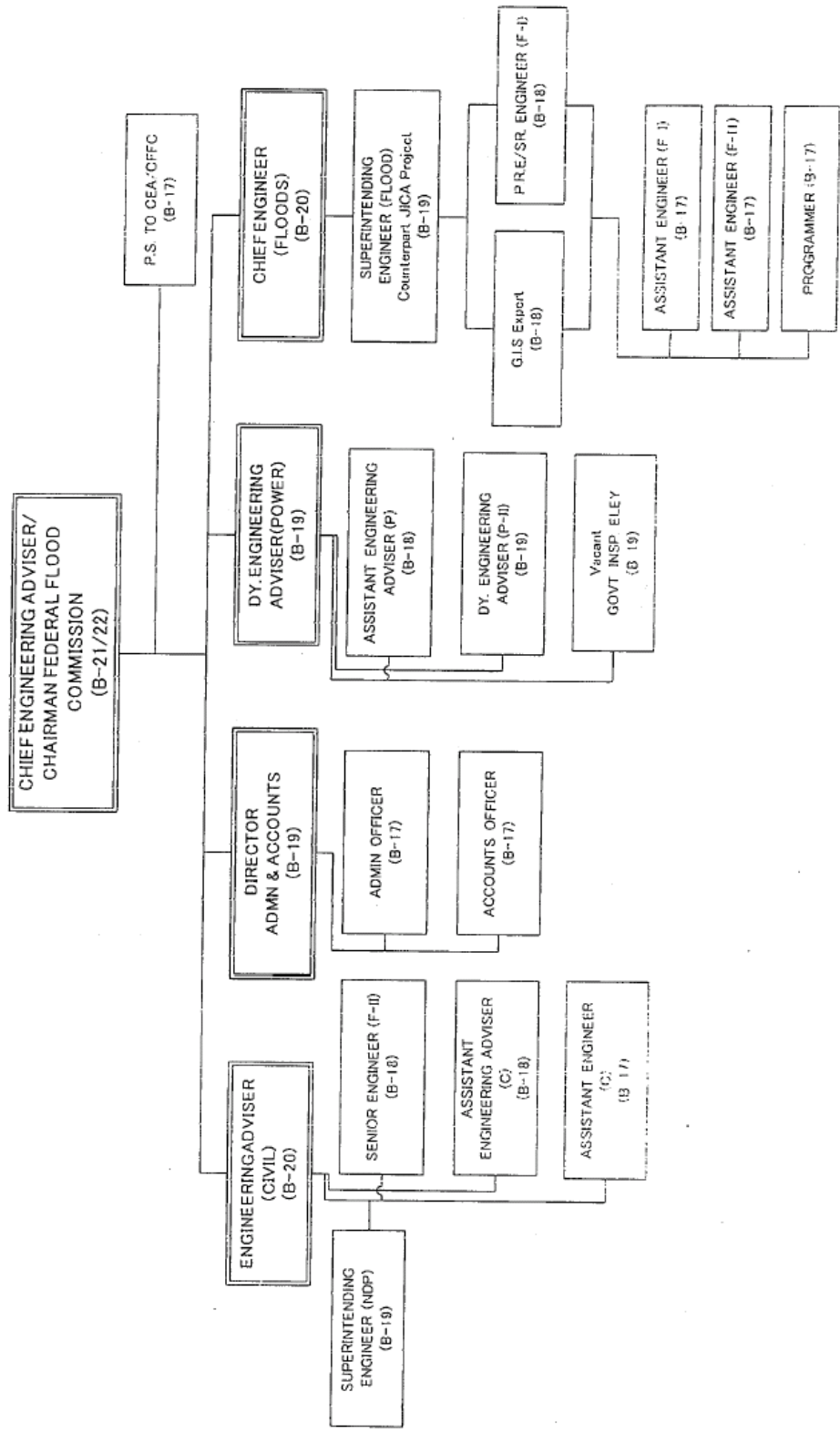
8-7. The Pakistani side promised that, in case the need for revision of the PC-1 for the Project arises, then the revision shall be got approved from concerned forum (ECNEC) of Planning & Development Division, Government of Pakistan.



