

Terms of Reference (TORs) For PPMS, Baseline & Post Completion Survey / Assessment and GIS Enabled Integrated MIS Development

1. Background

In response to the effects of the 2014 flood in AJK and Punjab Province, ADB has prepared a Flood Emergency Reconstruction and Resilience Project (FERRP) and is assisting the Government of Pakistan to establish a disaster risk management fund. The loan-financed project will contribute to the economic and social recovery of flood-affected areas through the restoration and reconstruction of critical infrastructure to safer standards. The scope of the proposed project includes: (i) Rehabilitation and reconstruction of flood damaged roads and bridges; (ii) rehabilitation and reconstruction of damaged irrigation, drainage and flood protection schemes, and upgrading of priority flood protection schemes; and (iii) strengthening disaster risk management through: (a) human and institutional capacity development and strengthening the interface with the districts (downward) and other mandated institutions (horizontal and upwards) that have a key role in flood management; and, (b) multi-hazard risk assessment data and system development. The Disaster Risk Management Fund (the Fund) will address ex ante and ex post disaster management, and enhance Pakistan's resilience to future natural hazards/disaster events.

2. Objective(s) of the Assignment

The project intends to engage consulting firm (the consultants) under Punjab's disaster risk management component for; (i) preparation of a baseline report on socio-economic situation of the flood prone districts in Punjab, (ii) development of Project Performance Management System, including the modules for automation of development projects' cycle (from subproject PC-I planning and designing to approval, implementation and completion), budgetary allocations and releases, financial management and reporting for all development projects. The system will be deployed at P&DD Punjab and shall be integrated with all of its attached departments.

The assignment is divided in two parts. Part A: PPMS, baseline and post completion survey/assessment, and Part B: Integrated GIS enabled MIS Development.

3. Scope of Services, Tasks (Components) and Expected Deliverables

3.1 Part A: PPMS, baseline and post completion survey/assessment

The detail scope of consultancy services tasks shall be:

- i. Design a project performance management system to capture Project out come and outputs for various components as stated in the Project Design and Monitoring Framework (DMF).
- ii. Conduct a thorough review of relevant literature and existing surveying questionnaires used for other similar studies like Pakistan Social and Living Standards

Measurement (PSLM), Multiple Indicator Cluster Survey (MICS), and Household Integrated Economic Survey (HIES) etc.

- iii. Based on the above review, develop household and community survey questionnaires to capture the baseline socio-economic situation in the floods 2014 affected project districts and produce a baseline report for each Project district in Punjab providing the "pre-project" socio-economic condition of these districts.
- iv. Update the baseline information of the Project districts in the last year of the Project implementation, using the same questionnaire and collecting data preferably from the same respondents to assess the "post-project" socio economic situations of the Project beneficiaries.
- v. Compare the results of the baseline and the latest survey, and produce a project impact assessment report to evaluate the level of improvement in the socio economic conditions in the Project districts and evaluate status of Project impact statement in the DMF.
- vi. Assist PCU P&DD Punjab in establishing a quarterly progress reporting format for all Project components and preparation of first four quarterly reports to generate the systematic and uniform Progress report of all Project components on a quarterly basis for onward submission to ADB. Moreover, the Consultant shall develop capacity of designated Client's staff for preparation of quarterly reports and generating all necessary details from the designed PPMS.
- vii. Assist PCU P&DD Punjab in preparation of Borrower's Project Completion Report covering all components of the Project in Punjab, in accordance with the ADB's guidelines and requirements.

3.2 Part B: Integrated GIS enabled MIS Development for P&DD

A GIS enabled planning, executing and decision support system is required to support in making appropriate decision during pre and post disasters events. It is necessary to have one common spatial information source which shall share information between different departments / organization to make a better decision and planning for disaster risk management.

P&DD shall be the spatial data clearing house and work as a "**one stop**" access to all registered geographical information. It will provide online access services of spatial data within the Punjab province. The data of different organization like Irrigation, PDMA, SUPARCO, Metrological and Urban Unit will shared between them through this interface, with each department having their own database and control over the movement of their data. The P&D will have information of its registered department in the form of metadata and catalogues to provide a convenient way to find, access and share geospatial data as per their requirements.

The data clearing house at P&DD should make access to spatial information technologies more efficient by helping to eliminate the duplication of spatial data and services through effective cooperation, standardization, communication, and coordination. This should enable users to discover what spatial information is available for geographic entities. The data clearing house should contain the information of its registered departments in the form of metadata and catalogues. These catalogues and metadata should provide a convenient way to find, access and share geospatial data. The clearing house network functions are as a detailed catalogue service with support for links to spatial data and browse graphics. Clearing house metadata are expected to include hyperlinks to online resources (e.g. map services, data download locations, data access services, applications) within their metadata entries to enable access to all facets of the described resource.

