別添１　要　請　書

Fax :92-51-9205971
Section Officer
Phone: 9201805

No. 3(541)ODA/05
GOVERNMENT OF PAKISTAN
MINISTRY OF FINANCE AND ECONOMIC AFFAIRS
(ECONOMIC AFFAIRS DIVISION)
Islamabad, the December 22, 2005

Subject: **Request for Japanese Expert.**

Dear Mr.Shimura,

Please refer to the captioned subject.

2. Ministry of Water & Power has requested for acquiring the services of two Japanese Experts for the project Flood Forecasting and Warning System in the field of **"Flood Disaster Prevention Planner"** and **"Hydrologist/Hydraulic Engineer"** on prescribed application forms.

3. The requisite forms completed and signed are enclosed. The Embassy of Japan is requested to consider the request favorably.

With regards,

Yours sincerely,

(MAZHAR IQBAL)

Mr. Kazunobu Shimura,
Second Secretary,
Embassy of Japan, **Islamabad**

Copy along with prescribed forms to Deputy Resident Representative, JICA Office, Islamabad.

Master File

RECEIVED

配付先 国内部□ 国際協力人材部□
総務部□ 社会開発部□ JOCV□
人間開発部□ 地球環境部□
農村開発部□ 経済開発部□

資料 要請書
1 / 16
コピー 1756

Sector Code : 2-3-D-1	Day 12 Month 9 Year 2005
Applicant: ■ Federal Ministry of Water and Power ☐ Province (☐ Balochistan ☐ NWFP ☐ Punjab ☐ Sind) Department of Federal Flood Commission	
Implementing Agency: Federal Flood Commission Address: 16-D (East), Safdar Mansion, Blue Area, Islamabad Contact Person: Mr. Ahmed Kamal, Superintending Engineer (Floods) Tel.No.: 9206589 / 9224061 Fax. No : 9221805 E-Mail pakfloodcommission@hotmail.com	

APPLICATION FORM
FOR
JAPAN'S "*TECHNICAL COOPERATION*", "*DEVELOPMENT STUDY*" AND "*GRANT AID*"*

* "Grant Aid General", "Grant Aid Fisheries" and "Grant Assistance for under Privileged Farmers"

< INSTRUCTIONS >
- ✓ Please fill in this application form concisely.
- ✓ Only required documents (Approved CCP/PC-1/PC-2, Maps, Organization Chart and so on) will be appreciated to be attached to this application form.

1. Project Title

Technical Cooperation Project for the Lai Nullah Flood Forecasting and Warning System Project

2. Procedural status in Pakistan Government

Please check box.

☑ Approved (☐ Concept Clearance Paper ■ PC-1 ☐ PC-II)
(☐ DDWP ■ CDWP ☐ ECNEC)

☐ Under preparation of CCP

■ Part of the approved project
(☐ listed in PSDP/ADP or ☐ not listed in PSDP/ADP)
(Project name: Lai Nullah Flood Forecasting and Warning System Prpject)

☐ Part of the 5 / 10 Year Plan or Medium Term Development Framework

☐ Small and no need CCP/PC-I/PC-II process

3. Site location

Please attach a rough map with this form. The map should be at a scale that clearly shows the study/project site. Mark the site.

4. Background of the Project

(1) Current condition of the sector

During the monsoon season, floods frequently overtop Lai Nullah and inflict severe damage to the lower reaches, particularly, Rawalpindi, and this situation is attributed mainly to the typical topographic characteristics of the upper tributaries of Lai Nullah.

(2) Issues and problems to be solved

The flood in July 2001 caused the worst damage, accounting for the death of 74 people and the destruction of about 3,000 houses. The deterioration of socioeconomic activities due to floods is, therefore, a very serious problem requiring a timely solution.

(3) Related Government's policy

(National/Provincial Development Plan & Sector Development Plan)

1. The national development plans in the sector of flood mitigation is the National Flood Mitigation Plan (NFPP) prepared by the Federal Flood Commission. One of the principal objectives of NFPP is to establish the flood forecasting and warning system for the strategic river basin aiming at mitigating the disastrous urban flood damages.
2. The Government of Pakistan formulated the "Master Plan of Comprehensive Food Control in Lai Nullah (the Master Plan)" with technical assistance of the Government of Japan in 2003. In the Mater Plan, the scale of the probable flood of 100-year return period was proposed as the ultimate goal of the objective flood mitigation plan. The objective flood mitigation plan was divided into three phased programs, urgent, short-term and long-term, in order to effect the immediate flood mitigation and achieve the ultimate goal of the target flood within a limit budget. Flood Forecasting and Warning System Project is recommended as a urgent method to mitigate flood in this area.

(4) Other relevant projects or activities for solving said issues and problems

The Exchange of Notes of the Lai Nullah Flood Forecasting and Warning System Project under Japanese grant aid program was signed August 10 2005 and the project is expected to complete March 2007.

5. Outline of the Project

(1) Overall Goal / Long-term objective

The overall goal of the Project is to mitigate flood damage, particularly death and injury to residents in the capital region.

(2) Project Purpose / Short-term objective

The specific objective of the Project is the prompt evacuation of residents to safer locations.

(3) Output

- Flood risk management plan including the flood evacuation plan.
- Flood drill procedures/activities and public information campaign materials concerning the effective evacuation and mitigation of flood disasters.
- Flood hazard map based on hydrological and hydraulic analyses.
- Flood run-off model using data accumulated by the proposed flood forecasting system.

(4) Project Activities

If this project is "Development Study",please fill in the "Scope of the Study" and "Study schedule", here.

- To formulate the flood risk management plan including the flood evacuation plan.
- To formulate the flood drill procedures/activities and the preparation of public information campaign materials
- To execute personnel training of government organizations concerned in Japan
- To practice evacuation activities and to execute public information campaign
- To formulate flood hazard map
- To improve staged warning code
- To establish more accurate flood run-off model
- To hold workshop

(5) Beneficiaries

Pleas identify the beneficiaries and population for which positive change are intended directly and indirectly by implementing the project, and gender disaggregated date, if available.

1.6 million people in Islamabad and Rawalpindi.

(6) Related Activities (Other donors and NGOs)

N.A.

(7) Input from the Pakistan side (Arrangement done by Pakistani side as its responsibility)

1) Counterpart personnel and support staff attached to the project (Number and Position)

Two counterpart personnel of the government organizations concerned will be assigned.

2) Available office space, vehicles, equipment and etc.

Office space with necessary furniture utilities will be provided.

3) Running expenses (allocation in PSDP or ADP)

-

4) Available data, information, documents, maps, etc

- The Final Report of the study on Comprehensive Flood Mitigation and Environmental Improvement Plan of Lai Nullah Basin (2003)
- The Basic Design Study Report on the Lai Nullah Flood Forecasting and Warning System Project (2005)

5) (If this project is "Grant Aid") Cost of equipment purchase or facility construction with its breakdown

(8) Input from the Japanese side (Request to Japanese side from Pakistani side)

1) Experts (Number, Field and qualification)
Please check box.

☐ NOT NECESSARY

■ YES Field (1) Flood Disaster Prevention Planner

(2) Hydrologist / Hydraulic Engineer

Number Two personnel

Qualification

(1) Adequate experience and knowledge on the flood control, flood risk management and public information campaign

(2) Adequate experience and knowledge on the flood run-off analysis, flood prediction and flood forecasting system.

2) Training, seminars and workshops (Expected participants and numbers)
Please check box

☐ NOT NECESSARY

☐ YES, in Pakistan

Participants	Number

■ YES, in Japan or third country

Participants	Number
(1) Federal Flood Commission	5
(2) Pakistan Meteorological Department	5
(3) TMA-Rawalpindi	5
(4) Capital Development Authority	5
(5) Cantonment Board of Rawalpindi	5

3) Equipment
Please check box

■ NOT NECESSARY

☐ YES

①Site address to be installed

②Function of the equipment

③Name of main equipment

④Cost of purchase (Cost breakdown)

⑤Specifications, the quantity, and unit price (if available)

⑥ Invoice (if available)
Please attach to this application form.

⑦ How to operate and maintain the facility, technical level of the responsible organization and the staff.

⑧Amount of the equipment

Total Amount (including the cost of Pakistan side)

Rs. _____

Request Amount (Please check box)

☐ Less than US$ 5,000,000

☐ Between US$ 5,000,000 and US$ 10,000,000

☐ More than US$ 10,000,000

☐ Rs. _____

4) Facilities (Complete or partial building construction)
Please check box.

■ NOT NECESSARY

☐ YES

①Site address

②Rationale for the selected sites
If there are some candidate sites, please specify the priority of them.

③The number and the size of the facility

④Cost of construction (Cost breakdown)

⑤Layout plan (if available)

⑥Specifications of construction materials (if available)

⑦How to operate and maintain the facility, technical level of the responsible organization and the staff

⑧Amount of the facilities

Total Amount (including the cost of Pakistan side)

Rs. _____

Request Amount (Please check box)

☐ Less than US$ 5,000,000

☐ Between US$ 5,000,000 and US$ 10,000,000

☐ More than US$ 10,000,000

☐ Rs. _____

(9) (If this project is "Development Study") The project's priority in the National Development Plan

(10) (If this project is "Development Study") Expected funding resource and/or assistance (including external organization) for implementation of plans proposed by the Development Study

6. Implementation Schedule

Month July Year 2006 ~ Month March Year 2009

7. Implementing Agency

(1) Attach an organization chart

The Project Management Unit (PMU) set up under the Project shall manage the Cooperation. PMU shall consist of, as follows:

- Federal Flood Commission (FFC)
- Pakistan Meteorological Department (PMD)
- TMA-Rawalpindi
- Capital Development Authority (CDA)
- Water and Sanitation Agency (WASA) of Rawalpindi Development Authority, and
- Cantonment Board of Rawalpindi

FFC shall act as counterpart agency of the Cooperation and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Cooperation.

8. Security Conditions

N.A.

9. Gender Consideration

N.A.

10 Environment and Social Considerations

Please fill in the attached Screening Format

11. Undertakings for the Study

The Government of Pakistan assures that the matters referred to in this form will be ensured for the smooth conduct of the Development Study and the study for the Grant Aid Project by the Japanese Study Team.

(1) To facilitate the smooth conduct of the Study, the Government of Pakistan shall take necessary measures:

1) To permit the members of the Team to enter, leave and sojourn in Pakistan for the duration of their assignments therein in connection with their assignment therein, and exempt them from foreign registration

requirements and consular fees;

2) To exempt the member of the Team from taxes, duties and any other charges on equipment, machinery and other material brought into of Pakistan for the implementation of the Study;
3) To exempt the member of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the team for their services in connection with the implementation of the Study,
4) To provide necessary facilities to the Study Team for remittance as well as utilization of the funds introduced in (the recipient country) from Japan in connection with the implementation of the Study,

(2) The Government of Pakistan shall bear claims, if any arise against the member(s) of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the team.

(3) The Implementing Agency shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

(4) The Implementing Agency shall, at its own expenses, provide the Team with the following, in cooperation with other organizations concerned.

1) Security-related information on as well as measures to ensure the safety of the team;
2) Information on as well as support in obtaining medical service;
3) Available data and information related to the Study;
4) Counterpart personnel;
5) Suitable office space with necessary office equipment and furniture;
6) Credentials or identification cards; and
7) Vehicles with drivers

(5) The Implementing Agency will, as the executing agency of the project, take responsibilities that may arise from the products of the Study. *In the case that Detail Design Study is requested.

13. Others

TECHNICAL COOPERATION
BY THE GOVERNMENT OF JAPAN

PROPOSAL

By the Government of PAKISTAN
for experts, i: e., Flood Disaster Prevention Planner; and, Hydrologist/Hydraulics Engineer
to the Government of Japan.

Note. - This form has been devised for the general guidance of the Government agencies concerned (JAPAN) in order to facilitate the supply of relevant information and data necessary to afford an adequate appreciation of the nature of the technical co-operation required. The careful completion of this proposal form will avoid much reference back and lead to speedier action.