Project Site

3 *Handwritten signature/initials*

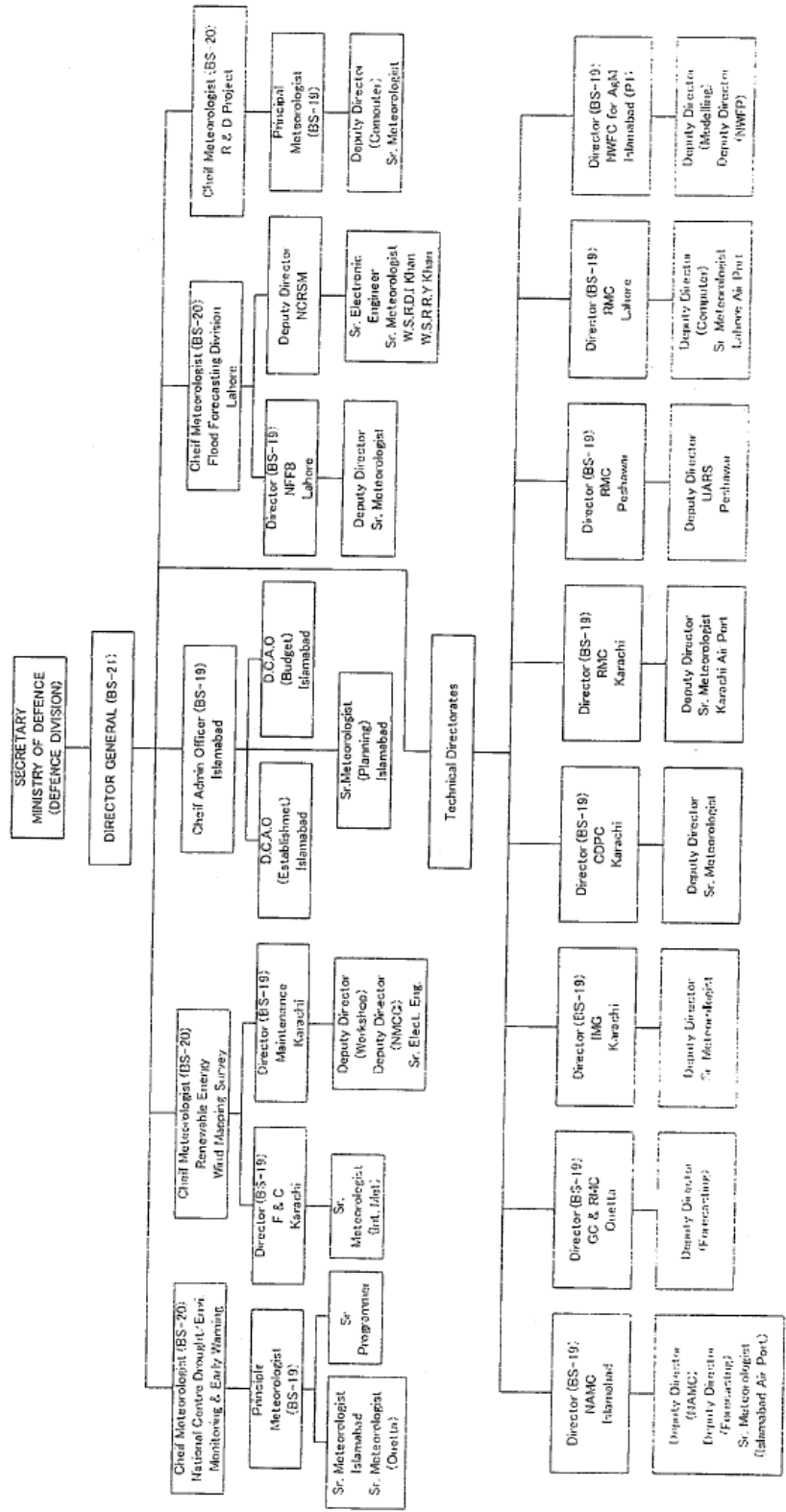
Organization Chart of Office of FFC



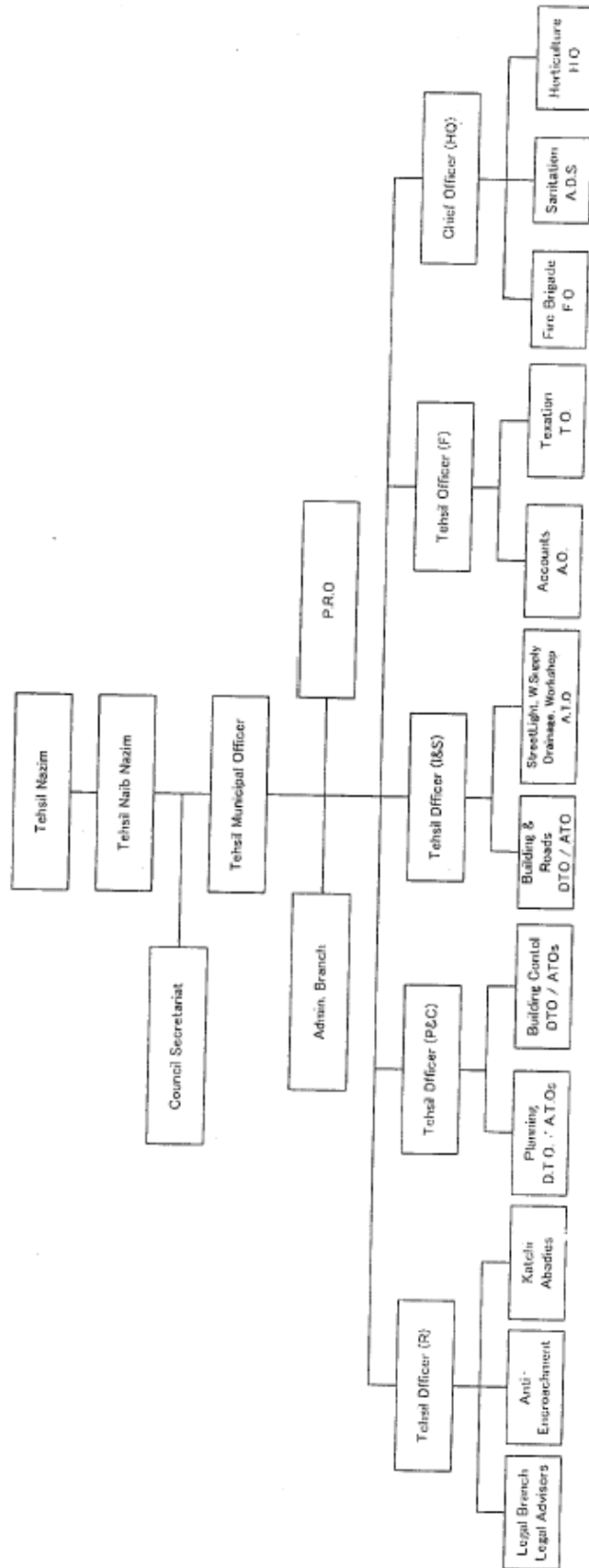
4

Handwritten signatures and initials.

Organization Chart of
Pakistan Meteorological Department



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



Annex-4

Table A-1 Members of the Steering Committee

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

10



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

11

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**

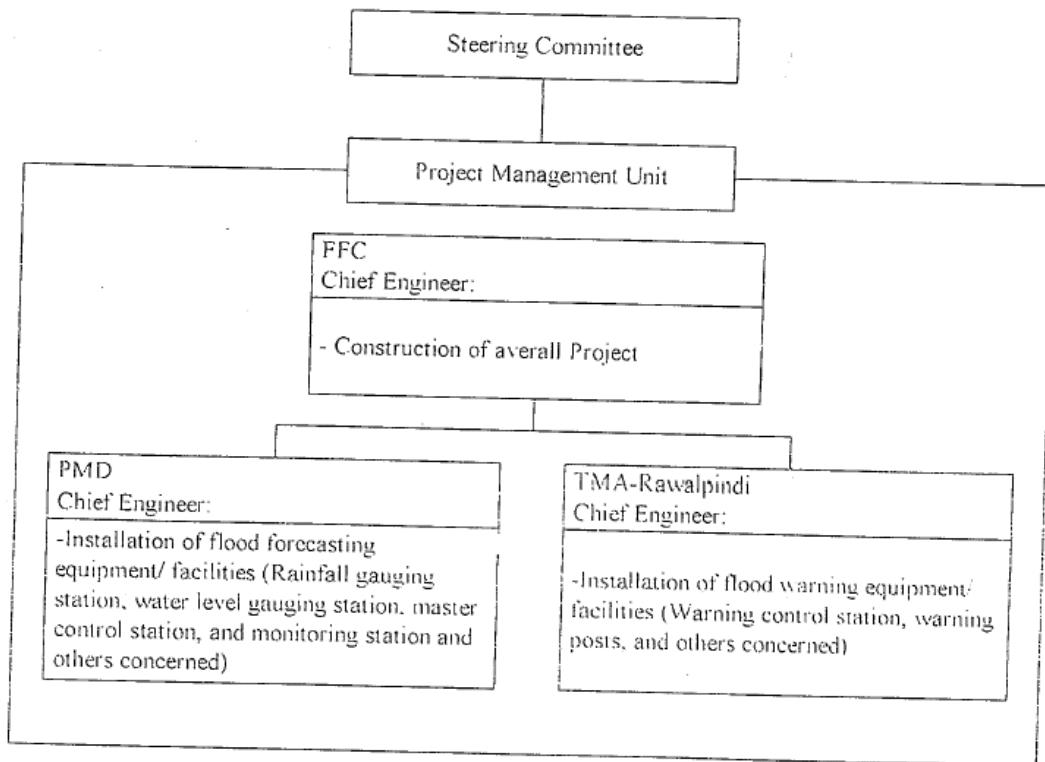


Figure A-1 Project Management Unit during the Installation Stage

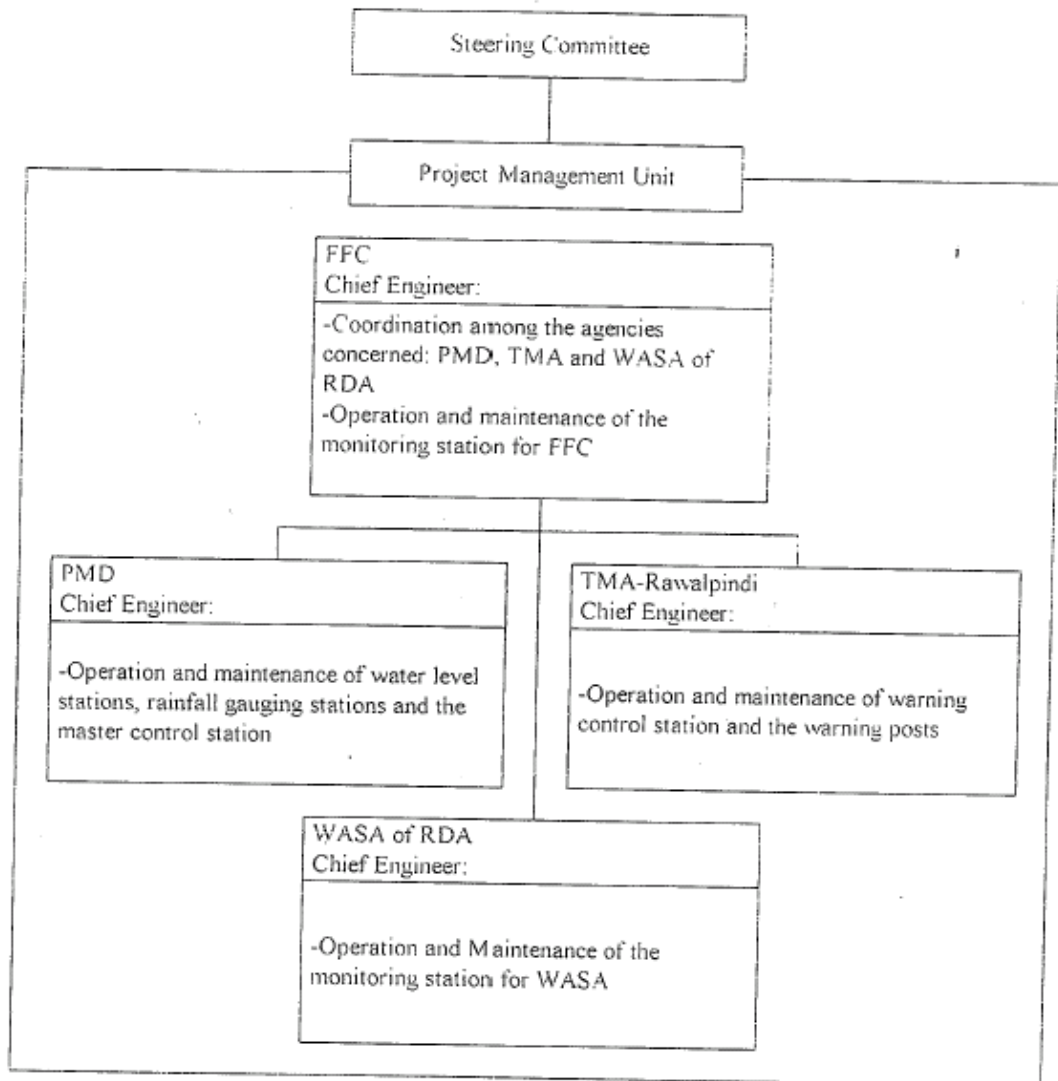


Figure A-2 Project Management Unit during the Operation and Maintenance Stage

Handwritten marks and signatures

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
1. Master Control Station		
PMD, Islamabad	<ul style="list-style-type: none"> · Collection of hydrological and flood forecasting data · Data processing · Dissemination of flood information to concerned agencies through data transmission subsystem 	PMD †
2. Rainfall Gauging Station		
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		
3. Water Level Gauging Station		
3.1 Kattarian Bridge	Automatic observation of water level by radio telemetry system	PMD
3.2 Gawal Mandi Bridge		
4. Repeater Station		
4.1 RAMC Telemetry Repeater	Repeating function of radio telemetry subsystem	PMD
4.2 RAMC Wireless LAN Repeater	Repeating function of data transmission subsystem	
5. Monitoring Station		
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
6. Executive Warning Control Station		
TMA Rawalpindi: - Warning Control & Supervisory - Flood Information Monitoring	Control and supervision of flood warning post Monitoring of flood information through data transmission subsystem	TMA
7. Flood Warning Post		
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