A GIS Enabled MIS system shall be developed for data sharing based on the catalogue and for planning, executing and managing the DRM projects initiated under ADB project.

The Scope of consultancy services for development of integrated MIS will include:

- i. Review all functional regime of the P&DD, Government of Punjab including the budgetary allocation, releases, expenditure, and financial management and reporting of the development projects,
- ii. Analyze the requirements and do the business process modeling of all the functional areas of the P&DD, Punjab,
- iii. Review the existing MIS and FMIS system (if any) for project management and monitoring, and analyze if it can be further expanded /strengthened /tailored to meet the requirement of this assignment,
- iv. Develop or customize a comprehensive MIS solution that meets the development standards and techniques,
- v. Integrate and/or develop a work flow engine for above mentioned process,
- vi. Integrate and/or develop project management tools like GANTT chart, PERT View for project monitoring and scheduling,
- vii. Integrate a GIS system with MIS for physical monitoring of the projects,
- viii. Integrate the socio economic data with GIS supported MIS system,
- ix. Develop an android/smart phone based survey tool for extracting on ground information/stage of the project for sake of physical monitoring, and integrate the survey data with GIS system mentioned above,
- x. Develop a module for reporting of the Project and integrate PPMS developed for the project into MIS, which should generate automated quarterly and other required reports through input of necessary information/data for P&DD.
- xi. Develop a final dashboard integrated with decision making tools for managers and planners,

- xii. Interfacing of the GIS-based database generated by Irrigation, urban unit, SUPARCO PDMA as well as by DDMA and linking with all relevant line departments for mainstreaming disaster risk management,
- xiii. Develop policy for data sharing and data integration,
- xiv. Develop Standard Operating Procedures (SOPs) for data sharing,
- xv. Preparation of detail specifications for high tech server with cost sheet,
- xvi. Develop GIS based mapping system, application, models and analysis tools to enhance disaster risk management capacities for pre and post disaster events,
- xvii. Should have provision to share disaster risk management knowledge and techniques to line departments,
- xviii. Development of catalogue of the metadata,
- xix. Standardization of data, MHVRA maps and quality assurance,
- xx. Develop tool for continuous updating of data with desired quality level,
- xxi. Integration of disaster management application for the project,
- xxii. Develop or customize a comprehensive solution based on MIS development standards,
- xxiii. The dashboard simulate the complete on ground picture and extent of the projects,
- xxiv. All the module and system customized and developed should be flexible enough to expand and incorporate other ADP schemes / projects

The system initially will be used for managing and monitoring DRM projects initiated under this project. But it will design such that it should be expandable for other ADP (Annual development plans) projects.

DEVELOPING DATA CLEARANCE HOUSE AND PROJECT MANAGEMENT SYSTEM

At provincial level, the P&D will form data clearing house that will contain catalog comprising of the metadata of all departments engaged under this project, i.e., PDMA, DCO, C&W and Irrigation department. C&W department will share road and communication network data, Irrigation department will share information hydrological bodies and network, and PDMA along with DCO will share socio-economic data and hazard, vulnerability, and risk maps of multi hazard. All these departments will create their own repository but also share and upload that data to main dashboard from where other departments can pick up the data as per their requirements. Data will be kept in an organized way that can be taken out by putting query. Irrigation and PDMA will develop separate DRM application as well which will be integrated with the P&DD dashboard. The conceptual model for data clearance house at P&DD is given in figure-1 below