1. **Background Information** This section should show as precisely as possible the general nature of the project for which the expert is required, stating whether it comes within the Government's development programme. It is important to indicate whether the project is a new enterprise or whether it was started previously. In the latter case, any assistance received under other technical co-operation programmes (e.g. under United Nations auspices) should be stated. With regard to industrial enterprises, some impression of the size is important and the output and number of workers to be employed are useful indications. The type of process, make and age of industrial or scientific equipment with which the expert will be concerned should be specified. In the case of academic establishments, it is an advantage to know the number of annual intake of students, their level of attainment, numbers and status of existing staff and details of any research facilities and the level of research being undertaken (Copies of brochures, annual reports, financial statements, calendars, syllabus of instruction, etc., should be attached where applicable).	**During the monsoon season, floods frequently overtop Lai Nullah and inflict severe damage to the lower reaches, particularly, Rawalpindi, and this situation is attributed mainly to the typical topographic characteristics of the upper tributaries of Lai Nullah. The flood in July 2001 caused the worst damage, accounting for the death of 74 people and the destruction of about 3,000 houses. The deterioration of socioeconomic activities due to floods is, therefore, a very serious problem requiring a timely solution.** **Under the circumstances, the Government of Pakistan formulated the "Master Plan of Comprehensive Flood Control in Lai Nullah" with technical assistance from the Government of Japan in 2003. Subsequently, as an urgent project proposed in the Master Plan, "The Project for the Improvement of the Flood Forecasting and Warning System for Lai Nullah Basin," was designed by JICA Study Team. The Exchange of Note of the project was signed between Pakistan and Japan in August 2005 to implement under Japanese grant aid. The Project is scheduled to be completed by March 2007.** **To mitigate flood disasters utilizing the proposed flood forecasting and warning system more effectively, a flood disaster prevention plan with a more precise flood prediction technique in the Lai Nullah Basin is required. For this purpose, JICA experts are needed to provide technical guidance services to agencies of the Government of Pakistan concerned.** **Japan also experiences damage by perennial floods. However, flood disaster prevention plans and flood prediction techniques have been studied in-depth and implemented with much success. It is therefore urgently requested that technical knowledge on flood forecasting and warning is to be imparted by JICA experts to local government personnel concerned for actual application in Pakistan.** The Federal Flood Commission (FFC), which is responsible for the preparation of the national flood protection plan, would also like to request the training of personnel of the Government of Pakistan concerned in the field of flood disaster prevention and public information campaign, including training in hydrological and hydraulic analysis, through the proposed flood forecasting and waning system in the Lai Nullah Basin. The national government agencies and the local government unit (LGU) are planning to assign some staffs for the training, as follows:

Agency / LGU	Trainee	Number
Federal Flood Commission	Flood Control Planner	5
Pakistan Meteorological Department	Meteorologist; Hydrologist; Hydraulic Engineer	5
TMA-Rawalpindi	River & Drainage Engineer; Civil Engineer; Staff in charge of flood disaster mitigation	5
Capital Development Authority	River & Drainage Engineer, Civil Engineer; Staff in charge of flood disaster mitigation	5
Cantonment Board of Rawalpindi	Civil Engineer; Staff in charge of flood disaster mitigation	5

To formulate the flood risk management plan, flood evacuation plan and flood hazard map, and to carry out the public information campaign associated with the flood disaster prevention plan, close cooperation and participation of NGOs, civil defense groups and other organizations concerned in flood disaster prevention are definitely required.

The employment of NGO/s, sponsorship of workshop and preparation of public information campaign materials are to be made under the requested technical cooperation. The purchase of such run-off program as MIKE-11, which has been used for developing the flood run-off model in the JICA Study on the Comprehensive Flood Mitigation and Environment Improvement Plan of Lai Nullah Basin, is further requested under the technical cooperation program. The FFC plans to utilize the knowledge and technique assimilated from the technical cooperation not only for the Lai Nullah Basin but also for other river basins in Pakistan.

2. Specification for the Post*

(a) Post Title

Flood Disaster Prevention Planner; Hydrologist/Hydraulic Engineer

(b) Duties for which the expert will be responsible.
These should preferably be listed, and it is important to give as much detail as possible.

The JICA experts requested are to provide technical guidance to the Government of Pakistan on the formulation and implementation of plans, projects and programs in the field of flood disaster prevention and hydrology/hydraulic analysis, as follows:

Flood Disaster Prevention and Public Information Campaign

- Formulation of the flood risk management plan including the flood evacuation plan.
- Formulation of flood drill procedures/activities and the preparation of public information campaign materials concerning the effective evacuation and mitigation of flood disasters.
- Training in Japan to gain further knowledge on flood risk management, evacuation activities, hazard mapping and public information campaign.
- Execution of public information campaign and practice of evacuation activities in Lai Nullah.

Hydrological and Hydraulic Analysis

- Formulation of flood hazard map based on hydrological

	• improvement of the staged warning code • Formulation of a more accurate flood run-off model using data accumulated by the proposed flood forecasting system.
(c) Authority to whom expert will be responsible.	- Federal Flood Commission, Ministry of Water and Power, Government of Pakistan; - Pakistan Meteorological Department; - TMA-Rawalpindi; - Capital Development Authority; - Cantonment Board of Rawalpindi
(d) Qualification and experience required and approximate age limits	Flood Disaster Prevention with Public Information Campaign Adequate experience and knowledge on flood control in the Lai Nullah Basin, flood risk management and public information campaign in the field of flood control. Hydrological and Hydraulic Analysis Adequate experience and knowledge on flood run-off analysis in Lai Nullah Basin using MIKE 11, and on flood prediction and the flood forecasting system in Lai Nullah Basin.
(e) Number of personnel required.	Two (2) personnel, namely; One (1) Flood Disaster Prevention Planner, and One (1) Hydrologist/Hydraulics Engineer
3. In the case of continuous projects, give name and particulars of understudy or counterpart who is to work with the expert.	None
4. Terms and conditions of appointment: (a) Duration	Two-and-a-half years (2.5 years)
(b) Actual place of employment, nearest town and post office	Islamabad and Rawalpindi
(c) If living accommodation is to be provided, state whether furnished or unfurnished and whether suitable for married man with family.	Accommodation will be arranged by the Government of Pakistan. Expenses will be borne by the Government of Japan.
(i) Daily allowance for food if accommodation only provided	As admissible to Colombo Plan Experts
(ii) Daily rate for accommodation and food if neither are provided in kind	- ditto -
(d) Daily and nightly rates of subsistence payable when away from base on duty	- ditto -
(e) Are costs of internal travel paid or car provided?	- ditto -
(f) What leave arrangements are suggested?	- ditto -
(g) Extent to which free hospital and medical treatment is to be provided for the expert and his accompanying dependents, if any.	As admissible to Class I officials of the Government of Pakistan

(h) Shall the expert be exempted from the	

5. **Correspondence** Name. postal and telegraphic address of official to whom correspondence regarding this application should be forwarded.	Federal Flood Commission Ministry of Water and Power 16-D (East), Safdar Mansion Blue Area, Islamabad PAKISTAN

* *It is essential that full particulars should be given. If the space provided is inadequate, they should be given on a separate sheet.*

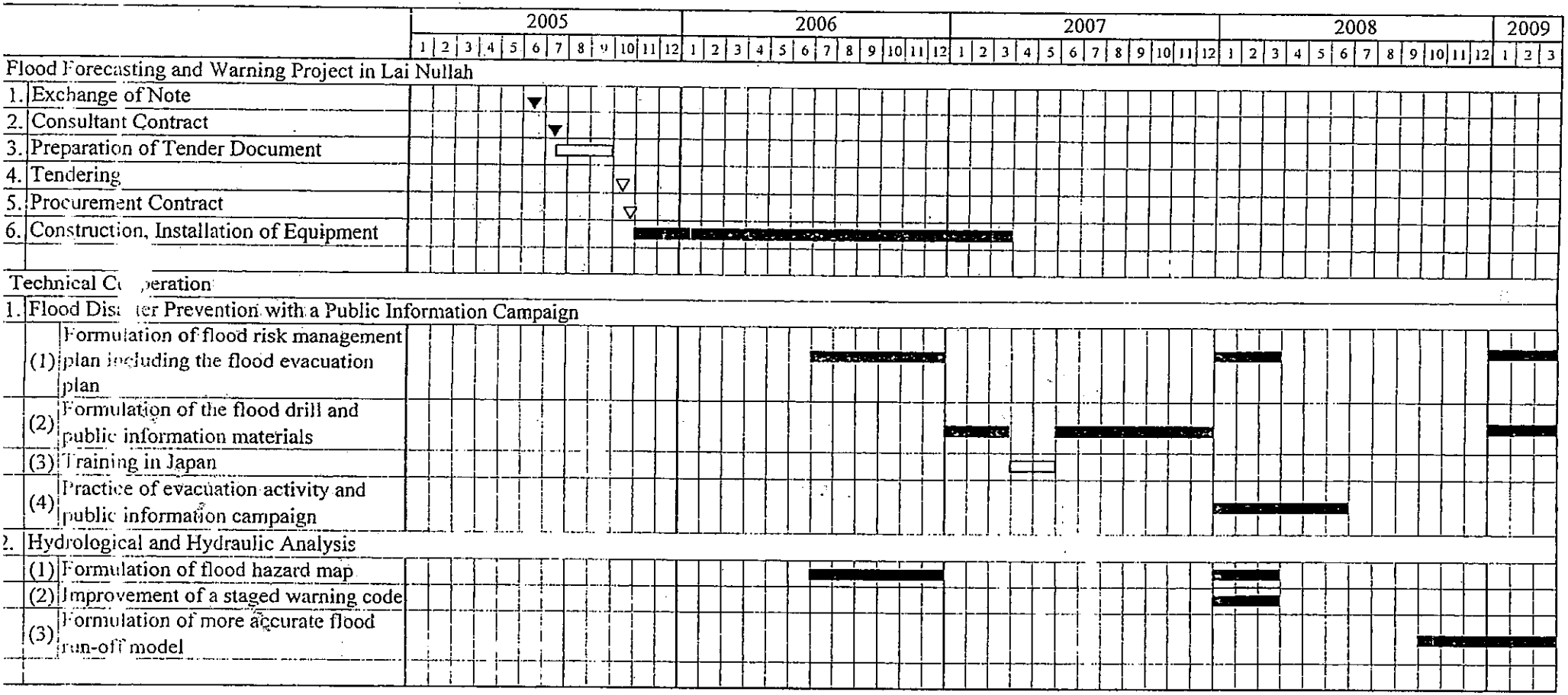
Signed: I.B. SHAIKH

Chief Engineering Advisor /
Chairman Federal Flood Commission
Ministry of Water & Power
Islamabad.

on behalf of the Government of: PAKISTAN

Date: 2/12/05

Implementation Schedule of Flood Forecasting and Warning Project in Lai Nullah and Technical Cooperation



別添２　Minutes of Meetings

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF ISLAMIC REPUBLIC OF PAKISTAN
FOR
THE PROJECT FOR STRENGTHENING FLOOD RISK MANAGEMENT IN LAI NULLAH BASIN

In response to the request from the Government of the Islamic Republic of Pakistan, the Preparatory Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Mr. Satoru Mimura, conducted the preparatory study from 13 August to 1 September, 2007 , for the purpose of working out the details of the technical cooperation program concerning the Project for Strengthening of Flood Risk Management in Lai Nullah Basin (hereinafter referred to as the 'Project'), in the Islamic Republic of Pakistan.

During the study, the Team exchanged views and had a series of discussions with the Pakistani authorities concerned with respect to desirable measures to be taken by JICA and the Government of the Islamic Republic of Pakistan represented by Federal Flood Commission (hereinafter referred to as 'FFC'), City District Government of Rawalpindi (hereinafter referred to as 'CDG'), Pakistan Meteorological Department (hereinafter referred to as 'PMD') and other organizations concerned, for the successful implementation of the above-mentioned Project. As a result of the discussions, the Team and the Pakistani authorities concerned agreed to recommend to their respective Governments the matters referred to in the documents attached hereto.