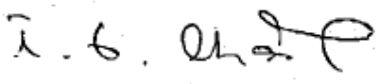
**MINUTES OF DISCUSSION
ON
THE BASIC DESIGN STUDY
ON
THE LAI NULLAH FLOOD FORECASTING AND WARNING SYSTEM PROJECT
IN
ISLAMAIC REPUBLIC OF PAKISTAN
(EXPLANATION OF DRAFT FINAL REPORT)**

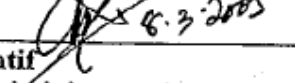
In September 2004, the Japan International Cooperation Agency (hereinafter referred as "JICA") dispatched the Basic Design Study Team on the Lai Nullah Flood Forecasting and Warning System Project (hereinafter referred to as "the Project"), and through discussion, field survey and technical examination 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 20th February to 3rd March 2005.

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


Islamabad, 3rd March 2005

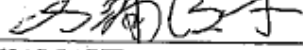

Mr. I. B. Sheikh
Chairman / Chief Engineer (Administration)
Federal Flood Commission
Islamabad.

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 14th 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 14th 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.



F:\My Documents\Lai\Minutes030305.doc



**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;

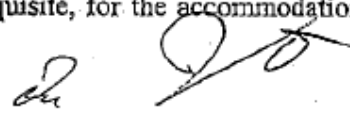
- (iii) Regarding scope of the Project, in the proposed Project, 10-warning posts have been proposed. This coverage may be reasonable in Japanese environment having high rise buildings/sky scrapers. Keeping in view our building patterns i.e. absence of high rise buildings in the area, this area coverage 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
Chief Engineering Adviser/Chairman
Federal Flood Commission, Islamabad In Chair
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)
2nd 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

52
2

事業事前計画表（基本設計時）

1. 案件名
パキスタン・イスラム共和国 ライヌラー川洪水制御予警報システム緊急整備計画
2. 要請の背景（協力の必要性・位置付け）
<ul style="list-style-type: none"> ● ライヌラー川はイスラマバード市北端にあるマルガラ山脈に水源を発生し、最下流でソアン川に合流する。流域面積は 234.8 km² であり、そのうち上流域の 144.3 km² はイスラマバード市、残り 90.5 km² はラウル・ピンディー市に区分される。当流域ではモンスーン季になると頻りに洪水氾濫が発生し、特に下流のラウルピンディー市に深刻な洪水被害をおよぼしている。 ● 2001 年 7 月に発生した洪水では、死者 74 名、崩壊家屋 3,000 戸という近年最大の洪水被害を引き起こした。この洪水問題に対処するため、2003 年 9 月に「ライヌラー川流域総合治水計画（マスタープラン）」が国際協力機構（JICA）の技術協力により策定された。本マスタープランのなかで、緊急性の高い「ライヌラー川洪水制御予警報システム緊急整備事業」が提案された。 ● 本プロジェクトは、洪水予警報システムの整備および活用により、洪水による首都圏市民の死亡・負傷者の低減に寄与することを目的としている。そのうち、無償資金協力においては、観測及び警報機材の整備と警報局者の建設を通じた洪水予警報システムの基盤整備を目的としている。さらに、本システムの整備後、技術協力等を通じて洪水予警報システムを活用した「予警報発令基準の改善」、「洪水避難計画や危機管理計画の策定」、「洪水被害軽減のための啓蒙活動」などを進めることが期待されている。
3. プロジェクト全体計画概要
<p>(1) プロジェクト全体計画の目標（裨益対象の範囲および規模）</p> <p>《プロジェクト終了時に期待される直接的な便益》</p> <p>首都圏の洪水予報の精度が向上される。</p> <p>洪水予警報の伝達発令網が強化される。</p> <p>洪水予警報システムが効果的に活用される。</p> <p>洪水避難体制が強化される。</p> <p>《裨益対象の範囲および規模》</p> <p>パキスタン国ライヌラー川流域の洪水氾濫危険区域 7.6km² の住民約 15 万人</p> <p>(2) プロジェクト全体計画の成果</p> <p><u>将来の河川水*位変動を予測可能なリアルタイムの雨量・水位データが提供可能となる。</u></p> <p><u>さらに、それらの自動記録が可能となる。その結果、氾濫前に洪水予測が可能となり、洪水避難活動を行う余裕時間を確保できる。</u></p> <p><u>避難警報を遠隔操作により即時に一斉発令が可能となり、警報吹鳴範囲は、氾濫域の 6 割程度をカバー可能となる。</u></p>

* 無償部関連部分は下線を付している。

技術支援により効率的な運営・維持管理体制が整備される。(ソフトコンポーネント)

洪水予警報発令基準の改善、洪水避難計画や危機管理計画の策定、住民への啓蒙活動の実施などにより、洪水予警報を活用した洪水被害の軽減が可能となる。(技術協力との連携を想定)

(3) プロジェクト全体計画の主要活動

プロジェクトを実施する組織として Project Management Unit(PMU)を設置する。

洪水予警報システムの資機材を整備する。

PMU の関連技術者に運営・維持管理に係る技術指導を行う。

洪水予測精度を向上させ洪水予警報発令基準の改善を行う。

洪水避難計画や危機管理計画を策定する。

洪水被害軽減のために、住民への啓蒙活動を実施する。

(4) 投入(インプット)

日本側：無償資金協力 6.65 億円

相手国側：

(ア) インフラ整備にかかる経費：0.20 億ルピー (0.39 億円)

- ・施設敷地の整備
- ・機材の保安関連施設の建設
- ・機材で使用する商用電気の引込など

(イ) 施設・機材の運営・維持管理にかかる経費

・協力実施後 3 年目まで 1.7 百万ルピー/年 (3.3 百万円/年)

協力実施後 4 年目以降 4.5 百万ルピー/年 (8.8 百万円/年)

(ウ) 洪水予警報システムの運営・維持管理に必要な人員措置(人員:40 人・月/年)

(5) 実施体制

主管官庁：連邦洪水委員会(Federal Flood Commission)

実施機関：連邦洪水委員会、パキスタン気象局、ラウルピンディ市

4 . 無償資金協力案件の内容

(1) サイト

パキスタン国ライヌラー川流域 234.8 km²

(首都圏イスラマバード市およびラウルピンディ市)

(2) 概要

《調達機材》

パキスタン気象局

- 中央洪水予警報管理局の整備（洪水予警報情報処理システム、データ通信関連機材など）1箇所
- 既存の雨量計の改良（転倒ます型雨量計、データ通信関連機材など）4箇所
- 雨量計の新設（転倒ます型雨量計、データ通信関連機材、機器格納小屋など）2箇所
- 水位計の新設（フロート式水位観測所・装置、データ通信関連機材など）2箇所
- 緊急保守車輛 1台

ラワルピンディ市役所

- 防災管理室の整備（警報管理・発令システム、データ通信関連機材など）1箇所
- 警報機の整備 10箇所
- 緊急保守車輛 1台

連邦洪水委員会および上下水道公社

- 監視局の整備（データ通信関連機材、PCなど）2箇所

《ソフトコンポーネント》

マネージメント型技術支援（2.5ヶ月）

エンジニアリング型技術支援（2.5ヶ月）

(3) 相手国負担事項

- 施設敷地の整備
- 機材の保安関連施設の建設
- 機材で使用する商用電気の引込など
- 洪水予警報システムの運営・維持管理

(4) 総事業費

概算総事業費 7.04 億円（日本側 6.65 億円、パキスタン側 0.39 億円）

(5) 工期

詳細設計・入札期間を含め約 21 ヶ月の工期を予定

(6) 貧困、ジェンダー、環境及び社会面の配慮

本案件は、洪水被害軽減を目的としており、住民の生活環境の向上に寄与する。一方で洪水氾濫被害は貧困層を増加させる要因となり、老人や子供といった弱者に被害を及ぼす危険性が高い。したがって、洪水避難計画や住民への啓蒙活動などを充実させ、洪水予警報システムをより効率的に活用する必要がある。