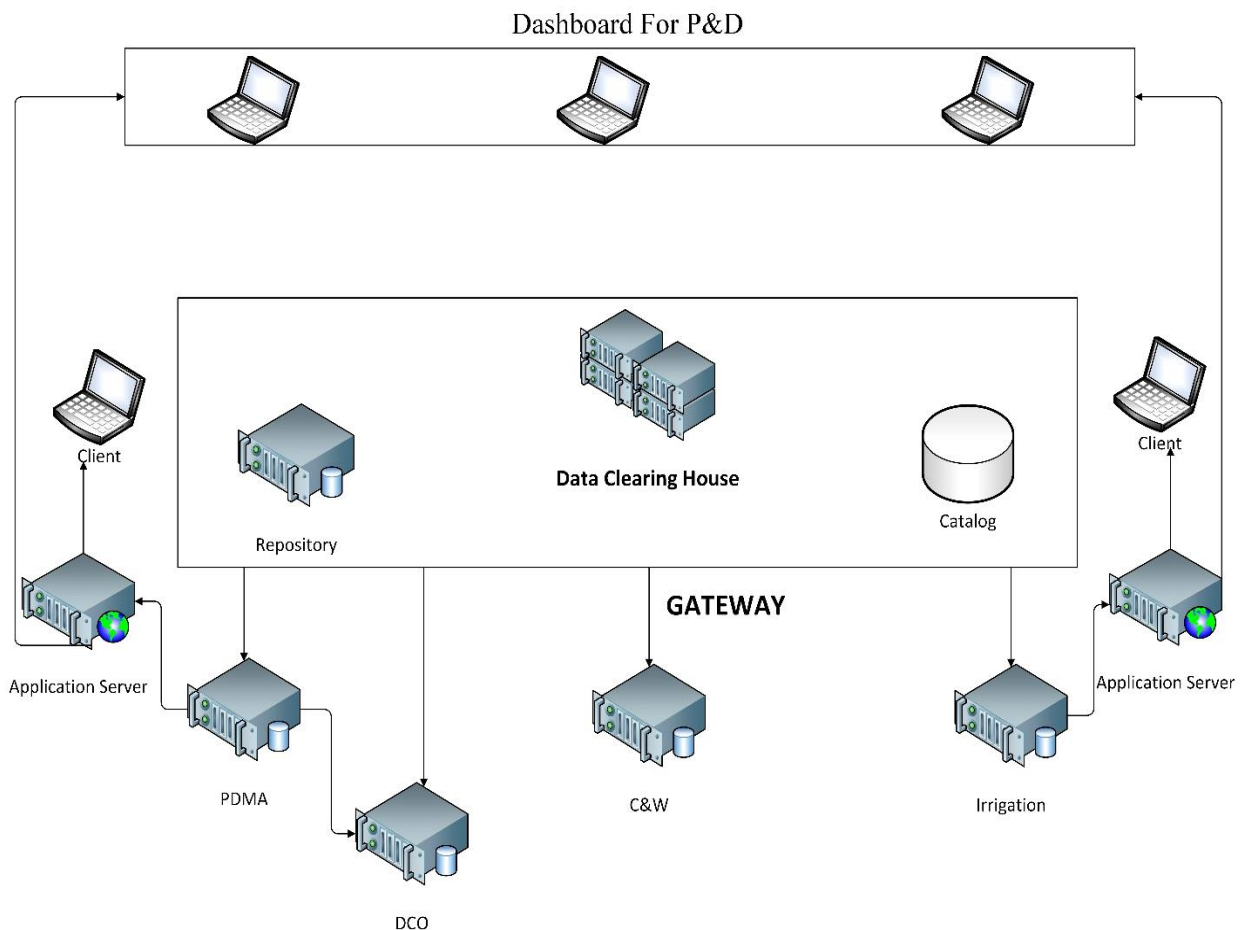


Figure 1: Conceptual Model

The top tier of this architecture contain a complete dash board which will not only contain a catalogue of available dataset but will also provide a GUI for managing, planning and view the execution of work done and cost release of the projects. The interface will contain different GIS and statistical tool for viewing progress. Additionally other application

developed by PDMA and irrigation department will also be integrated in this interface. The required dashboard and MIS system for management and monitoring of DRM project will consist of following modules.

1. Catalogue view for providing information of existing datasets.
2. Map making module integrated with spatial analysis.
3. Integration with other developed DRM application.
4. Submission and Reviewing of PC-I/PC-II form
5. Workflow engine for approval of submit document
6. Workflow engine for fund release mechanism
7. Workflow engine for bidding process.
8. Monitoring module for executing project
9. Physical monitoring
10. Financial monitoring
11. Fund disbursement and utilization process mechanism.

3.3 Deliverables

The consultants will be responsible for the following deliverables/outputs:

Part A: PPMS, baseline and Post completion Survey/assessment

1. An integrated Project Performance management reporting system at P&DD
2. Format of Quarterly Project Progress Report and preparation of first four quarterly reports for capacity building of Client's (P&DD) staff.
3. A report on baseline Socio-economic conditions of the twenty Project Districts
4. Project impact evaluation report covering all Project components

Part B: Integrated GIS enabled MIS Development

1. A system analysis and design report based on the review of operational regime of P&DD, Punjab.
2. A GIS supported integrated MIS for P&DD that covers all operational areas of the P&DD including the modules for automation of development projects' cycle (from subproject PC-I planning and designing to approval, implementation and completion), budgetary allocations and releases, financial management and reporting for all development projects, and a comprehensive Project Progress Reporting and Project Performance Management System reporting.
3. User Guide and Technical Manual of the MIS.
4. Development of policy document for data sharing and data integration.
5. Development of Standard Operating Procedure for data sharing.
6. Development of Catalogue of the meta data.
7. Development of Dashboard integrated with decision making tools for Managers and Planners.