Islamabad, 30 August 2007

三村 悟

Mr. Satoru Mimura
Leader,
Preparatory Study Team
Japan International Cooperation Agency
Japan

I. B. Sheikh

Engr.Dr. I. B. Sheikh
Chief Engineering Advisor/
Chairman,
Flood Federal Commission
Ministry of Water and Power
Islamic Republic of Pakistan

Sabina Qureshi

Ms.Sabeena Qureshi
Deputy Secretary, (ADB/ Japan)
Economic Affairs Division
Ministry of Economic Affair and Statistics
Islamic Republic of Pakistan

Mr. Muhammad Irfan Elahi
District Coordination Officer,
City District Government Rawalpindi
Islamic Republic of Pakistan

Dr. Qamar uz Zaman Chaudry
Director General,
Pakistan Meteorological Department
Islamic Republic of Pakistan

Mr. Ayub Tariq
Director - Regional Planning,
Capital Development Authority, Islamabad
Islamic Republic of Pakistan

For CE(R&C)

Mr. Sheikh Shahid Bashir
Chief Executive Officer,
Rawalpindi Cantonment Board
Islamic Republic of Pakistan

Mr. Malik Mumtaz Ahmad
Tehsil Municipal Officer,
Tehsil Municipal Administration Rawal Town Rawalpindi
Islamic Republic of Pakistan

Lt. Co (Rtd) Islam-ul-Haq
Managing Director,
Water and Sanitation Agency, Rawalpindi
Islamic Republic of Pakistan

ATTACHED DOCUMENT

I. PROJECT TITLE

The title of the Project is 'the Project for Strengthening of Flood Risk Management in Lai Nullah Basin'

II. DURATION OF THE PROJECT

The duration of the Project is two (2) years from January 2008 tentatively.

III. PROJECT DESIGN MATRIX (PDM)

Both JICA and the Pakistani sides had a series of discussion and agreed to finalize the Project Design Matrix (hereinafter referred to as "PDM") Version-0 shown in Annex 1. The PDM is to be flexibly amended in view of the progress and achievements of the Project based upon agreement between the Japanese and Pakistani sides.

IV. PLAN OF OPERATION (PO)

The tentative Plan of Operation (hereinafter referred to as "PO") Version-0 for the whole project period is shown in Annex 2. The Activities of the Project are subject to change within the scope of the Record of Discussions (hereinafter referred to as "R/D") when necessity arises in the course of the Project's implementation.

V. PROJECT TARGET SITES

The Project target sites will be the areas where had been affected by the flood in 2001 around the Lai Nullah river basin.

VI. HAZARD MAPS

Two types of hazard map will be prepared in the Project:

(1) Hazard map for evacuation planning, which covers entire target sites
(2) Hazard maps for raising public awareness about evacuation, which are separated into several zones

VII. PILOT AREAS

At the beginning of the Project, pilot area (zone) will be identified based on the social survey and the historical record of floods. In the pilot area, Pakistani counterparts and JICA experts will conduct awareness programs and drills in the first year. The Pakistani related organizations will learn how to conduct awareness programs and drills through activities in the pilot area and expand these activities to other areas (zones) in the second year on their

own initiative.

VIII. FLOOD RELIEF PLAN

The existing flood relief plan will be revised during the Project, based on which all the related organizations have their own responsibility for preparing floods. The plan will be reviewed annually by the flood relief committee. Flowchart of information, operational manual for each organization, evacuation plan and other important issue will be added in the plan.

IX. MAINTENANCE OF EQUIPMENT

Japanese side emphasized proper maintenance of equipment on flood forecasting and warning system should be done by related Pakistani authorities for successful implementation of the Project. FFC, as agency responsible for administration and coordination of the Project, will also coordinate for maintenance to ensure long-term benefits.

X. ADMINISTRATION OF THE PROJECT

1. FFC will be responsible for administration and coordination of the project as a leading counterpart organization.

2. CDG and PMD will be principal counterparts which will accept technical transfers and primarily carry out the project in cooperation with Japanese experts and other related organizations.

3. Following organizations will be members of the Joint Coordination Committee (hereinafter referred to as "JCC"). Other eligible organizations will be notified to JICA by FFC before the commencement of the Project, if any.
   - Joint Secretary (ADB/Japan) / Representative of Economic Affairs Divison, Ministry of Economic Affair and Statistics
   - Deputy Secretary/ Representative of Ministry of Water and Power
   - District Coordination Officer/ Representative of City District Government
   - Director General/ Representative of Pakistan Meteorological Department
   - Tehsil Municipal Officer/ Representative of Tehsil Municipal Administration Rawal town Rawalpindi
   - Member Planning/ Representative of Capital Development Authority
   - Chief Executive Officer/ Representative of Rawalpindi Cantonment Board
   - Managing Director/ Representative of Water and Sanitation Agency of Rawalpindi Development Authority

- Representative of other related organizations

XI. JOINT COORDINATION COMMITTEE

For the effective and successful implementation of the Project, JCC will be established in order to fulfill the following function, with coordination and cooperation with flood relief committee:

(1) To review the progress of the Project

(2) To exchange views and ideas on major issues which arise during the implementation period of the Project

(3) To evaluate PDM during the course of the Project and suggest revision, if necessary.

(4) Any other related issue

The chairperson will be Chief Engineer (flood), Federal Flood Commissions and will bear overall responsibility for the administration and implementation of the Project.

XII. INPUTS FROM JICA

1. Dispatch of Japanese experts

The Japanese side will provide the services of the Japanese experts in following expertise:

(1) Leader / Early Warning and Evacuation Planning

(2) Flood Forecasting and Warning System

(3) Hydrology

(4) Community-based Disaster Management

2. Training of counterpart personnel

For their capacity development, Pakistani counterparts will be provided with training in the field of such as hydrology, community based disaster management etc. in Japan and/or third countries during the project period. The participants and contents of the trainings will be decided upon basis of the purpose of the Project in consultation with JCC. Participants of the trainings shall be selected among the counterparts directly engaging with the Project activities based on their performance. Trainees are expected to feedback their experience and knowledge for better implementation of the Project.

PMD requested Japanese side to conduct training on hydrology in the course of the Project for their capacity development.

3. Provision of equipment

Basic equipments and facilities for the project have already been provided through Japanese grant aid. In case of necessity for equipment arises in course of the Project, both sides will discuss on the matter.

4. Budget for hazard maps

The Japanese side will provide necessary cost for printing hazard maps which will be utilized in the Project. Amount of these materials will be decided under the condition that both sides agreed according to the necessity and budget constraint. Development of hazard map will be done in cooperation with both sides.

5. Budget for the workshops and drills

The Japanese side will provide necessary cost for holding workshops and drills for the first year of the Project. Pakistani side will make efforts to bear the budget for the second year.

XIII. INPUT FROM THE GOVERNMENT OF PAKISTAN

1. Assignment of counterparts and administrative personnel

The Pakistani side agreed to assign the counterpart(s) according to the Japanese expert(s) and an appropriate number of administrative personnel for smooth implementation of the Project activities, as follows:

(1) Project Director from FFC
(2) Project Manager from CDG
(3) Counterpart Staff
  1) Flood Risk Management Planner from FFC
  2) Flood Risk Management Planner from CDG
  3) Flood Risk Management Planner from PMD
  4) Community Mobilizer from CDG (Civil Defense)
  5) Community Mobilizer from CDG (Rescue 1122)
  6) Hydrologist from FFC
  7) Hydrologist from PMD
  8) Meteorologist from PMD
(4) Assistants/ Supporting Staffs
(5) Other personnel mutually agreed upon, if necessary

2. Provision of office spaces and basic office equipment

The Pakistani side will prepare office space with basic office equipment such as desk, chairs, computers, telephone line and air conditioner in PMD building as a main office and in CDG building as a sub office for the implementation of the Project.

3. Exemption from taxes and other charges for machinery, equipment and other materials supplied by JICA.

4. Budget for the workshops and drills

The Pakistani side will make efforts to bear necessary cost for holding workshops and drills for the second year of the Project.

5. Salaries of counterparts

The both side agreed that all the salaries of Pakistani counterpart and administrative personel will be paid by Pakistani side.

XIV. OTHERS

Pakistani side requested to utilize short message service system for the warning.

XV. RECORD OF DISCUSSIONS (DRAFT)

Both side discussed and agreed the Master plan, scope and measures to be taken for the implementation of the Project and finalized the Record of Discussions (hereinafter referred to as 'R/D') (draft). The draft document of R/D, which will be signed by both sides after the formal approval by the JICA Headquarters, is shown in Annex3.

LIST OF ANNEX

Annex 1. PROJECT DESIGN MATRIX (PDM) VERSION-0

Annex 2. TENTATIVE PLAN OF OPERATION (PO) VERSION-0 FOR THE WHOLE PROJECT PERIOD

Annex 3. RECORD OF DISCUSSIONS (DRAFT)

ANNEX I

Project Design Matrix (PDM) Version-0

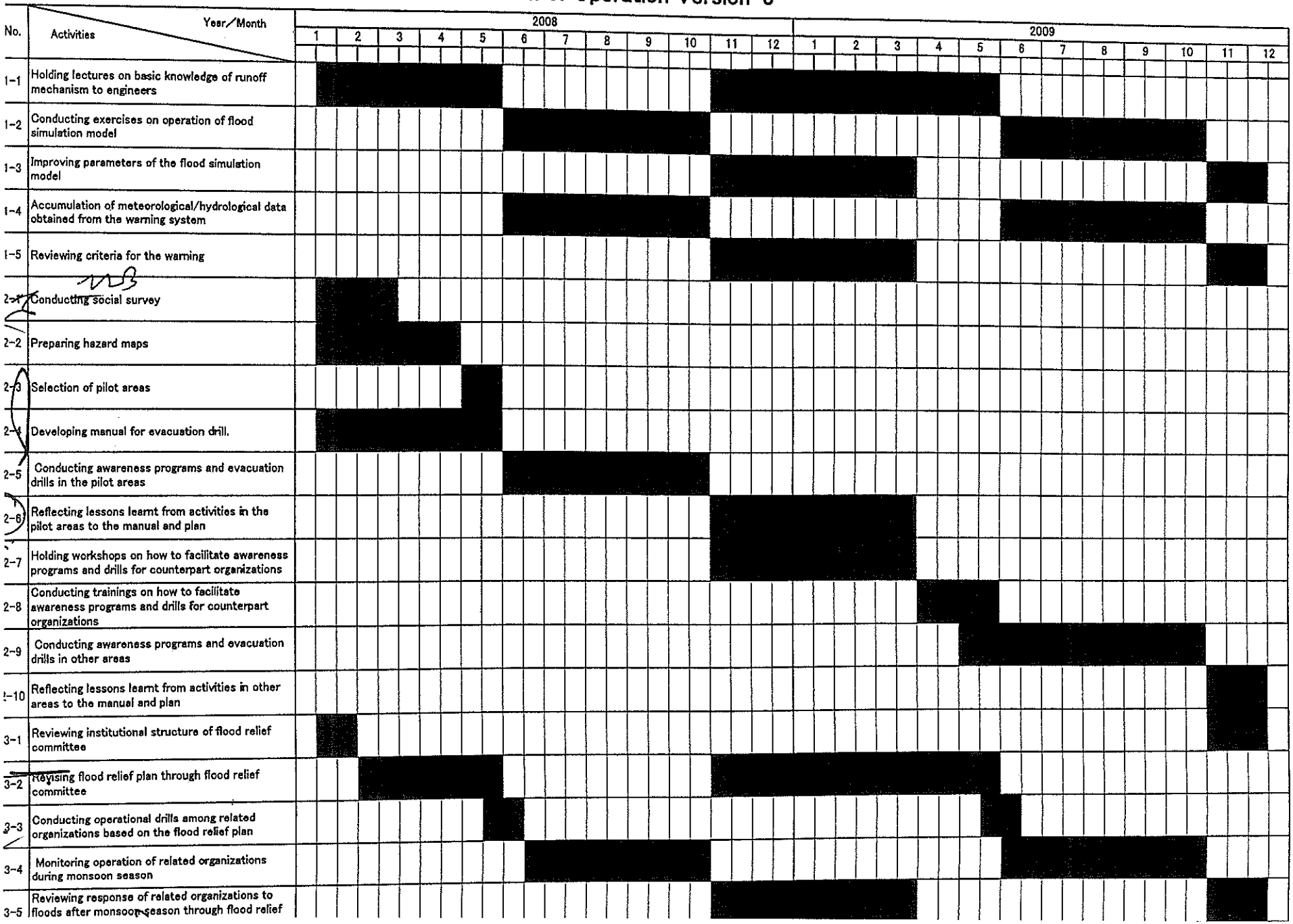
Project Title: The Project for Strengthening of Flood Risk Management in Lai Nullah Basin
Period: 2008. 1. ~ 2009. 12 (2 years)
Implementing Organizations: Federal Flood Commission, Pakistan Meteorological Department, City District Government,
Related Organizations: Tehsil Municipal Administration, Rawalpindi, Capital Development Authority, Cantonment Board of Rawalpindi, Water and Sanitation Agency of Rawalpindi Development Authority
Target Group: Staffs in related organizations, People living in the target areas