5. 外部要因リスク

想定以上の地震・洪水災害により施設・機材の機能が失われない。

6. 過去の類似案件からの教訓の活用

特になし。

7. プロジェクト全体計画の事後評価に係る提案

(1) プロジェクト全体計画の目標達成を示す成果指標

事業効果の発現は、事業が運営開始されてから3年後の2010年を目標年とし、その成果指標を以下に示す。

事業実施前	事業実施後
・雨量観測については、流域東側の平均雨量のみ（50%程度）が観測可能である。	・流域平均雨量を100%観測可能となる。
・警報発令指示を無線電話で行うため、時間を要する。	・警報発令を遠隔操作により即時に発令が可能となる。

(2) その他の成果指標

特になし。

(3) 評価のタイミング

2010年以降

主管部長	文書管理課長	主管課長	情報管理課長	図書資料室受付印

収集資料リスト

平成 16 年 9 月 26 日作成

地域	南西アジア	調査団	パキスタン国ライヌラー川洪水制御予警報システム緊急整備基本設計調査	調査の種類	基本設計調査	作成部課	
国名	パキスタン	調査名称		調査の現地調査期間	平成 16 年 8 月 23 日 - 平成 16 年 9 月 21 日	担当者氏名	

番号	資料の名称	形態	版型	ページ数	オリジナル・コピーの別	部数	収発	先行機	又は関係	寄贈・購入(価格)の別	取扱区分	利用表示	利用者所属氏名	納入予定日	納入確認欄
1	INFOTECH 会社紹介	文書	A4	31	コピー	1	INFOTECH, Premium IT Infrastructure & Service	複写		複写					
2	BIGTECH 会社紹介	文書	A4	28	コピー	1	BIGTECH, BUSINESS International Group	複写		複写					
3	MONTANA Computer System 会社紹介	文書	A4, 5	1,4	コピー	1	MONTANA Computer System	複写		複写					
4	Carrier Telephone Industries 会社紹介	文書	A4	11	コピー	1	Carrier Telephone Industries	複写		複写					
5	JAFFER GROUP OF COMPANIES 会社紹介	文書	A4	43	コピー	1	JAFFER GROUP OF COMPANIES	複写		複写					
6	FEDERAL TRADING CORPORATION PAKISTAN 会社紹介	文書	A4	31	コピー	1	FEDERAL TRADING CORPORATION PAKISTAN	複写		複写					
7	Sirius Company's Profile	文書	A4	4	コピー	1	Sirius Company's	複写		複写					
8	Sirius Company's Proposal	文書	A4	8	コピー	1	Sirius Company's	複写		複写					
9	ICOM VHF and UHF TRANSCEIVER カタログ	文書	A4	4	コピー	1	Sirius Company's	複写		複写					
10	MULTI CHANNEL DATA LOGGER カタログ	文書	A4	2	コピー	1	Sirius Company's	複写		複写					

図 7-1

11	DATARADIO Radio Modem カタログ	文書	A4	4	4	コピー	1	Sirius Company's	複写											
12	2004 LMR/PMR Products (Vertex Standard カタログ	文書	A4	6	6	コピー	1	Sirius Company's	複写											
13	Coolpoint 空調カタログ	文書	A4	4	4	コピー	1	Coolpoint	複写											
14	LAI NULLAH IMPROVEMENT WORKS CW/LCB/DW-08 CONSTRUCTION DRAWINGS	文書	A3	18	18	コピー	1	WASA	複写											

土質調査結果

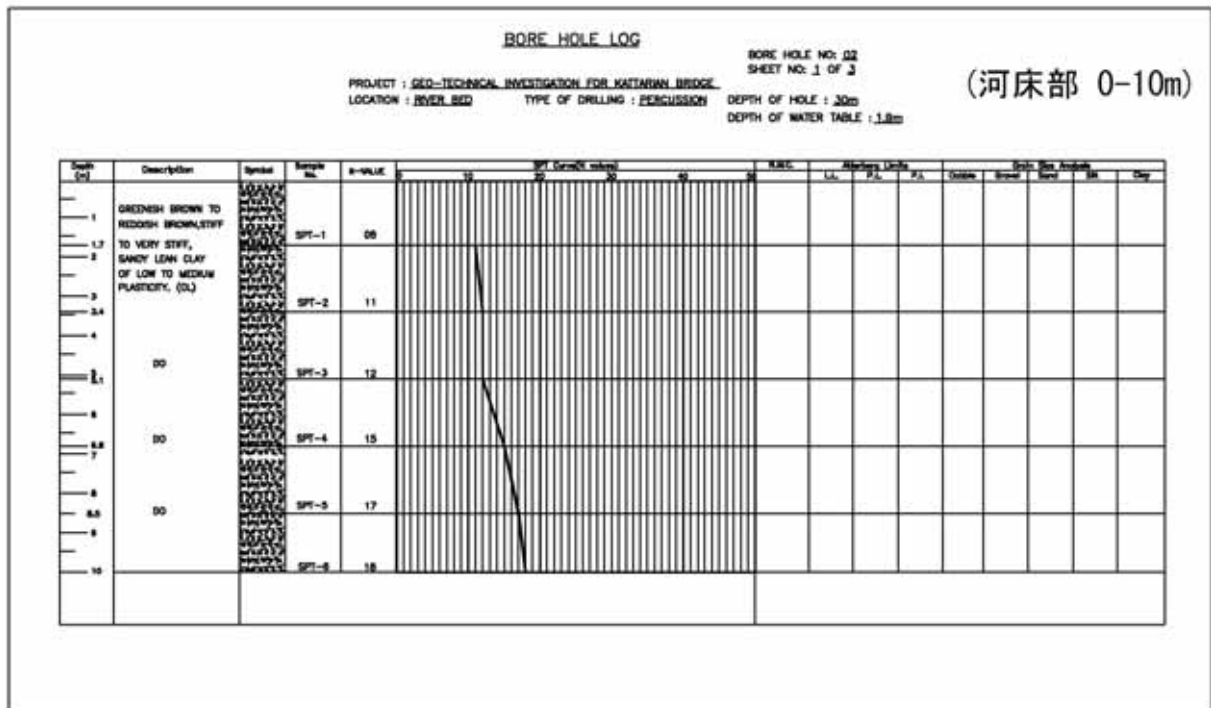
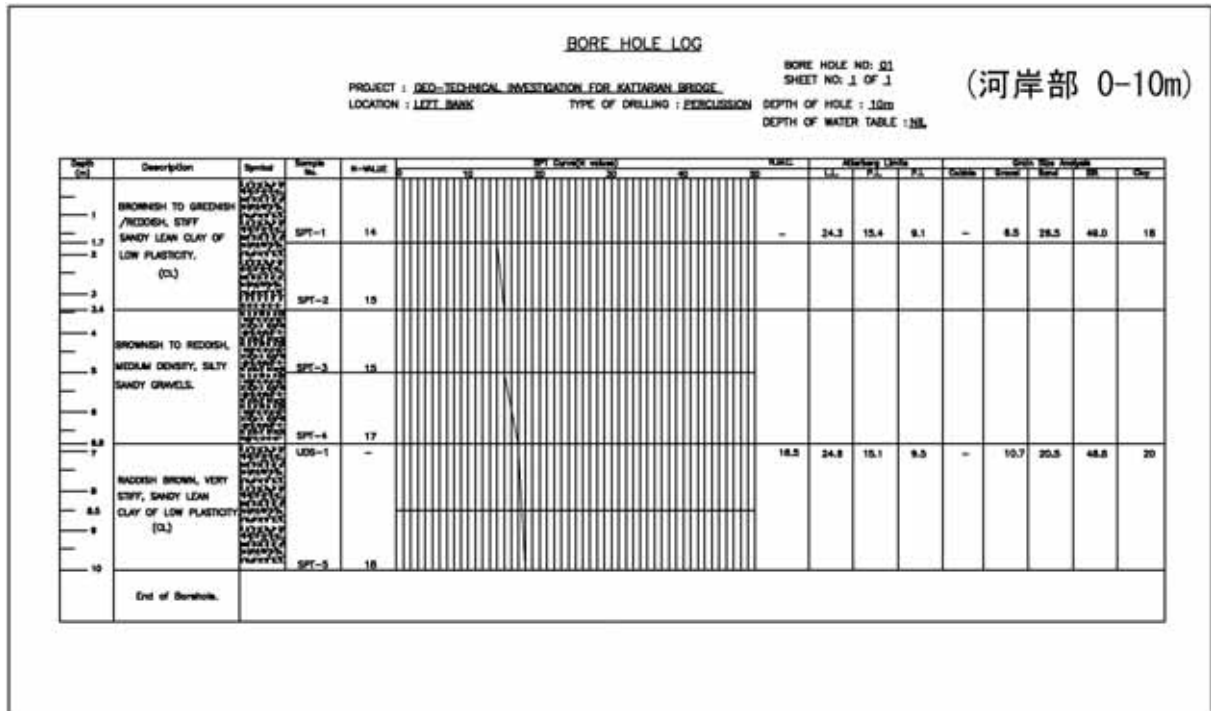


図 1 カタリアン橋水位観測局地質調査結果 (1/2)