4. Team Composition & Qualification Requirements for the Key Experts

A total of 181 person-months of national consultants will be required for the assignment. The Consultant will be engaged for total contract duration of 24 months for PPMS. The team composition and the person-months input of each expert and brief of responsibilities is given below:

S.No.	Expert	Qty	Input (PM)	Type of Input
A. PPMS, baseline and post completion survey (Over 24 Months Duration)				
Key Experts				
1	Survey Design Specialist/Statistician (Team Lead for PPMS and Baseline)	1	8	Intermittent
2	Economist	1	6	Intermittent
3	Monitoring and Evaluation Specialist	1	12	Intermittent
4	Sociologist	1	6	Intermittent
5	Gender Specialist	1	6	Intermittent
B. Integrated GIS enabled MIS Development (Over 24 month Duration)				
Key Experts				
1	Project Manager (Software Engineer)	1	24	Full Time
2	Data Base (DB) Designer	1	2	Intermittent
3	Monitoring and Evaluation Specialist	1	14	Intermittent
4	Developers	3	72	Full Time
5	Quality Assurance	1	24	Full Time
Non key experts				
1	Smart Phone Application Developer	1	5	Intermittent
2	Network Engineer	1	2	Intermittent

Support Staff				
1	Associates (TBD)	4	24	Intermittent
2	Office Manager	1	24	Full Time
3	Accountant	1	24	Full Time
4	Field Enumerator	120	480	Intermittent

A. TORs for Key experts for PPMS, baseline and Post completion survey/assessment

Survey Design Specialist/Statistician (Team Lead)

Qualification & Experience: MSc Statistics or related degree, more than 10 year specific experience of designing and evaluating impact assessment of infrastructure development.

Detailed Tasks: The expert will design survey, sampling technique and identify sample size for performance evaluation, evaluate questionnaires and socio economic parameters and identification of hypothesis, analysis of quality of collected data, testing of hypothesis, performance analysis using appropriate statistical tools and software. The expert will also provide feedback and necessary input for the development of PPMS and MIS system.

Economist

Qualification & Experience: MSc Economics, more than 7 year specific experience related to the assignment with experience of evaluation/impact assessment of infrastructure development.

Detailed Tasks: Tasks will include but not limited to prepare questionnaire for economic condition analysis of affected community before and after project implementation, list of economic indicators for project performance and its impact, quantification of abovementioned indicators, preparation of different reports required under the assignment, moreover, provide feedback and necessary input for the development of PPMS and MIS system.

Monitoring and Evaluation Specialist

Qualification & Experience: Master's degree in business administration, development studies, statistics, economics, engineering or related degree, more than 7 year specific experience related to assignment with experience of monitoring and evaluation on development portfolios/programs/projects.

Detailed Tasks: Tasks will include but not limited to preparation of necessary reports and coordinating with all internal and external stakeholders for collection of data, quality

assurance of the data received from the site, develop work plan and list milestones, ensure execution of the project with respect to timelines, moreover, provide feedback and necessary input for the development of PPMS and MIS system.

Sociologist

Qualification & Experience: Masters in Sociology or related degree, more than 7 year specific experience related to the assignment with specific experience of analyzing impact of infrastructure development on community.

Detailed Tasks: Tasks will include but not limited to identification and preparation of questionnaire for social impact analysis of affected community before and after project implementation, list of social indicators for project performance and its impact, quantification of above mentioned indicators, preparation of different reports required under the assignment, moreover, provide feedback and necessary input for the development of PPMS and MIS system.

Gender Specialist

Qualification & Experience: Masters in Social Sciences or gender, more than 7 year specific experience related to the assignment with experience of direct involvement in the development and implementation of gender mainstreaming features in development projects.

Detailed Tasks: Tasks will include but not limited to assist in identifying scope for gender mainstreaming and incorporate necessary provisions of Gender related issues in development of PPMS, review of the gender related information in the reports, assist in implementation and monitoring of FERRP Gender Action Frameworks, moreover, provide feedback and necessary input for the development of PPMS and MIS system.

B. TORs for key expert for integrated GIS enabled MIS Development

Project Manager (Software Engineer)

Qualification & Experience: Four year Bachelors or Masters degree in Software Engineering, more than 10 year specific experience related to the assignment with experience in development of GIS based applications.