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Flood damage and victims are mitigated in the target area.	Number of human victims at the event of the flood	1. Report of FFC 2. Report of National Disaster Management Authority	
Project Purpose System and structure which enables mass evacuation at the event of floods is established in the target area.	1. Revised flood relief plan is authorized 2. Flood relief plan is used by related organizations 3. Hazard map and evacuation places are known among people 4. Continuity of evacuation drills with initiative of Pakistani side	1. Minutes of meetings of JCC 2. Questionnaire to the people 3. Hearing to the people in the pilot area	1. flood situation in the target area will not get drastically worse.
Outputs 1. Capacity of PMD is strengthened enough to utilize flood early warning system effectively and issue warning properly. 2. Capacity of local authorities is developed enough to promote people's awareness and preparedness for the floods. 3. Capacity of related organizations is strengthened enough to mitigate the damage of flood.	**Indicators** 1-1. Number of staff who understand runoff mechanism 1-2. Number of exercises conducted 1-3. Number of staff who can utilize flood simulation model 1-4. Revised criteria for the warning 2-1. Hazard maps prepared 2-2. Manual for evacuation drill prepared 2-3. Number of workshops and drills held 2-4. Number of people who participate in workshops and drills 3-1. Revised flood relief plan for each year 3-2. Number of meetings held among flood relief committee	1-1. Record of the system operation 1-2. Report on the exercises 2-1. Progress report of the Project 2-2. Report on workshops and drills 3-1. Progress report of the Project	1. Institutional and financial arrangements of the organizations concerned will be done as planned. 2. Mandate of each organization will not be changed

Activities	Inputs Pakistani Side	Japanese Side	Preconditions
1-1. Holding lectures on basic knowledge of runoff mechanism to engineers 1-2. Conducting exercises on operation of flood simulation model 1-3. Improving parameters of the flood simulation model 1-4. .Accumulation of meteorological/hydrological data obtained from the warning system 1-5. Reviewing criteria for the warning 2-1. Conducting social survey 2-2. Preparing hazard maps 2-3. Select pilot areas 2-4. Developing manual for evacuation drill. 2-5. Conducting awareness programs and evacuation drills in the pilot areas 2-6. Reflecting lessons learnt from activities in the pilot areas to the manual and plan 2-7. Holding workshops on how to facilitate awareness programs and drills for counterpart agencies 2-8. Conducting trainings on how to facilitate awareness programs and drills for counterpart agencies 2-9. Conducting awareness programs and evacuation drills in other areas 2-10. Reflecting lessons learnt from activities in other areas to the manual and plan 3-1. Reviewing institutional structure of flood relief committee 3-2. Revising flood relief plan through flood relief committee 3-3. Conducting operational drills among related organizations based on the flood relief plan 3-4. Monitoring operation of related organizations during monsoon season 3-5. Reviewing response of related organizations to floods after monsoon season through flood relief committee	1. Personnel (1) Project Director from FFC (2) Project Manager from CDG (3) Flood Management Planner from FFC (4) Flood Management Planner from CDG (5) Flood Management Planner from PMD (6) Community mobilizer from CDG (Civil Defense) (7) Community mobilizer from CDG (Rescue 1122) (8) Hydrologist from FFC (9) Hydrologist from PMD (10) Meteorologist from PMD (11) Assistants/ Supporting Staffs (12) Other personnel mutually agreed upon if necessary 2. Provision of office spaces with basic office equipment 3. Exemption from taxes and other charges for machinery, equipment and other materials supplied by JICA. 4. Budget for the workshops and drills for second year 5. Salaries of counterparts	2. Experts (1) Leader / Early Warning and Evacuation Planner (2) Flood Forecasting and Warning System (3) Hydrologist (4) Community-based Disaster Management Planner (5) Others if necessary 3. Trainings for counterpart personnel in Japan and/or third countries 4. Budget for hazard maps 5. Budget for the workshops and drills in the first year	1. Institutional and financial arrangements of the organizations concerned will be done as planned. 2. Mandate of each organization will not be changed **Preconditions** 1. Security situation will not get worse. 2. Equipments on the early warning system will be properly maintained and utilized

ANNEX2

Plan of Operation Version-0



RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF ISLAMIC REPUBLIC OF PAKISTAN
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR STRENGTHENING FLOOD RISK MANAGEMENT IN LAI NULLAH BASIN

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), through the Resident Representative of JICA Pakistan Office, exchanged the views and had a series of discussion with the related Pakistan authorities with respect to desirable measures to be taken by JICA and the Government of Pakistan for the successful implementation of the Project for Strengthening of Flood Risk Management in Lai Nullah Basin (hereinafter referred to as "the Project").

As a result of discussion, JICA and the related Pakistani authorities agreed to the matters referred to in the document attached hereto.

Islamabad, XX September 2007

Mr. Takao Kaibara
Resident Representative,
JICA Pakistan Office
Japan International Cooperation Agency
Japan

Engr.Dr. I. B. Sheikh
Chief Engineering Advisor/
Chairman,
Flood Federal Commission
Ministry of Water and Power
Islamic Republic of Pakistan

Ms.Sabeena Qureshi
Deputy Secretary, (ADB/ Japan)
Economic Affairs Division
Ministry of Economic Affair and Statistics
Islamic Republic of Pakistan Mohammad

Mr. Muhammad Irfan Elahi
District Coordination Officer,
City District Government Rawalpindi
Islamic Republic of Pakistan

Dr. Qamar uz Zaman Chaudry
Director General,
Pakistan Meteorological Department
Islamic Republic of Pakistan

Mr. Ayub Tariq
,Director Reogional Planning,
Capital Development Authority, Islamabad
Islamic Republic of Pakistan

Mr. Sheikh Shahid Bashir
Chief Executive Officer,
Rawalpindi Cantonment Board
Islamic Republic of Pakistan

Mr. Malik Mumtaz Ahmad
Tehsil Municipal Officer,
Tehsil Municipal Administration Rawal Town Rawalpindi
Islamic Republic of Pakistan

Lt. Co (Rtd) Islam-ul-Haq
Managing Director,
Water and Sanitation Agency, Rawalpindi
Islamic Republic of Pakistan

ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERMENT OF PAKISTAN

1. The Government of Pakistan will implement 'the Project for Strengthening of Flood Risk Management in Lai Nullah Basin' in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan shown in ANNEX 1.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan, and provisions of Article III of the Agreement on Technical Cooperation between Government of the Islamic Republic of Pakistan and the Government of Japan signed on 30th April 2005 (hereinafter referred to as "the Agreement"), JICA, as the executing agency for technical cooperation by Japanese government, will take, at its own expense, the following measures.

1. DISPATCH OF JAPANESE EXPERTS
JICA will provide the services of the Japanese experts as listed in ANNEX 2. The provisions of Article V of the Agreement will be applied to the experts.

2. PROVISION OF EQUIPMENT
JICA will provide equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project in case of necessity arises in course of the Project. The provisions of Article VII of the Agreement will be applied to the Equipment.

3. TRAINING OF PAKISTANI PERSONNEL IN JAPAN AND THIRD COUNTRIES
JICA will receive the Pakistani personnel connected with the Project for technical training in Japan and/or other third countries.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF PAKISTAN

1. The Government of Pakistan will take necessary measures to ensure the self-reliant and self-sustainable operation of the Project during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of Pakistan will ensure that the technologies and knowledge acquired by the Pakistani nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of the Islamic Republic of Pakistan.

3. In accordance with Article V of the Agreement, the Government of Pakistan will grant privileges, exemptions and benefits to the Japanese experts mentioned in ANNEX2 and their families.

4. In accordance with Article VII of the Agreement, the Government of Pakistan will ensure that the Equipment will be utilized effectively for the implementation of the Project in consultation with the Japanese experts mentioned in ANNEX 2.

5. The Government of Pakistan will take necessary measures to ensure that the knowledge and experience acquired by the Pakistani personnel from technical training in Japan or any third countries will be utilized effectively in the course of and after the Project.

6. In accordance with the laws and regulations in force in Pakistan, the Government of Pakistan will take necessary measures to provide at its own expense:
   (1) Assignment of the Pakistani counterpart personnel and administrative personnel as listed in the ANNEX 3; and
   (2) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts, maintenance cost and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA

7. In accordance with the laws and regulations in force in Pakistan, the Government of Pakistan will take necessary measures to bear :
   (1) Expenses necessary for transportation within Pakistan of the Equipment as well as for the installation, operation and maintenance thereof;
   (2) Customs duties internal taxes and any other charges imposed in Pakistan on

the Equipment ;

(3) Value added tax and other fiscal charges of any kind imposed in Pakistan on the Equipment in case of local purchase; and

(4) Running expenses necessary for the implementation of the Project

IV. ADMINISTRATION OF THE TECHNICAL COOPERATION

1. Chief Engineer (flood) of Federal Flood Commission (hereinafter referred to as "FFC") as the Director of the Project, will bear overall responsibility for the administration and coordination of the Project.

2. District Coordination Officer of City District Government, (hereinafter referred to as "CDG") as the Manager of the Project, will be responsible for the managerial and technical matters of the Project.

3. The Leader of the Japanese expert team will provide necessary recommendations and advice to the Director and Manager of the Project on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to Pakistani counterpart personnel on technical matters pertaining to the implementation of the Project.

5. Counterpart personnel and Japanese experts will hold monthly meeting for smooth implementation of the Project. The results of the meeting will be reported to the Director of the Project.

6. For the effective and successful implementation of the Project, a Joint Coordination Committee (hereinafter referred to as "JCC") will be established whose functions and composition are described in ANNEX 4. The overall policy decision, coordination and progress monitoring of the Project will be conducted through the JCC jointly by JICA and Pakistani authorities concerned.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA evaluation team and the Pakistani authorities concerned during the last six months of the cooperation term in order to evaluate the level of achievement and monitor the process of the Project.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provisions of Article VI of the Agreement, the Government of Pakistan undertakes to bear claims, if any arises, against the Japanese experts engaged in the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Islamic Republic of Pakistan except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of Pakistan on any major issue arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE TECHNICAL COOPERATION

For the purpose of promoting support for the Technical Cooperation among the people of the Islamic Republic of Pakistan, the Government of Pakistan will take appropriate measures to make the Technical Cooperation widely known to the people of the Islamic Republic of Pakistan.

IX. TERM OF COOPERATION

The duration of the Project under this Attached Document will be from January 2008 to January 2010 (2 years) tentatively.

LIST OF ANNEXES

ANNEX 1

MASTER PLAN

1. **Overall Goal**

Flood damage and victims are mitigated in the target area.

(Indicator: Number of human victims at the event of the flood)

2. **Project Purpose**

System and structure which enables mass evacuation at the event of floods is established in the target area.

(Indicator1: Revised flood relief plan is authorized)

(Indicator2: Flood relief plan is used by related organizations)

(Indicator3: Hazard map and evacuation place are known among people)

(Indicator4: Continuity of evacuation drills with initiative of Pakistan side)

3. **Outputs**

3.1 Capacity of PMD is strengthened enough to utilize flood simulation model effectively and issue warning properly.

(Indicator1: Number of staff who understand runoff mechanism)

(Indicator2: Number of exercises conducted)

(Indicator3: Number of staff who can utilize flood simulation model)

(Indicator4: Revised criteria for the warning)

3.2 Capacity of local authorities is developed enough to promote people's awareness and preparedness for the floods.

(Indicator1: Hazard map prepared)

(Indicator2: Manual for evacuation drill prepared)

(Indicator3: Number of workshops and drills held)

(Indicator4: Number of people who participate in workshops and drills)

3.3 Capacity of related organizations on flood risk management is strengthened enough to share, transmit and disseminate information properly and quickly at the event of flood.

(Indicator1: Revised flood relief plan for each year)

(Indicator2: Number of meetings held among flood relief committee)

4. **Activities**

4.1 Component 1 (for Output 1): Capacity of PMD is strengthened enough to utilize

flood simulation model effectively and issue warning properly.