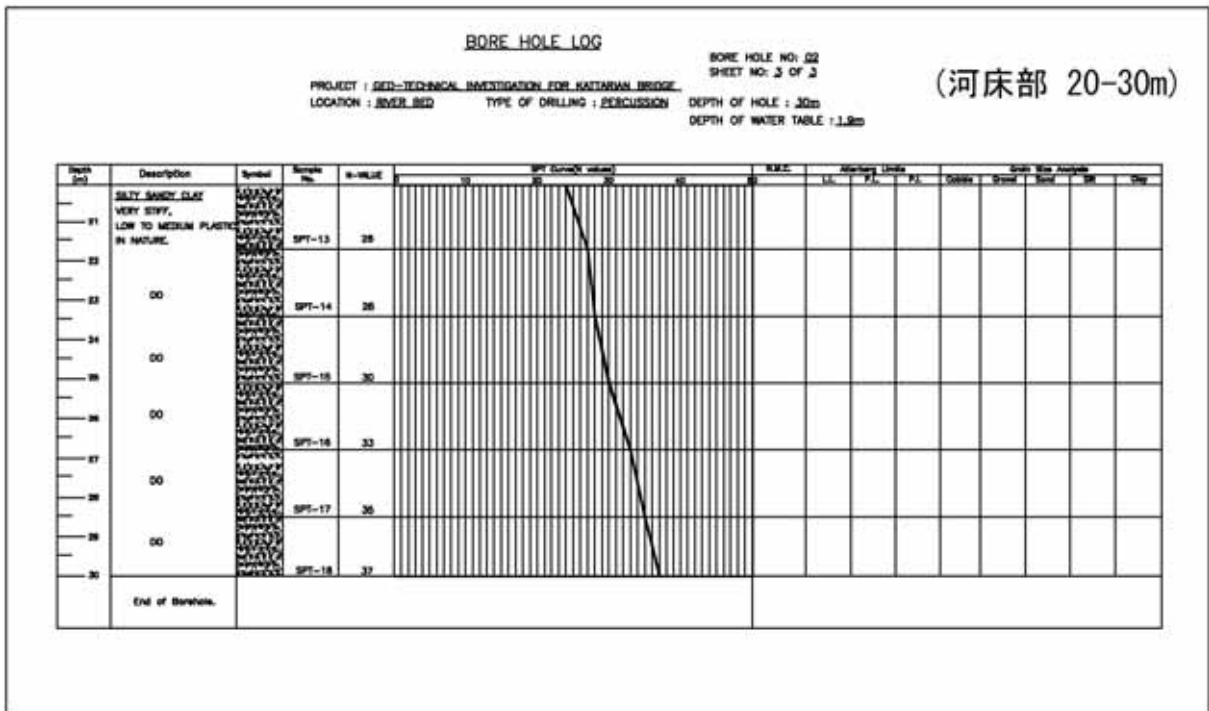
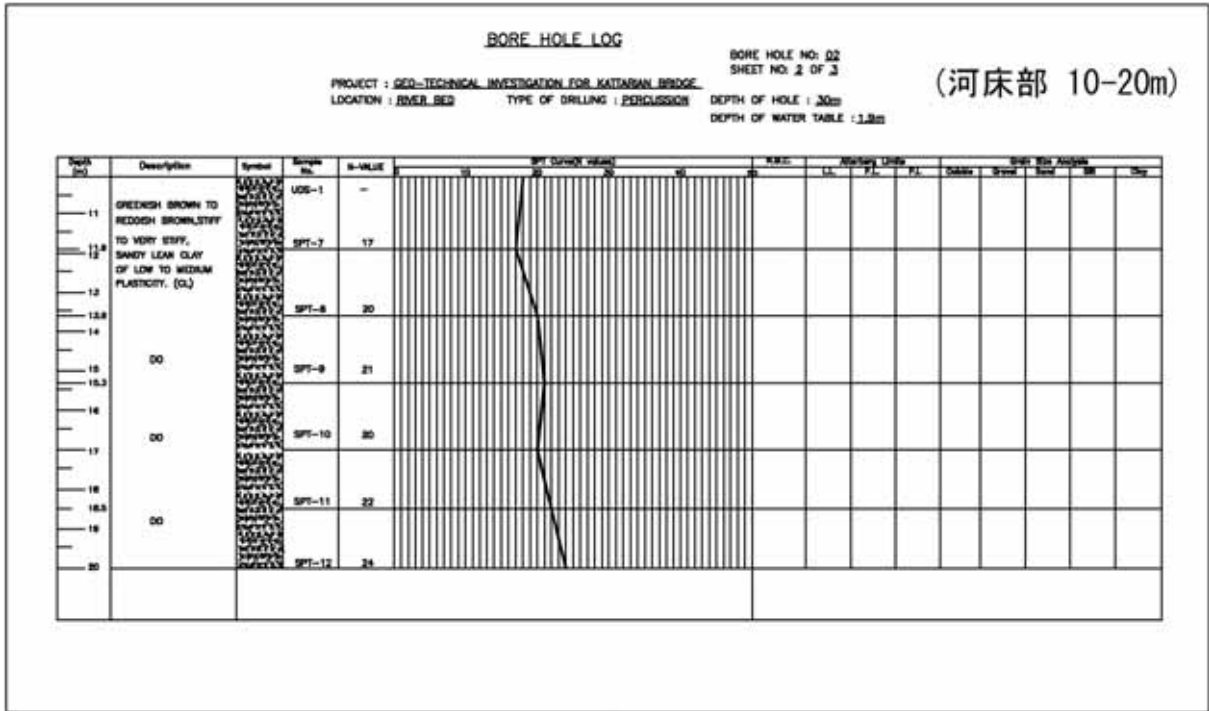


図 2 カタリアン橋水位観測局地質調査結果 (2/2)

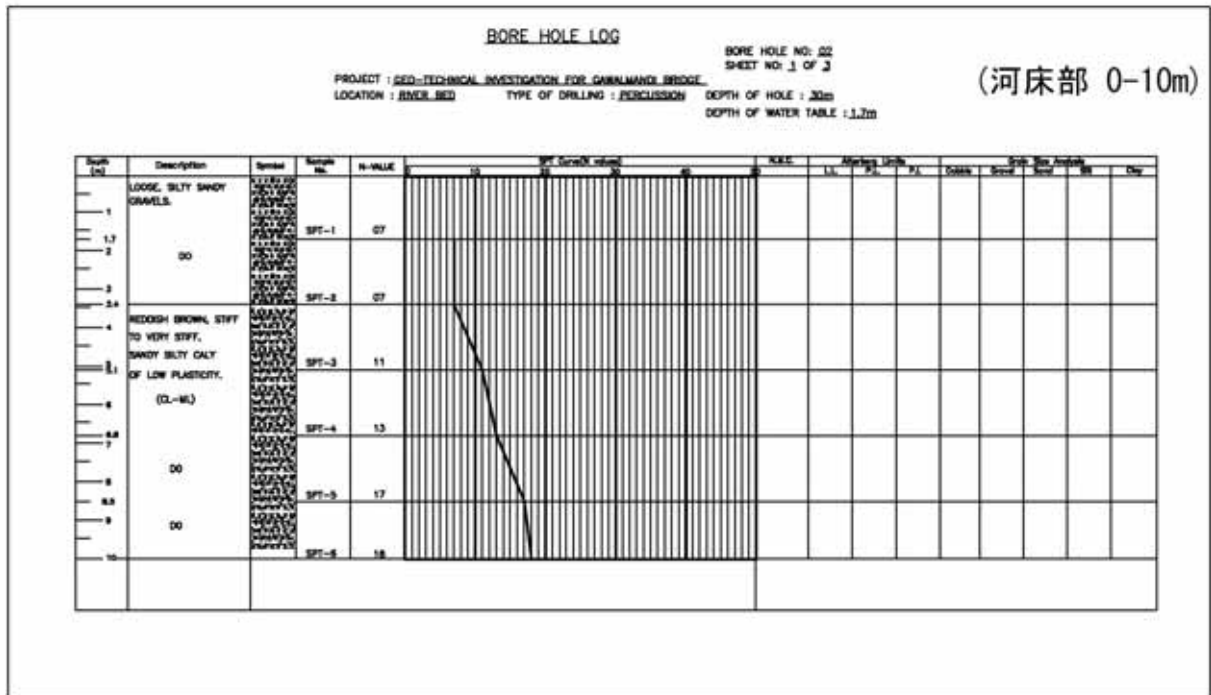
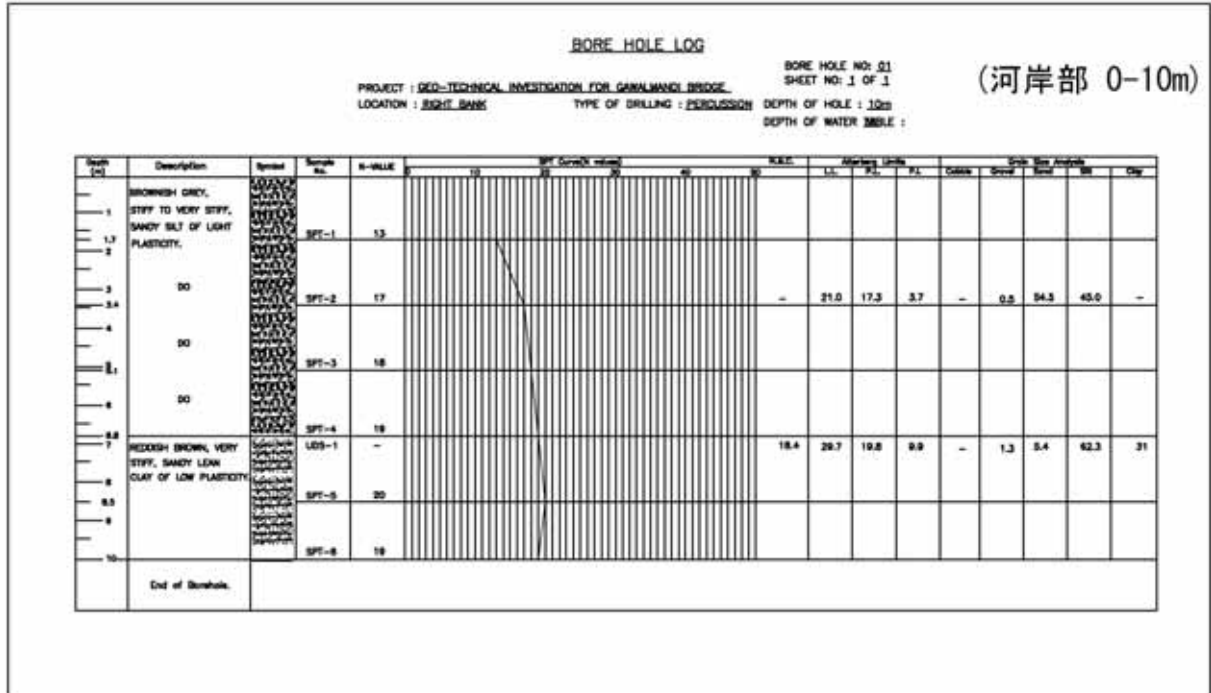


図 3 ガワルマンディ橋水位観測局地質調査結果 (1/2)

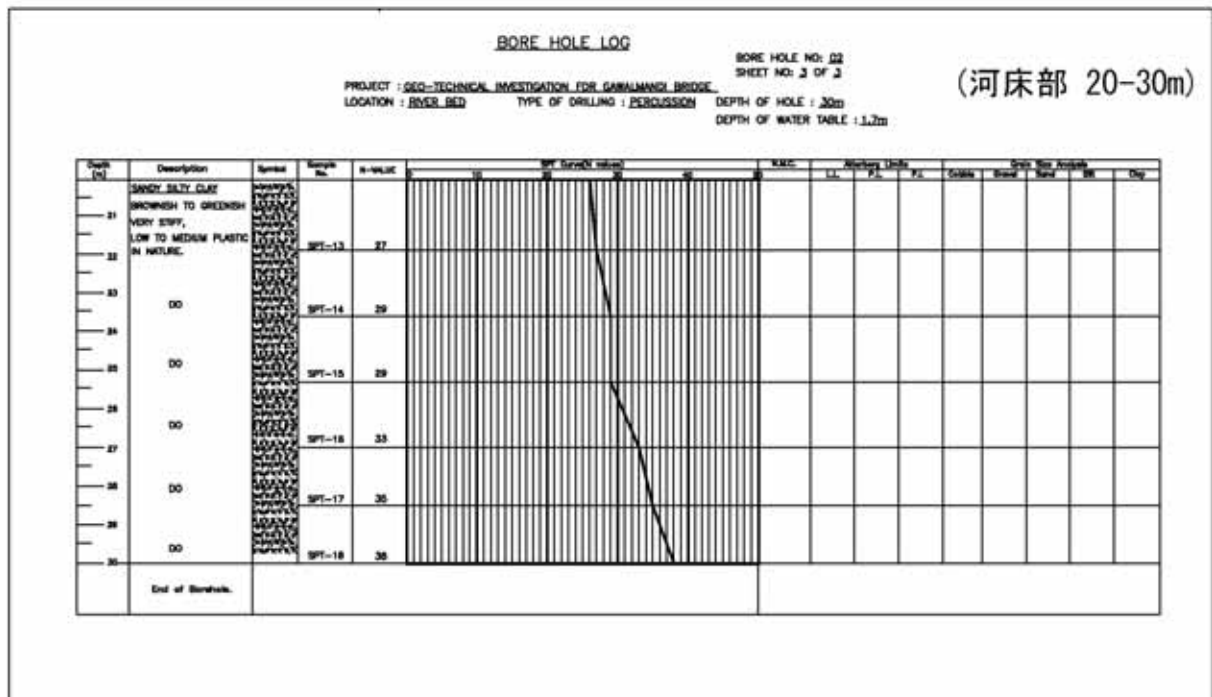
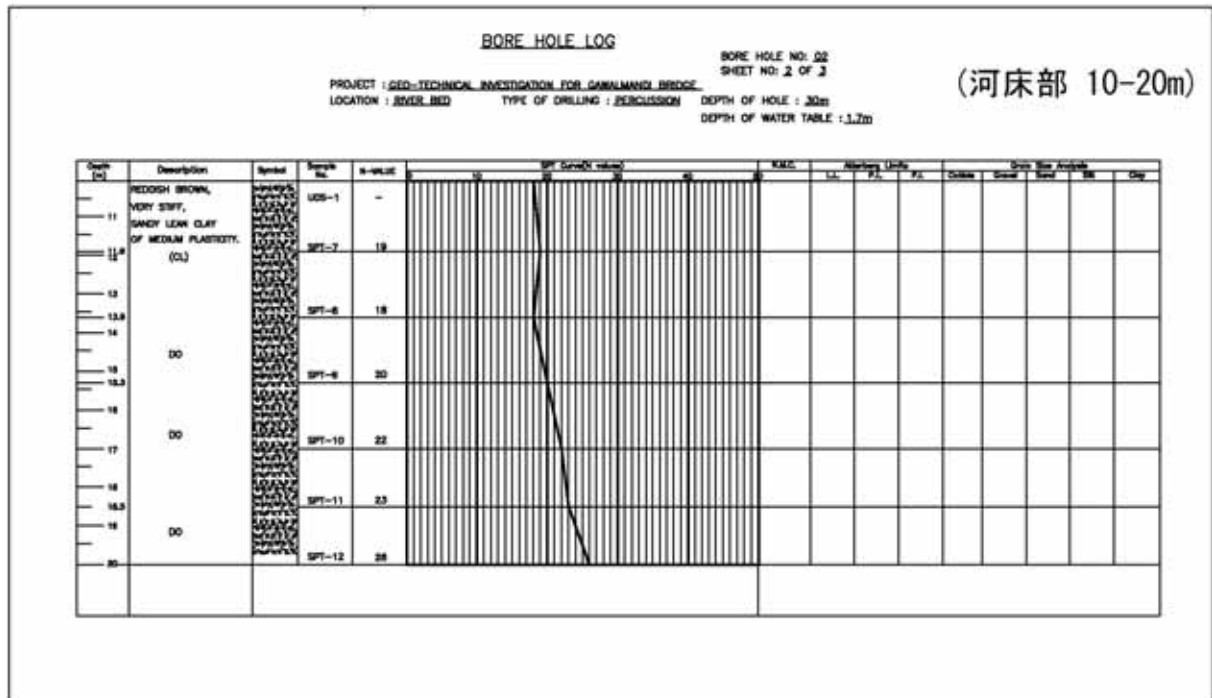


図 4 ガワルマンディ橋水位観測局地質調査結果 (2/2)

ベースライン調査の概要

1. 調査方法

プロジェクトの裨益効果や成果指標を明確にするためにベースライン調査を実施した。ベースライン調査では、洪水予警報や避難活動に係わる現状の問題点や満足度、要望などを政府関係職員および地域住民を対象にインタビュー調査により実施した。また、洪水氾濫地域の社会経済調査も併せて実施した。インタビュー調査では、連邦洪水委員会(FFC)およびパキスタン気象局(PMD)、ラワルピンディ市役所(TMA)の洪水予警報に係わる12名の職員を対象に調査を実施した。地域住民に対しては、洪水被害の影響を受ける可能性のある地域から60名を対象にインタビュー調査を実施した。

住民へのインタビュー調査に先立ち、ラワルピンディ市役所は、市内の湛水常襲地域の代表者を集め、ライヌラー川洪水予警報事業の目的および概要を説明し住民の協力を求めた。