1-1. Holding lectures on basic knowledge of runoff mechanism to engineers
1-2. Conducting exercises on operation of flood simulation model
1-3. Improving parameters of the flood simulation model
1-4. Accumulation of meteorological/hydrological data obtained from the warning system
1-5. Reviewing criteria for the warning

4.2 Component 2 (for Output 2): Capacity of local authorities is developed enough to promote people's awareness and preparedness for the floods.

2-1. Conducting social survey
2-2. Preparing hazard maps
2-3. Select pilot areas
2-4. Developing manual for evacuation drill.
2-5. Conducting awareness programs and evacuation drills in the pilot areas
2-6. Reflecting lessons learnt from activities in the pilot areas to the manual and plan
2-7. Holding workshops on how to facilitate awareness programs and drills for counterpart agencies
2-8. Conducting trainings on how to facilitate awareness programs and drills for counterpart agencies
2-9. Conducting awareness programs and evacuation drills in other areas
2-10. Reflecting lessons learnt from activities in other areas to the manual and plan

4.3 Component 3 (for Output 3): Capacity of related organizations on flood risk management is strengthened enough to share, transmit and disseminate information properly and quickly at the event of flood.

3-1. Reviewing institutional structure of flood relief committee
3-2. Revising flood relief plan through flood relief committee
3-3. Conducting operational drills among related organizations based on the flood relief plan
3-4. Monitoring operation of related organizations during monsoon season
3-5. Reviewing response of related organizations to floods after monsoon season through flood relief committee

Note: In case the Master Plan needs to be modified, both sides will agree on and confirm such modifications in minutes of meeting.

ANNEX 2

LIST OF JAPANESE EXPERTS

1. Leader / Early Warning and Evacuation Planning
2. Flood Forecasting and Warning System
3. Hydrology
4. Community-based Disaster Management

Notes: Field, number and term of assignment of experts will be decided through mutual consultation at the beginning of each Japanese fiscal year.

ANNEX 3

LIST OF PAKISTANI COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Project Director:
   Chief Engineer (flood) of FFC

2. Project Manager
   District Coordination Officer of CDG

3. Counterpart Staff
   (1) Flood Risk Management Planner from FFC
   (2) Flood Risk Management Planner from CDG
   (3) Flood Risk Management Planner from Pakistan Meteorological Department (hereinafter referred to as "PMD")
   (4) Community mobilizer from CDG (Civil Defense)
   (5) Community mobilizer from CDG (Rescue 1122)
   (6) Hydrologist from FFC
   (7) Hydrologist from PMD
   (8) Meteorologist from PMD

4. Assistants/ Supporting Staffs

5. Other personnel mutually agreed upon if necessary

Notes: The Pakistani side will identify each counterpart personnel by the commencement of the Project.

ANNEX 4

JOINT COORDINATION COMMITTEE

1. Function

For the effective and successful implementation of the Project, the Joint Coordination Committee will be established in order to make decisions relevant to the Project. The Joint Coordination Committee will meet when necessary and at least twice a year in order to fulfill the following functions:

(1) To review the progress of the Project
(2) To exchange views and ideas on major issues which arise during the implementation period of the Project
(3) To evaluate PDM during the course of the Project and suggest revision, if necessary.
(4) Any other related issue

2. Committee members

The committee will be composed of the chairperson and the members. The rules and guidelines for the management of the committee will be determined at the initial stage of the Project. The agreed composition is as follows:

(1) Chairperson:
Chairman of FFC
(2) Members on Pakistani side
- Joint Secretary (ADB/Japan) / Representative of Economic Affairs Divison, Ministry of Economic Affair and Statistics
- Deputy Secretary/ Representative of Ministry of Water and Power
- District Coordination Officer/ Representative of City District Government
- Director General/ Representative of Pakistan Meteorological Department
- Tehsil Municipal Officer/ Representative of Tehsil Municipal Administration Rawal town Rawalpindi
- Member Planning/ Representative of Capital Development Authority
- Chief Executive Officer/ Representative of Rawalpindi Cantonment Board
- Managing Director/ Representative of Water and Sanitation Agency of Rawalpindi Development Authority
- Representative of other related organizations

(3) Members on Japanese side

- Resident Representative / Representative of Pakistan Office, JICA
- JICA Experts
- Officials, Embassy of Japan (Observer)
- Other personnel recommended by JICA

別添3　質問表回答

Questionnaires

Prepared by JICA Preparatory Study Team

For

The Project on Capacity Development for Flood Risk Management

For the Lai Nullah River

August 2007

Japan International Cooperation Agency (JICA)

資料 質問書回答 1/9

GE/07-00/資料10

(27)

Please deliver these questionnaires to the following agencies;

- ☑ Federal Flood Commission (FFC)
- ☐ Pakistan Meteorological Department (PMD)
- ☐ Tehsil Municipal Administration Rawalpindi (TMA)
- ☐ Capital Development Authority (CDA)
- ☐ Rawalpindi Water and Sanitation Authority (WASA)
- ☐ Cantonment Board of Rawalpindi (CBR)

☞ For each organization

The JICA preparatory study team on the project on capacity development for flood risk management for the Lai Nullah River prepared the questionnaire in order to clarify the contents of the requested project.

If your organization has data and information, please check ✓ on ☐ and write names or sources of these information. Please prepare photocopies of those data and information, if possible. Our consultant will visit your organization to pick up this form on Aug 13th.

Thank you very much in advance for your cooperation.

資料 質問書回答 2/9

GE/07-00 3/10

Table 1 (1)

Category for Hazard Map Preparation	Description of Basic Data & Information Required		Remarks
Base maps	: Base maps -(topographic maps in scales of 1:2,500, 1:10,000 and 1:25,000)	☐	FFC's Brochure attached. Details
	: Aerophotograph	☐	on all types & maps etc. be obtained
	: General -purpose maps (Administration, Road etc)	☐	from CDA, TMA, PMD etc.
Information on innundation			
Past inundation	: Spill overtopping and levee-break spots, inundated areas, inundated depth	☐	Can be obtained from TMA, City Dist Govt.
	: Damage Suffered	☑	Details given in Lai Nullah Master Feasibility Study
	: Hourly water level and rainfall on major spots of the river	☐	Can be obtained from TMA, City Dist Govt.
Estimated inundation	: Results of flood simulation analysis, such as flooded areas, inundation level, inundation depth, etc	☐	Can be obtained from Lai Nullah Master F. Study
	: Flood diffusion process	☐	〃
	: Change of inundation depth with time elapsed	☐	〃
	: Flood flow velocity	☐	〃
Information on evacuation			
Areas to be evacuated	: Boundaries of jurisdictional districts and blocks, school districts and neighboring association territories	☐	Can be obtained from TMA, CDA
Number of residents to be evacuated	: Population by district (Union Council)	☐	〃
	: Households by district (Union Council)	☐	〃
Evacuation refuges	: Number of Refugees	☐	〃
	: Public facilities (kindergartens, elementary schools, junior/senior high schools, colleges and universities, civic centers, Mosk, etc.)	☐	〃

資料 質問書回答 3/9

GE/pT-007 資料 3/9

Table 1 (2)

Category for Hazard Map Preparation	Description of Basic Data & Information Required	FFC	Remarks
Dangerous spots on evacuation routes	: Spots with potential steep-slope collapse, mud flows and debris torrents	☐	Can be obtained from TMA, CDA
	: Roads blocked by past inundation	☐	〃
	: Past landslide spots	☐	〃
	: Underpasses	☐	〃
	: Bridges	☐	〃
Communication channels	: Communication channels and appliances for use in emergency	☐	For FFC fax, Phone etc. Led Nullah Monitoring Systems
Underground spaces	: Locations of underground spaces, and emergency communication system to users	☐	Can be obtained from TMA & CDA
Evacuation criteria	: Evacuation criteria	☐	Can be obtained from TMA
	: Past evacuation activities (issuance and communication channels of advisory and imperative evacuation	☐	〃
	evacuation warnings, refuges set up, number of refugees accommodated)	☐	〃
Facilities for those vulnerable in the event of emergency	: Numbers of residents to be assisted	☐	〃
	: Facilities for the vulnerable (Mosks, hospitals, homes for the elderly and handicapped, and	☐	〃
	other facilities concerned)	☐	〃
Other information to be collected		☐	〃
Bodies and agencies concerned	: Local municipal facilities	☐	〃
	: Provincial facilities	☐	Provincial Irrigation Departments
	: National facilities	☐	FFC, NESPAK
	: Firefighting facilities	☐	Islamabad, Fire Brigade
	: Police stations	☐	ICT, Islamabad

資料 質問書回答 4/9

GE/07-007 資料 5/10

Table 1 (3)

Category for Hazard Map Preparation	Description of Basic Data & Information Required	EFC	Remarks
Disaster prevention facilities & equipments	: Administrative wireless radio stations for disaster prevention, loudspeakers, sirens	☐	PMD, TMA, City Dist. Govt. Resp
	: Disaster prevention centers	☐	TMA " "
	: First-aid stations, information-display facilities on flood damages	☐	Civil Defence Resp, Islamabad, TMA
	: Water level stations and raingauge stations	☐	PMD, City Dist Govt Resp.
Medical facilities	: Emergency hospitals	☐	PIMS, Polyclinic, RGH, Rawalpindi Dist Hospital
	: Public health centers	☐	Under TMA Rawalpindi
	: Hospitals, doctors' offices and clinics	☐	PIMS, Policy Clinic
Life lines	: Water supply and sewerage plants, gas works, power plants and substations	☐	WASA Resp, RDA
	: Telecommunication facilities (telephone exchange offices)	☐	PTA, PTCL
Social welfare facilities	: Homes for the elderly and handicapped	☐	TMA

End

資料 質問書回答 5/9

GE/07-10 資料5/9

(17)

☞ For FFC

The JICA preparatory study team on the project on capacity development for flood risk management for the Lai Nullah River would like you to make a presentation on following points in the assembly meeting. The framework of the project shall be discussed on the basis of your presentation.

Thank you very much in advance for your cooperation.

1. Mandate of related organizations on flood risk management
   - FFC, PMD, TMA, CDA, RCB, WASA, UC, other organizations – Copy of functions attached

2. Situation of flood in the targeted area
   - How is the situation of flood after 2001 disaster? (Inundation area, frequency, fatalities, etc.) – Much improved
   - What is the cause of death? – Drowning of people / Collapse of banks etc
   - How many UCs are being affected? – TMA can give the data
   - How long does it take to start inundating since it starts raining ? – do –

資料 質問書回答 6/9

GE/PT-007号 1/10

3. Countermeasures which have been considered in targeted area

- What kind of structural measures (river channel improvement, dikes, retention pond, etc.) have you implemented? River channel
- What kind of structural measures are you planning? River channel improvement to start soon, side slope stabilizatio
- What kind of non-structural measures (community-based activities, warning system, awareness campaign, etc.) have you implemented? FFWS under JICA
- What kind of non-structural measures are you planning? Hazard Map under JICA
- Do you restraint informal settlers along the river? TMA / City Govt can explain

4. Warning

- How do you issue warning? Through FFWS under JICA
- How is the information flow when floods occur? Good results
- Who / how disseminate warning to people? As given in Operation Manual of FFWS
- Do you have manual or guidelines on issue and disseminate warning? i) Yes with Rawalpindi TMA Civil Defe
  ii) FFWS Manual

5. Evacuation

As per FFWS Manual

資料 質問書回答 7/9

GE/07-008 8/10

(12)

- Do you have hazard maps? No. For Lai Nullah
- What kind of hazard map do you need? (Scale, contents, etc.) Indicating likely inundated areas and damage potential to property (Kattarian to Chaklala Bridge)
- Have you identified evacuation places/ shelters? TMA can answer
- Do people evacuate in the event of floods? Where? How? How about informal settlers? TMA can answer
- Do people have intention to evacuate? TMA can answer

6. Awareness program

- What kind of awareness program do you think effective? Community awareness program (schools, Newspaper pamphlets, radio/TV shows)
- How can we mobilize people? Who can be the target? TMA can answer
- What kind of materials do you need? (target, style, how to use, etc.)

7. Plans / systems for flood risk management

- What kind of plans and systems are there now? Road figuring plan as prepared by Civil Defence
- What are the contents of flood risk management plan we will develop in the project? TMA can reply
- Who / how use flood risk management plan we will develop in the project? By all concerned stake-holders

資料 質問書回答 8/9

GE/07-07 #9/10

8. Expectation to new project

Experts, trainings, others

Can help in Risk Management rather than present event-triggered approach

Disaster Risk Reduction Training etc.