2. 調査結果の概要

(1) 政府関係職員

12名のうち10名が現況の洪水予警報システムに対し不満足としている。具体的には、タイムリーな洪水予警報の発令と雨量・水位観測網の強化、気象局のデータ処理能力の向上、洪水予警報システムの操作マニュアルやガイドラインの提供、システムの操作・維持管理に関する訓練の必要性であった。

洪水警報発令時にパニックとならないよう配慮する必要があるとの意見があった。そこで、洪水警報に対する住民への広報活動が必要であり、机上訓練を含む避難訓練が必要と判断される。避難警報を伝達する場合、モスクコミュニティの活用が効果的との意見があった。

(2) 地域住民

警報の情報を得た経験があるかとの質問に対し以下の回答を得ている。

住民への調査結果と回答に対する考察

住民60名に対する インタビュー調査結果の抜粋	回答に対する考察
57名が現状で洪水予警報システムは無いとの認識を持っており、54名が避難警報をほとんど聞いたことが無いと回答している。	ほとんどの住民が洪水予警報システムが居住地域には無いものと認識しているため、洪水予警報システム導入時に住民への広報活動が必要。
一般に洪水情報は6割が、テレビやラジオ、新聞といったマスメディアから得るものとしており、自治体などからの広報により得られると判断している住民は、1割程度である。	洪水情報が自治体など役所から得られるものと認識している住民は1割程度であり、洪水情報の伝達方法を明確にし、住民への広報活動が必要。
大きな洪水時に安全な地域へ避難するとの回答を得たのが4割程度であり、その他は、危険を感じるまで待つ、助けに来るまで待つ、洪水がひくまで待つとの回答であった。	多くの住民は、水害の可能性があっても、家を空けることを避ける傾向にある。そこで、洪水ハザードマップを作成し、洪水の危険性を周知させることが必要。
洪水観測やハザードマップ、避難計画といった洪水情報は、対象地域には無いものと全て	洪水ハザードマップや避難計画を策定し、広報活動が必要。

の住民が認識している。	
回答者 32 名のうち 14 名が避難に 1 時間を必要とすると回答しており、8 名が 2 時間必要と回答している。3 時間の回答者数は零であり、6 時間と回答した住民が 10 名を占める。	的確な避難計画を策定し、避難必要時間を 6 時間から 2 時間、さらに 1 時間程度と短縮する必要がある。
60 名のうち 57 名の住民は、水防・避難活動に関するセミナーに参加したいとの意向を示している。	洪水被害軽減に対する認識は高く、洪水危機管理計画を策定し、広報活動を行う必要がある。
モスクコミュニティに対する住民から信頼や団結が強いいため、避難活動時に活用する必要があるとのコメントがあった。	住民への警報伝達や避難計画策定時にモスクコミュニティや NGO を活用する必要がある。

(3) 社会経済状況

社会経済状況の調査結果および調査結果に対する考察を下表に列記する。

社会経済状況の調査結果および考察

社会経済状況	考察
インタビュー調査を実施した地域の人口は、202,000 人であり、この地域の識字率は 68% である。1998 年に調査されたパキスタン全国の都市部平均識字率が 65% であり、ほぼ全国平均の値を示している。	避難計画に対する広報活動を実施する場合、識字率を配慮する必要がある。
対象地域の道路幅は非常に狭く、車一台が通行できる程度である。	警報活動に車両を活用する場合、交通規制等と併せて限定的に運用する必要がある。
対象地域には、パキスタンの平均的な所得層が居住しており、特に貧困層が集中してはいない。2003 年に河川改修が行われ、河道内に居住していた不法居住者（貧困層）は立ち退いた。	河道の流下能力を低下させる原因となる河道内への不法居住を規制する洪水危機管理計画の策定が必要である。
調査対象地域には、キリスト教徒などの宗教上の少数派が居住する。	洪水警報の伝達や避難計画の広報活動を行う場合、宗教上および民族上の少数派に留意する必要がある。

3. 提言

上記ベースライン調査結果を基に、洪水予警報や避難活動に係わる現状の問題点や満足度、要望などを政府関係機関や住民に対し再度調査し、本事業実施後の改善効果を把握する。また、上記調査結果は、洪水危機管理計画や避難計画、広報活動の作成時に活用することができる。