End

別添4　打ち合わせ議事録

場所	2007 年 8 月 15 日（水）10：30～11:30、14：00-14：30 Federal Flood Commission Superintending Engineer (Mr. Kamal)執務室
出席者 （敬称略）	【FFC】 Superintending Engineer: Mr. Ahmed Kamal 【調査団】 亀山
訪問目的	情報収集
質疑応答	【調査団】無償資金協力によって導入したシステムの一部が機能しなかったと聞いているが、現在の状況は？ 【Mr. Kamal】問題は解決されたと理解している。13 日～14 日の夜間の降雨で洪水警報を発令し、当方にも連絡が来ている。 【調査団】プロジェクトタイトルが要請書のものと相違があるが、要請内容と JICA の実施内容は概ね同一である。ハザードマップを活用して避難訓練を実施し、それらをさらに他の地域へ広げるような内容としている。 【Mr. Kamal】使う想定氾濫図については、大まかなものは全国的に作成しているが、今回はより詳細なハザードマップを作成するということで、期待している。 【調査団】開発調査で提案されたコミュニティポンドと放水路の建設案について、現在の検討状況は？ 【Mr. Kamal】実施の見込みは立っていない。河道改修案については、ADB の協力により実施した。

日時 場所	2007年8月16日(木)9:00～11:00 Pakistan Meteorological Department Dr. Qamar 総局長執務室及び Hazrat 主任気象官執務室
出席者 (敬称略)	【PMD】 Director General: Dr. Qamar-Zaman Chaudhry Director: Azmat Hayat Khan Chief Meteorologist: Hazrat Mir 【調査団】 亀山
訪問目的	情報収集
質疑応答	【調査団無償資金協力により導入した警報システムの一部がウィルスの問題で機能しなかったと聞いているが、現在の状況は？ 【Dr. Qamar】その問題は解決済みである。13日の洪水には警報の効果を発揮した。満足している。 【調査団】その洪水警報発令資料を確認できるか。 【Dr. Qamar】コピーを提供する。 【調査団】警報発令基準及び情報伝達と配信先はどのようにしているか。 【Mr.Azmat】警報発令基準は、上流域の降雨量が1時間雨量及び3時間雨量の指定雨量を超えるか、または河川基準水位局が指定水位を超えたときに発令するようになっている。 【Dr. Qamar】情報は携帯と FAX に直接配信しており、配信先は TMA、Rawalpindi にある洪水警報管理センターの消防 District Officer, 財務 District Officer 及び WASA の Director、FFC 監視官、District Coordination Officer, Rawalpindi、CDA の Chairman 等である。 【Mr. Hazrat】管理局では、3交代制にて24時間の監視を行っている。豪雨のときは小職もずっと張り付くことになる。 【調査団】レーダー雨量計から定量的に降雨量を推定できるようになったか。 【Mr. Hazrat】そのようになりたいのだが、今データを積み重ねている状況だ。 【調査団】ハザードマップ作成とそれを活用した避難訓練には、PMD はどのように関るのか。 【Mr. Hazrat】職員を積極的に派遣したい。ハザードマップは避難には有効であり、これを全国的に展開することが大事である。
収集資料	Flood Situation Report, Flood Forecasting & Warning System Presentation Material

日時 場所	2007 年 8 月 16 日(木)12:00～13:00 Tehsil Municipal Office, Rawalpindi Municipal Officer 執務室及び CDG, Fire Officer 執務室
出席者 (敬称略)	【TMA】 Municipal Officer: Mr. Malik Wuwtaz 【CDG, Rawalpindi】 Fire Officer: Mr. G.M.Naz : Mr. Aziz Ahmed 【調査団】 亀山
訪問目的	情報収集
質疑応答	【調査団】洪水管理センターの概要は？ 【Mr. Malik】システムは TMA ビルの 2 階に整備されているが、その警報発出、モニタリング等は Fire Officer のもとで行っている。 【調査団】洪水対策に関し、TMA にはどのような役割があるのか。 【Mr. Malik】TMA は水供給や下水道、ごみ処理施設の維持管理、公園・道路・街燈の維持管理、商業に関る許認可を中心に行っている。したがって直接的に洪水対策を行っているのではなくて、施設の維持管理を通して貢献することとなる。 【調査団】基本設計報告書の記載では、TMA が洪水対策活動全般を担っているが。 【Mr. Malik】2001 年の法令改正で所掌範囲が変更となった。CDG の消防局が洪水避難・救済活動をおこなっている。よって、TMA ビルに City District Government の消防局が同居して活動している。 避難連絡体制の改善やハザードマップを活用した避難訓練には我々(TMA)も関心があるので是非関っていきたい。 【調査団】ハザードマップ作成には地元コミュニティに関る基礎情報が必要なので、TMA の協力が必要。こちらからも協力を要請したい。 (警報監視施設へ案内される。現在の稼動状況は問題ないとのこと。Fire Officer の執務室で意見交換) 【Mr. Naz】当事務所は、City District Government(CDG)で District Coordination Officer の下消防・レスキューを担当しており、TMA に設けられた監視局での洪水情報モニターと警報局制御・監視をおこなっている。2001 年地方行政令(Local Government Ordinance)によりその活動が定められている。その後 2006 年にさらに改定された。ハザードマップ作成とそれを活用した避難訓練には、Civil Defense としても協力する用意がある。 【調査団】もちろん、Civil Defense の協力がないと進まない。避難訓練には、レスキューのノウハウが必要である。
収集資料	地方行政令(Local Government Ordinance、2001、A4 版、2006 年電子ファイル)

日時 場所	2007年8月17日(金)10:20～12:00 Water & Sanitation Agency (WASA) Col.(R) Islam-ul-Haq,Ti(M)　総局長執務室
出席者 (敬称略)	【WASA】 Managing Director:　Col.(R) Islam-ul-Haq,Ti(M) Director　(Water Supply):Ch. Naseer　Ahmad 【調査団】 亀山
訪問目的	情報収集
質疑応答	【調査団】洪水対策に関し、WASAにはどのような機能があるのか。 【Col.(R) Islam】Directorate of Sewerage & Drainageが排水路整備を行っている。洪水時には、排水機材(排水ポンプ、土木機械)と職員派遣をおこなっている。ライヌラー川に関する開発調査及び無償資金協力については、資料提出、職員の協力等も行ってきたが、技術協力プロジェクトが実施されることは知らなかった。 【調査団】City District Governmentについて説明願いたい。 【Mr. Naseer】2001年の地方行政令(Local Government Ordinance)に基づいて、選挙で選ばれたZilla Nazimの下にDistrict Coordination Officerがおり、その下に13部局がある。 Civil Defenseはその1つでFire Officeもそこに含まれている。洪水時の救済活動についてもFire Officeの担当業務である。CDGの機能、組織図は提供する。 【調査団】緊急排水活動の経験から、WASAは水が滞留するところを認識しているし、その情報をハザードマップに反映できると期待される。協力を御願いしたい。 【Col.(R) Islam】協力したい。 【調査団】避難訓練する場合に、どのような単位で実施するのが好ましいか。 【Col.(R) Islam】Union Councilの人数が15,000～35,000までいろいろあるので、まとめるのが大変だ。その点学校は規模としては、適当ではないか。City District Government(CDG)には、Educationの部があるので、そことCivil Defenseが協力すれば、実施もスムーズである。
収集資料	CDG組織図及び機能

日時 場所	2007 年 8 月 18 日（土）9：45～11:00 Capital Development Authority（CDA） Urban & Regional Planning 執務室
出席者 （敬称略）	【CDA】 Urban & Regional Planning, Director： Auyb T. Sheikh 【調査団】 亀山
訪問目的	情報収集
質疑応答	【調査団】ハザードマップ作成では、公園、学校、警察所、モスク、病院に位置情報、避難のための道路情報が重要になってくるため、こちらの部署の協力が必要になってくる。 【Mr. Auyb】イスラマバード市に関しては、そのような資料は CDA で揃うだろう。また、壁に掲示したサテライトイメージ写真も所蔵している。 【調査団】CDA で避難・救済を担当している部署はどこか。 【Mr. Auyb】イスラマバード市については、洪水氾濫箇所はそんなに多くないが、排水系統の整備が遅れているため、内水は氾濫している箇所はある。Directorate of Municipal Administration (MDA)の Mr. Mimen Agfa が責任者である。

日時 場所	2007年8月18日(土)12:00～13:00 Rawalpindi Cantonment Board(RCB) KDP Project Director 執務室
出席者 (敬称略)	【RCB】 KDP, Project Director: Col(R). Hafig Abdul Rahman 【調査団】 亀山
訪問目的	情報収集
質疑応答	【Col. Abdul】JICAの開発調査及び無償資金協力による予警報システムについてはRCBも関係機関としてステアリングコミティに参加した。今回のプロジェクトはRCBにも関係があるのか。 【調査団】プロジェクト対象地域には、RCB の管轄区域も含まれており、協力を御願いしたい。航空写真(壁に掲載)や地形図の供与は可能か。 【Col. Abdul】問題ない。後で資料を提出する。 【Col. Abdul】現在ライヌラー河の浚渫、道路建設が計画されている。RDAが窓口で、河川の浚渫、河川水路のライニング、ごみ運搬及び道路新設が主な事業内容である。事業費は州政府が拠出することになっている。 【調査団】RDAにて情報を収集することとする。

日時 場所	2007 年 8 月 18 日（土）15:30～16:30 Rawalpindi Development Authority（RDA） 土地収用部、次長執務室
出席者 （敬称略）	【RDA】 Estate Management, Deputy Director： Mr. Baran Ghaudhry 【調査団】 亀山
訪問目的	情報収集
質疑応答	【調査団】河川沿いの浚渫、ごみ処理及び道路の新設計画について、情報をいただきたい。 【Mr. Baran】RDA が事業実施主体であり、PC1 も取得済みである。当部署が土地収用を担当している。河川の浚渫、河川の土留め壁（コンクリート）設置、ごみ運搬及び道路付け替えと新設が主な事業内容である。事業費は約 16billion Rp で、州政府が拠出することになっている。Project Title は‘Sheikh Rasheed Expressway & Flood Channel Project’である。 【調査団】マスタープランで提案されたコミュニティポンド及び放水路の建設計画の検討状況は？また、上記プロジェクトの洪水問題への影響をどのように評価しているのか。 【Mr. Baran】コミュニティポンド及び放水路については、実施の目途は立っていない。洪水への影響について、詳細は計画部門の Chief Engineer である Mr. Muhammad Rafig に問い合わせてほしいが、いずれにしても事業完了までには時間が要するため、避難計画の策定及び訓練は有用と考える。

日時 場所	2007年8月20日(月)16:40～17:20 日本大使館・会議室
出席者 (敬称略)	【大使館】 中西二等書記官 【調査団】 三村、九野、杉浦、亀山
訪問目的	表敬
質疑応答	【書記官】同様な防災に関る技術協力プロジェクトは、これまでにパ国及び他国で実施しているのか 【調査団】パキスタンでは最初の案件だが、スリランカ、タイで実施中、近くフィリピンでも実施予定である。 【書記官】無償で整備したシステムは稼動状況は？ 【調査団】今月13-14日にかけての豪雨に対して、警報発令等を迅速にだせたようである。 【書記官】対象地域のこれまでの被災状況は？ 【調査団】2001年の水害では死者74名。 【書記官】実施期間と実施時期は？ 【調査団】来年の1月から2年間を予定している。雨季は7-9月なので、少なくとも雨季の2シーズンの収集データにより、モデルの改善に使用できる。 【書記官】ライヌラー川流域は治安が良いとは言えない地域であり、調査にあたっては、十分に安全配慮を行うよう留意願いたい。 【書記官】帰国前の報告は、 【調査団】8月30日(木)を予定している。