関連組織図

- 図 - 1 連邦洪水委員会組織図
- 図 - 2 パキスタン気象局組織図
- 図 - 3 ラワルピンディ市役所組織図
- 図 - 4 上下水道局組織図

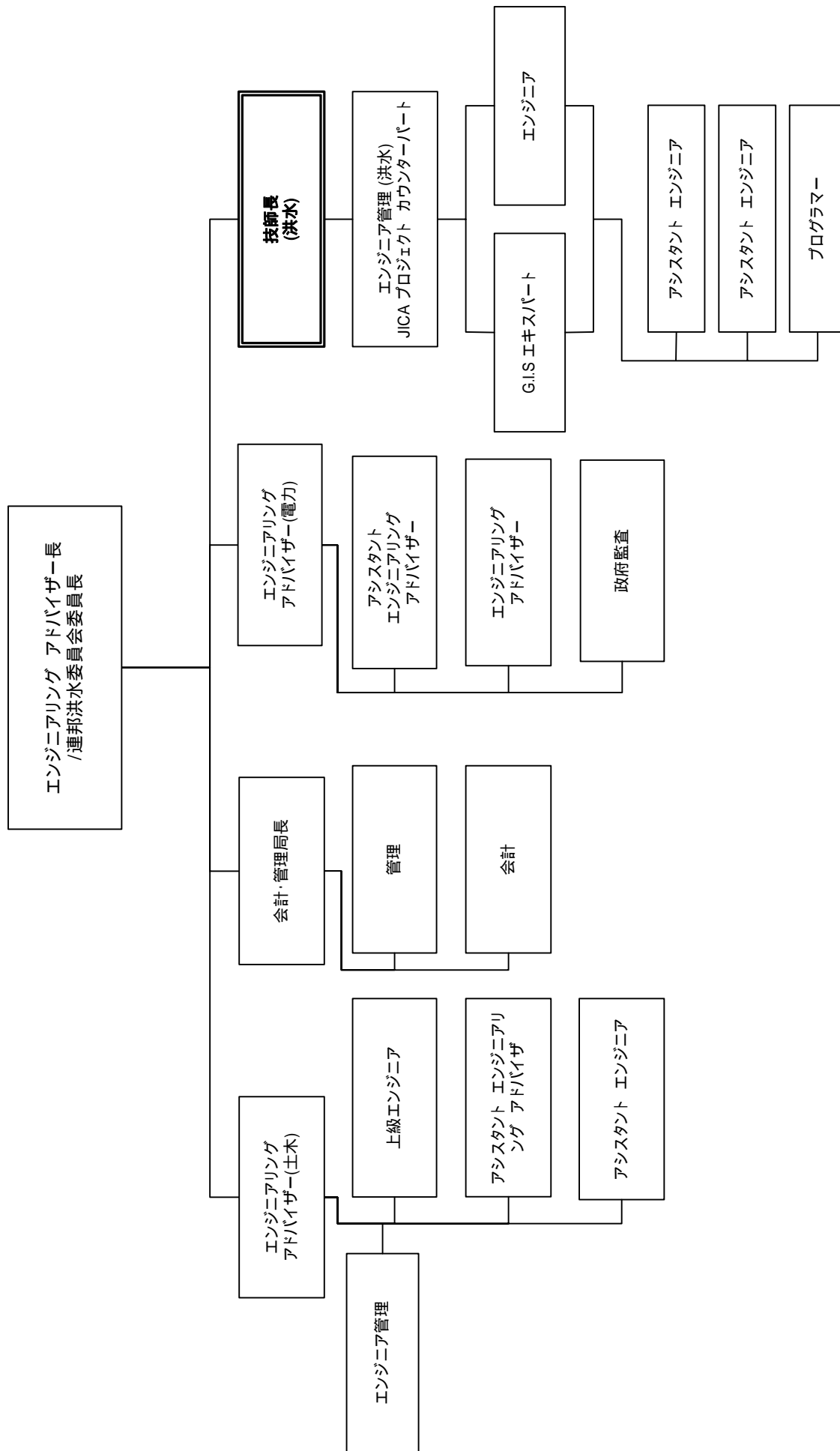


図-1 連邦洪水委員会組織図

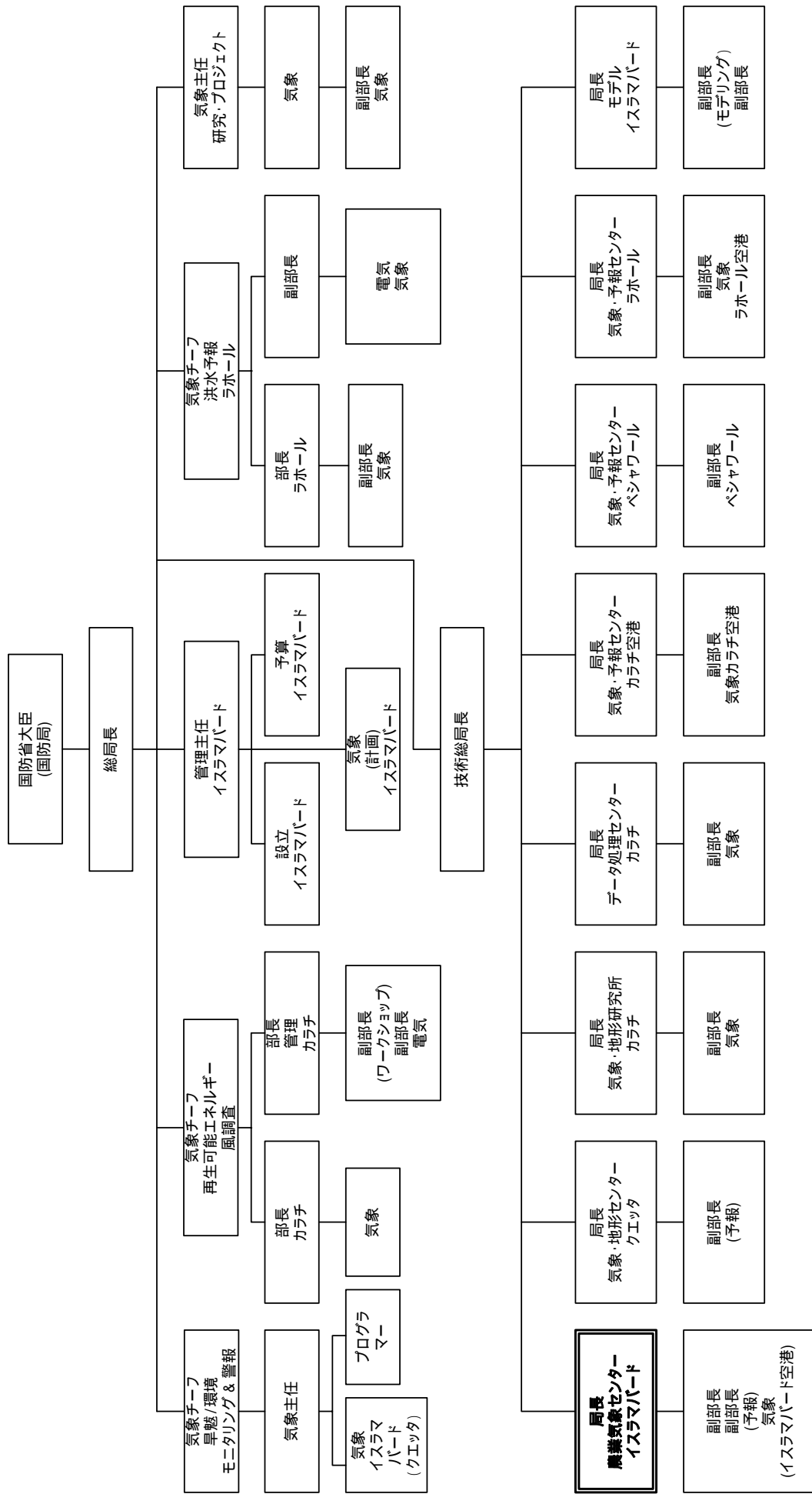


図-2 パキスタン気象局組織図

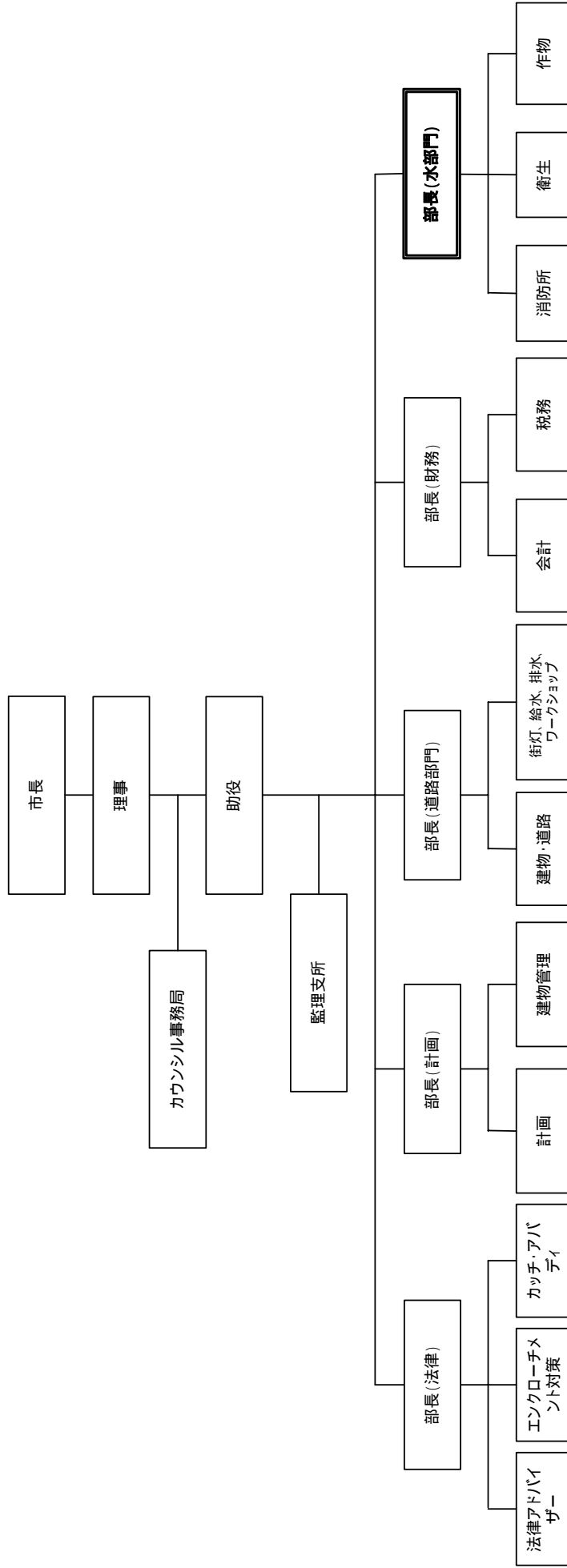


図-3 ラウルピンディ市役所組織図

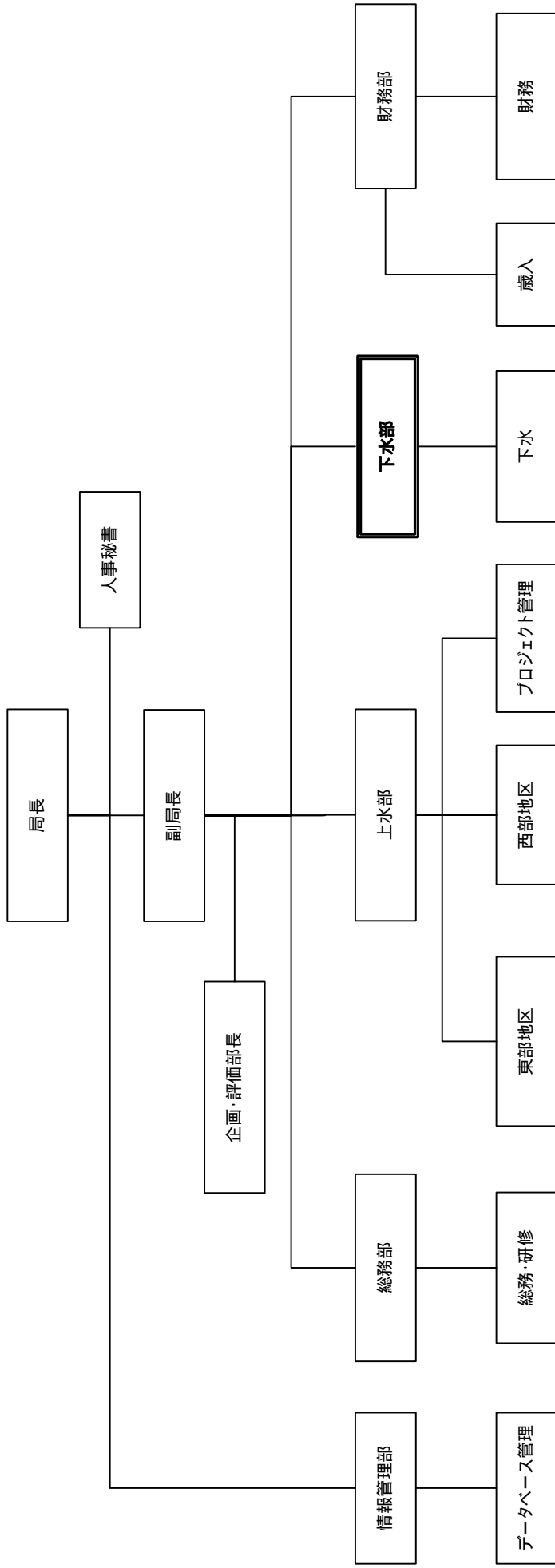


図-4 ラッフルピンディ上下水道局組織図