日時 場所	2007 年 8 月 20 日（月）18：00～18:50 JICA パキスタン事務所
出席者 （敬称略）	【パキスタン事務所】 清水次長、深沢職員、 【調査団】 三村、九野、杉浦、亀山
訪問目的	打合せ
質疑応答	【事務所】パイロットサイトの選定と避難訓練の進め方は 【調査団】災害発生の多い Union Council を選定し、1 年目は専門家とカウンターパートで協働作業で実施、2 年目はカウンターパートが自ら率先して実施するようにすることを考えている。 【事務所】避難訓練に関する活動のカウンターパートは、TMA になるのか 【調査団】現在は TMA にはその機能がなく、City District Government（CDG）の Civil Defense 配下の Fire Fighting と州の機関である Rescue(1122)が担当している。CDG はこれまでの開発調査、無償資金協力においては、ステアリングコミティのメンバーとはなっていないが、本プロジェクトでは、中心的な役割を果たすこととなる。。 【事務所】本件は、関係機関が多く、これまでも関係機関間の情報共有と調整に苦慮してきた。本調査においても、すべての関係機関の理解を得るよう、務めてほしい。 【調査団】承知した。本調査においては、すべての関係機関を訪問し、ミニッツにサインする予定である。 【事務所】現地踏査にあたっては、安全管理に十分留意願いたい。 【調査団】了解した。留意して動くことにする。

日時 場所	2007年8月21日(火)9:45～10:20 Economic Affairs Division, Deputy Secretary (日本担当) 執務室
出席者 (敬称略)	【EDA】 Deputy Secretary : Ms. Sabeena Qureshi 【調査団】 三村、九野、杉浦、亀山 【パキスタン JICA 事務所】Mr. Jilani
訪問目的	表敬
質疑応答	【調査団】(プロジェクト概要案について説明) 【EDA】パイロット地区の選定はどのように行う予定か。 【調査団】カウンターパート機関と相談の上、洪水被害が厳しい地区を 2-3 箇所選定することを予定している。 【EDA】これまでにパ国では避難訓練を実施した経験はないと思われるが、本プロジェクトではどのように実施するのか。 【調査団】ハザードマップを活用し、1 年目は日本人専門家中心となって実施し、2 年目にはパキスタン側が主体性をもって、避難訓練を実施するような計画である。

日時 場所	2007 年 8 月 21 日（火） 10:00～11:40 水資源省連邦洪水対策委員会会議室
出席者 （敬称略）	【FFC】Dr. I.A.Shakh (CE), Mr. Asjad Imtiag Ali (CE), Ahmad Kawal, Adher Haneed, Ashak Kuman Zafar Isbal, Sher Afgan, M. Nadeem Tqbal, Maleha Rehman 【PMD】Mr. Azmat Hayat Khan (Director) 【RCB】Mr. Muhammad Ammar Torees 【CDA】Mr. Ayub Tariq (Director) 【TMA】Mr. Iqtidar Yaqoob 【Rescue 1122】Dr. Abdur Rahman 【DO, F/F】CH. Aziz 【調査団】三村、九野、杉浦、亀山 【JICA パキスタン事務所】Mr.Mahaddy A. Jilani
目的	プロジェクト概要案について関係機関への説明及び協議
質疑応答	【FFC】成果1のターゲットはPMDとなっており、FFCが含まれていないように見受けられるが、FFCの警報システム担当エンジニアも対象とすべきではないか。 【調査団】成果1は洪水発生予測モデルの改善についての活動である。よって、本業務の担当機関であるPMDを中心的なCPとしたいと考えているが、FFCやその他の関係機関のエンジニア等を除外するという意味ではない。なお、FFCは成果3の洪水危機管理計画策定において関係機関を取りまとめる中心的なCPとして協力してほしいと考えている。 【PMD】PMDは警報・避難情報をFAXや電話により関係機関に伝達しているが、情報が伝わるのに時間がかかることがある。現在PMDではこれらの情報をSMSで自動的に関係者に配信するシステムの導入を検討しており、本プロジェクトでも検討をお願いしたい。 【調査団】調査の上、検討したい。 【RCB】洪水警報システムについて、情報の伝達が遅い。本プロジェクトによる改善を期待したい。 【調査団】プロジェクトの目的のひとつであり、パ側関係機関とともに取り組みたい。 【TMA】避難計画の策定等については、City District Government Office（CDG）の所掌範囲であり、TMAにその権限はない。（2001年の所掌範囲の変更について説明）。 【FFC】CDGをJCCメンバーに加えることとしたい。JCCメンバーが増えることとなるがJICAとして問題はないか。 【調査団】問題ない。関係機関はくまなくJCCメンバーに加わってほしいと考えている。 【Rescue1122】Rescue 1122はすべての災害（人災を含む）の応急対応を担当する部署として、CDGの中に新たに創設された。CDGの下にあるFire Departmentと連携しながら活動を行っている。本プロジェクトにも協力したいと考えている。 【FFC】それぞれの機関が本プロジェクト内でどのような役割を果たすかについて、PDMにより明確に反映してほしい。また、目標達成までの道筋についても、よりわかりやすく記載されることを希望する。 【調査団】本事前調査中、関係機関との個別協議を通じてより明確にしていくよう努力する。細かい作業スケジュールについては、プロジェクト開始時にインセプションレポートという形で関係機関に提示することとなる。 【FFC】プロジェクトの開始を早めることは可能か。本事前調査実施後、なるべく時間を空けずにプロジェクトを開始したいと考えるが。 【調査団】努力するが、事務手続きの都合上、1月の開始となる可能性が高い。

日時 場所	2007年8月21日(火)14:30～16:00 Pakistan Meteorological Department Azmat局長執務室及び警報管理司令室
出席者 (敬称略)	【PMD】 Director:Azmat Hayat Khan 【調査団】 三村、九野、杉浦、亀山
訪問目的	洪水予警報システムの稼動状況の確認及びプロジェクトフレームワークについての協議
質疑応答	【PMD】このシステムはPMDと雨量局6箇所、水位局2箇所、警報機10箇所とFFC,WASA,TMAの監視局から構成されている。 【調査団】警報発令基準及び情報伝達と配信先はどのようにしているか。 【PMD】警報発令基準は、上流域の降雨量が1時間雨量及び3時間雨量の指定雨量を超えるか、または河川基準水位局が指定水位を超えたときに発令するようになっている。 【Dr. Qamar】情報は携帯とFAXに直接配信しており、配信先はTMA、Rawalpindiにある洪水警報管理センターの消防 District Officer, 財務 District Officer 及び WASA の Director、FFC 監視官、District Coordination Officer, Rawalpindi、CDAの Chairman 等である。 【調査団】モニターの監視は何時から開始か。 【PMD】3交代制にて24時間の監視を行っている。 【調査団】レーダー雨量計から降雨量の予測は 【PMD】今データを積み重ねている状況だ。点雨量と関係もたせ、推定できるようになる。 【調査団】流出計算の状況は、 【PMD】現在は実施していない。 【調査団】オペレーションマニュアルは整理されているか 【PMD】無償資金協力によって、作成済みである。 【調査団】システム整備以来、水位が警報基準を超えた回数は？ 【PMD】5回。水位記録を提供する。

日時 場所	2007 年 8 月 22 日(水)9:30～11:30 City District Government, Fire Fighting Officer 執務室 Rescue 1122, District Emergency Officer 執務室
出席者 (敬称略)	【Rawal Town】 Najim: Sh Rashid Shafig 【CDG, Rawalpindi】 Fire Fighting District Officer: Mr. Aziz Ahmed Assistant Fire Officer: Mr. G.M.Naz 【Rescue1122】 Dr. Abdul Rahman 【調査団】 三村、九野、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【Firefighting】Fire Fighting は TMA の防災管理室において、PMD から洪水情報を LAN 用無線で受け、警報の発出が必要なときには、無線で警報局にからサイレンを放送する。 【調査団】住民への連絡はどのように行っているのか。 【Firefighting】警報機からサイレンを放送すると共に警報車で連絡する。さらにモスクから拡声器や地域のリーダーから連絡している。また、ハンディタイプの拡声器により伝える。 【調査団】警報局の維持管理はどの機関が担当しているのか。 【Fire Fighting】無償資金協力終了後 1 年以内は、JICA のコンサルタントが維持管理を行うと理解している。 【調査団】日常的な維持管理については、パキスタン側が行うこととなっているはずである。 【調査団】住民避難については、どの組織が対応しているのか。 【パキスタン】City District Government の Fire Fighting と州の機関である Rescue 1122 が担当している。パンジャブ州政府発令(2001)により、City District Government の Civil Defense Office に Fire Fighting の権限が移った。また、パンジャブ州政府のもとに設立された Rescue1122 と協力して住民避難・救済をおこなっている。 (TMA にある防災管理室(警報施設)の見学) 【調査団】警報機のサイレン、スピーカの届く距離は？ 【パキスタン】サイレンは約 3km、スピーカーは 300－500mぐらい。 その後:Rawal Town Nazim の執務室に移動し、表敬し、プロジェクトの概要説明した。

日時 場所	2007年8月22日(水)11:40～12:15 City District Government (CDG), Rawalpindi District Coordination Officer 執務室
出席者 (敬称略)	【CDG】District Coordination Officer: H.E. Ifran Ellahi District Officer (Civil Defense): Mr. Raja Liagat Ali District Officer (Fire Fighting): Mr. Aziz Ahmad 【Rescue 1122】 Emergency Officer: Dr. Abdur Rahman 【調査団】三村、九野、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【CDG】ラワルピンディ県は人口約400万人で、8の市から構成される。行政組織はNajimの下に、District Coordination Officerが配置され、12部局に分かれている。洪水は、低平地で深刻な問題となっている。水供給施設、通信施設、電気供給、下水道施設、道路・橋梁施設への被害もある。 【調査団】洪水対策の担当部署は？ 【CDG】Exective District Officer Revenueが総括している。その下にCivil Defenseがあり、Civil Defense がFire Fightingを管轄している。 【調査団】最近の洪水による被害は？ 【CDG】2006年の洪水では4名死亡しているが、直接洪水による被災というよりも事故によるもの。ライヌラー河のごみや廃棄物も問題であるし、不法占拠住民の問題もある。排水路のカルバートの閉塞による流下能力の低下も問題である。 【調査団】避難訓練や住民意識向上については、何か試みを行っているか？ 【CDG】住民の意識向上には、議員と協力することが考えられる。また、健康管理局(Health Department)は無料で住民の医療をおこなっているし、マラリヤ対策も実施している。本プロジェクトは、FFCとCDGが協力して進めることが必要である。
収集資料	Local Government System, Flood Relief Measures/Operation in Rawalpindi(21/06/2007)

日時 場所	2007 年 8 月 23 日(木)11:00～12:00 City District Government (CDG), Rawalpindi Revenue Officer 執務室
出席者 (敬称略)	【CDG】District Officer (Revenue)； Muhammad Asif Qureshi District Officer (Civil Defense)： Mr. Raja Liagat Ali District Officer (Fire Fighting): Mr. Aziz Ahmad 【Rescue 1122】 Emergency Officer: Dr. Abdur Rahman 【調査団】 三村、九野、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【調査団】昨日、District Coordination Officer より、District Office Revenue が住民避難、救援を担当していると伺った。 【CDG】District Office Revenue の下に Civil Defense があり、Mr. Raja Liagat Ali が洪水対策を担当している。また、救急は Rescue 1122 が担当している。 【調査団】洪水で影響を受けやすい地域は？ 【CDG】洪水で影響を受けやすい地域は、7つあり、そのなかでナディム、ボシャゴドン、ガマルマンディが最も被害が多い。 【調査団】住民の意識向上を目的とする NGO やボランティア活動はあるか。 【CDG】ラワルピンディには、11 の NGO 団体及びボランティアが登録されており、住民意識向上にはこれらを活用することが考えられる。プロジェクトの円滑な進捗のために、NGO,ボランティア及び専門家チームの合同会議を設定することが可能。 【調査団】洪水時の被災者のための救援施設、避難所はあるのか。 【CDG】2001 年の洪水のときに、学校の中に救援センター及び仮設避難所を設置し、水、食料、毛布等を支給した。洪水後は、多くの住民が比較的早い段階でそれぞれの家に戻ったが、救援センターは約 3 ヶ月間開設していた。避難については、住民は通常自分自身で避難している。 【調査団】現在実施中の事業はあるか。 【CDG】州政府の予算で、ライヌラー河の両岸に道路の新設事業を開始する予定。 【調査団】低平地等の視察に行きたいのだが、職員の同行をお願いできないか。できれば地域のリーダーやボランティア、被災住民にインタヴューをしたい。 【CDG】Civil Defense に手配させ、 Fire Fighting 及び Rescue 1122 の職員を同行させることとする。住民のインタヴューも手配する。

日時 場所	2007 年 8 月 23 日(木)12:35～13:10 Tehsil Municipal Office, Rawalpindi （TMA） Municipal Officer 執務室
出席者 (敬称略)	【TMA】Tehsil Municipal Officer； Mr. Malik Wuwtaz Assistant Municipal Officer： Iqtidar Yaqoob District Officer (Fire Fighting): Mr. Aziz Ahmad 【Rescue 1122】 Emergency Officer: Dr. Abdur Rahman 【調査団】 三村、九野、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【調査団】TMA は洪水対策に関連し、どのような役割があるのか。 【TMA】2001 年の行政再編により、TMA の役割は公共施設、インフラの維持や修復に限定されている。TMAは水供給や下水道、ごみ処理施設の維持管理、公園・道路・街燈の維持管理、商業に関る許認可行為を中心に行っている。したがって直接的に洪水対策を行っているのではなくて、施設の維持管理している。 【調査団】洪水時の住民の安全管理についてはどうか？ 【TMA】予算的にも、人的にもリソース不足であり、以前のように洪水対策において役割を担うことは難しいのが現状である。現在は、City District Government と調整しながら、協力することになっている。また、避難訓練や啓発活動を行う際に協力したい。

日時 場所	2007年8月23日(木)15:00～16:00 Rawalpindi Cantonment Board(RCB) Cantonment Executive Officer 執務室及び KDP Project Director 執務室
出席者 (敬称略)	【RCB】 Cantonment Executive Officer (CEO) : Sheikh Shahid Bashid KDP, Project Director: Col(R). Hafig Abdul Rahman 【調査団】 三村、九野、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【RCB】FFC の合同会議には出席できなかったが、JICA の開発調査及び無償資金協力による予警報システムについてよく理解している。必要な情報や資料の提供を行いたい。避難救済や訓練には、City District Government が大きい役割を果たす。 【調査団】RCB 管轄区域内での洪水被災状況はどのようなものか。 【RCB】RCB の管轄区域の人口は約 600,000 人でライヌラー河洪水氾濫域になっているのは、ガワルマンディの右岸部でそれほど大きい面積ではない。 【調査団】RCB 内で避難・救済等の対応する部署は？また、実施中もしくは計画されている洪水対策はあるか？ 【RCB】Rescue 1122 が対応することになっている。洪水対策事業として、RDA が窓口となって、河川の浚渫、河川水路のライニング、ごみ運搬及び道路新設が予定されている。

日時 場所	2007 年 8 月 23 日（木）16：10～16:30 Water & Sanitation Agency (WASA) Col.(R) Islam-ul-Haq,Ti(M)　総局長執務室
出席者 （敬称略）	【WASA】 Managing Director： Col.(R) Islam-ul-Haq,Ti(M) Director （Water Supply）：Ch. Naseer Ahmad 【調査団】 亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【調査団】洪水対策に関し、WASA にはどのような機能があるのか。 【WASA】Directorate of Sewerage & Drainage が排水路整備を行っている。洪水時には、排水機材（排水ポンプ、土木機械）と職員派遣をおこなっている。WASA は Rawalpindi Development Authority (RDA)の配下にある。水質モニタリング、給排水事業、下水道整備事業を推し進めている。ADB の支援を受けて水道整備事業を実施予定している。参考資料を寄贈する。 【調査団】洪水情報はどのように受信しているか。 【WASA】PMD から無線 LAN により洪水情報を受けている。また、FFC が主催するモンスーン前の Annual Meeting についても情報が送られる。

日時 場所	2007年8月24日(金)9:15～10:00 Capital Development Authority(CDA) Urban & Regional Planning 執務室
出席者 (敬称略)	【CDA】 Urban & Regional Planning, Director: Auyb T. Sheikh 【調査団】 三村、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【CDA】イスラマバードの開発は1959年にカラチからの遷都が決定したことにはじまる。61年から開発が開始された。イスラマバードの面積は、約900km2で1992年のCapital Territory (Zoning) regulationによりゾーンに分けて開発されている。現在、新空港の建設が西側に計画されている。 首都圏の水供給は北西部のラワル貯水池に頼っている。 開発計画は、Capital Development Authority (CDA)が担っている。 イスラマバード市内での洪水氾濫は多くはない。 (イスラマバードのマスタープラン図及びサテライトイメージ図により説明を受けた。) 【調査団】下流域のラワルピンディは、上流域のイスラマバードからの流域から、洪水が流入することになる。イスラマバードの開発は、下流に対して大きく影響を与えることになる 【CDA】承知している。ラワルピンディ市とは情報共有を積極的に行っていきたい。 【調査団】洪水時のレスキューを担当している部署はどちらか。 【CDA】Directorate of Municipal Administration (DMA)が担当している。 【調査団】このプロジェクトでいろいろと情報やアドバイスを伺うので、連絡をとっていきたいと考えてます。

日時 場所	2007年8月24日(金)10:40～11:10 Directorate of Municipal Administration (MDA), Capital Development Authority(CDA) Director 執務室
出席者 (敬称略)	【DMA】 Director: Mr. Momin Agha 【調査団】 三村、杉浦、亀山
訪問目的	表敬及びプロジェクトフレームワークについての協議
質疑応答	【CDA】現在パ国においては、National Disaster Management Authority (NDMA)を中心に防災行政体制構築取り組んでおり、当局も緊急対策管理計画の作成を求めれれている。NDMA は訓練施設を建設し、約300 人の職員を訓練することとしている。国際基準に達する都市部のレスキューを目指している。そのなかには洪水時のレスキューも含まれる。訓練されたレスキュー隊は、ラホール、カラチやイスラマバード、ラワルピンディなど、全国において活用されることになる。 【調査団】イスラマバード市における洪水時の緊急対応の担当部署は？ 【CDA】洪水だけでなく、災害に関る救援は、DMA が担当している。しかし、洪水救援に必要な機材がなく、実態としては火災が中心となっている。この地域で特に問題なっているのは、洪水による直接な被害よりも、河川沿いにすむ不法居住者の存在である。イスラマバード外に移転先を設置し、対応中である。コミュニティレベルでの避難訓練には、人材育成が必要であり、PMD イスラマバードで訓練された人材がカラチでも必要になるだろう。通信機材を活用し、遅滞なく避難することが肝要である。訓練は繰り返し行うことが重要である。 【調査団】来週には、プロジェクトのフレームを決める会議があり、それに参加されることを望みます。プロジェクトの資金を JICA が拠出し、日本での研修も含んでいる。当方はプロジェクトを監理することになっている。 【Mr. Agha】今年の2月に JICA 研修で、東京、横浜、吉野川に行ったことがある。

別添５　収集資料リスト

資 料 収 集 リ ス ト

番号 No.	資料の名称 Name of Documents	形態 Orig. / Copy	種類 Type	発行機関 Organization of Publication	発行年月 Published
PK-FRM-1	Union Council Wise Population of Towns	Copy	A4	City District Government	1998
PK-FRM-2	Allocation of Seats in UC	Copy	A4	City District Government	2007
PK-FRM-3	SUPARCO	Original	A4	SUPARCO	
PK-FRM-4	Emergency Services Performs Rescue 1122	Original	A4	Punjab Emergency Service	2006
PK-FRM-5	NESPAK News Report	Original	A4	NESPAK	4 -6 2007
PK-FRM-6	Irrigation System of Pakistan	Printed	B2	Chief Engineering Adviser's Organization Government of Pakistan	NA
PK-FRM-7	Questionnaires 回答書	Original	A4	Federal Flood Commission	2007/08
PK-FRM-8	City District Overview of City District Government	Copy	A4	Water Supply and Sanitation Agency	2006.07
PK-FRM-9	Flood Situation Report	Copy	A4	Pakistan Meteorological Department	2007.08
PK-FRM-10	Flood Information (14/08/07)	Copy	A4	Pakistan Meteorological Department	2007.08
PK-FRM-11	Daily Flood Situation Report	Copy	A4	Federal Flood Commission	2007.08
PK-FRM-12	Flood Data on 14/08/07	Extract Copy	A4	Pakistan Meteorological Department	2007.08
PK-FRM-13	Flood Warning Code	Copy	A4	Pakistan Meteorological Department	2007.08

番号 No.	資料の名称 Name of Documents	形態 Orig. / Copy	種類 Type	発行機関 Organization of Publication	発行年月 Published
PK-FRM-14	Flood Relief Plan-2007, District Rawalpindi	Copy	A4	City District Government, Rawalpindi	2007.08
PK-FRM-15	Flood Relief Plan-2006, District Rawalpindi	Copy	A4	City District Government, Rawalpindi	2006.08
PK-FRM-16	Islamabad Capital Territory (Zoning) Regulation 1992	Copy	A4	Capital Development Authority	1992
PK-FRM-17	Islamabad	Original	A5	Capital Development Authority	NA
PK-FRM-18	The Punjab Local Government Ordinance, 2001	Copy	A4	Law & Parliamentary Affairs Department	2001
PK-FRM-19	Multifaceted Water Quality Issues, Challenges, Environmental Impact. Visions, Initiatives and Innovative Mitigation Strategies	Original	A4	WASA	2007.07
PK-FRM-20	Islamabad – Rawalpindi Guide Map (1:30,000)	Original	A1	Survey of Pakistan	2003 年以降
PK-FRM-21	Rawalpindi Guide Map (1:20,000)	Original	A1	Survey of Pakistan	2002 年以降
PK-FRM-22	Flood Relief Measures/Operation in Rawalpindi 21/06/2007	Copy	A4	City District Government, Rawalpindi	2007.06
PK-FRM-23	Local Government System	Copy	A4	District Coordination Officer, Rawalpindi	2007.06
PK-FRM-24	Flash Flood/Cloud Burst of 23rd July, 2001	Copy	A4	Pakistan Meteorological Department	NA
PK-FRM-25	Drawing of Lai Expressway and Flood Channel Project	Copy	A3	Rawalpindi Development Authority	2007.06
PK-FRM-26	Flood Forecasting & Warning System Presentation Material	Copy	A4	Pakistan Meteorological Department	2007.06
PK-FRM-27	The Punjab Local Government Ordinance, 2006	Copy	PDF	Law & Parliamentary Affairs Department	2006
PK-FRM-28	CDWP Approves 45 Projects costing Rs 82.2Bln in Pakistan	Print	A4	Pakistan Times	2007.08.30
PK-FRM-29	Second Flood Protection Project (2002-2004)	Copy	A4	Pattan	NA
PK-FRM-30	Program for disaster mitigation and community development	Print	B5	Pattan	NA

番号 No.	資料の名称 Name of Documents	形態 Orig. / Copy	種類 Type	発行機関 Organization of Publication	発行年月 Published
PK-FRM-31	Official Letter to CDA	Copy	A4	Rawalpindi Development Authority	2007.08.25
PK-FRM-32	List of the Participants	Copy	A4	Federal Flood Commission	2007.08
PK-FRM-33	Annual Flood Report 2006	Original	A4	Federal Flood Commission	NA
PK-FRM-34	Ten-Year Perspective Development Plan 2001-11 & Three-Year Develop.	Copy	A4	Planning Commission	2001/09/01
PK-FRM-35	Working Draft, Medium Term Development Frame Work 2005-10	Copy	A4	Planning Commission	2005.03
PK-FRM-36	Flood Fighting Plan of Khanki Head Works Division for Year 2007	Copy	A4	Irrigation & Power Department, Government of the Punjab	2007
PK-FRM-37	WASA Role in Flood Relief Measures	Copy	A4	WASA	NA
PK-FRM-38	Planning of WASA, Rawalpindi for the Forth Coming Monsoon Season	Copy	A4	WASA	NA
PK-FRM-39	Annual Plan 2007-2008	Copy	A4	Planning Commission	2007.06
PK-FRM-40	PC-1 Proforma	Copy	A4	Federal Flood Commission	
PK-FRM-41	Plan of TMA, Urban	Original	A1	TMA	NA
PK-FRM-42	Rawalpindi District Map (Scale=1:121,000)	Printed	A1	Survey of Pakistan	NA
PK-FRM-43	Best Practices of Disaster Reduction in A Case Study of Megha Bund	Copy	A4	Pattan	NA

注　PK-FRM-15, PK-FRM-34 から PK-FRM-40 は、別冊ファイル（2）