Detailed Tasks: Tasks will include but not limited to Business Process Modeling and development of As-is and To-be model, requirement, gathering and analysis of the system, designing and implementation of the data base, functional specification of the system, implementation monitoring and quality assurance of the system, ensure proper deployment of the system, ensure proper maintenance and execution of the system.

Data Base (DB) Designer

Qualification and Experience: Four Year Bachelor's degree in Computer Science, Software Engineering, Information Technology. The expert should possess at least 5 year specific experience in database administration for Oracle 8, 9i, 10g, Oracle RAC and RMAN installation, configuration and troubleshooting, moreover, at least 2 year experience UNIX Operating system.

Detailed Tasks: Tasks will include but not limited to design logical and physical schema of database for MIS system and space usage, identify requirement for CPU and memory usage, identify users and their access rights plan, develop security and backup plans for 24/7 access of the data base, develop plan for reducing recovery time.

Monitoring and Evaluation Specialist

Qualification & Experience: Masters degree in business administration, development studies, statistics, economics, engineering or related degree, more than 7 year specific experience related to the assignment with experience of monitoring and evaluation of development portfolios/programs/projects.

Detailed Tasks: Tasks will include but not limited to assist Project Manager in collection of all necessary data and information to design the system, review quality and assess responsiveness of the MIS system and provide feedback on MIS system from M&E perspective, incorporate Client's input and feedback into the system, coordination and liaison with all the internal stakeholders to establish and meet the timelines for different deliverables.

Developers

Qualification & Experience: Master's degree required in GIS/Remote Sensing or Computer Science, Software Engineering, Information Technology. At least 3 specific year experience in development of GIS application and experience of using GIS software and GIS server.

Detailed Tasks: Tasks will include but not limited to work with team in building applications, bug removal from the application, deployment of the application, day to day maintenance and support of all existing applications.

Smart Phone Application Developer

Qualification & Experience: Master's degree in GIS/Remote Sensing or Computer Science, Software Engineering, Information Technology. He/She should possess at least 3 year specific experience in development of smart phone application and experience of developing mapping application in smart phone set.

Detailed Tasks: Tasks will include but not limited to build applications in smart phones, synchronize mobile data with main server and building mapping application in smart phones.

Quality Assurance Specialist

Qualification & Experience: Master's degree in GIS/Remote Sensing or Computer Science, Software Engineering, Information Technology. He/She should possess at least 3 year specific experience in system testing and quality assurance.

Detailed Tasks: Tasks will include but not limited to prepare test plans for system testing, perform unit testing, report system Bugs and ensure its removal, responsible for overall quality and responsiveness of the system.

Network Engineer

Qualification and Experience: Four Year Bachelor's degree in Computer Science, Software Engineering, Information Technology. He/She should possess at least 5 year experience in Network designing and analysis, configuration and troubleshooting, moreover, at least 2 year experience UNIX Operating system.

Detailed Tasks: Tasks will include but not limited to develop and design network plan, develop network security plan, develop backup plan, ensure 24/7 availability of the, network, develop plan for reducing recovery time, design system/server specification for proper running of the system.

5. Reporting Requirements and Time Schedule for Deliverables

- i. ***Inception Report:*** The Consultant will submit an Inception Report within one Month after mobilization. This will contain full detail of the consultant's staff mobilization, methodology for execution of the assignment, submission of deliverables, staffing plan and input projected monthly billing.
- ii. ***Baseline Socio-Economic Report:*** The Consultant will submit a baseline socio-economic report within three months after mobilization.
- iii. ***Project Impact Evaluation Report:*** The Consultant will submit impact evaluation report (s) within three months of completion of work on each component and a cumulative impact evaluation report within 3 months of the completion of the whole project.
- iv. ***Monthly Progress report to P&D, Punjab (Client):*** The consultant will submit a monthly progress report to the Client with details of all the activities performed during the preceding month by 10th day of the following month.
- v. ***Quarterly Project Performance Monitoring Report for submission to Asian Development Bank:*** The consultant will produce quarterly progress report for all Project components to generate the systematic and uniform Progress report of all Project components on a quarterly basis for onward submission to ADB. The report will include information on Procurement, Contract Management of sub contracts with necessary construction status and progress sheets indicating physical and financial status,

Disbursements/Financial Status, Retroactive contracting, Social Safeguards (LARP, Environment, Gender, Grievances).

- vi. **Project Completion Report:** The consultant will prepare Borrower's Project Completion Report covering all components of the Project in Punjab, in accordance with the ADB's guidelines and requirements.
- vii. **Technical Reports:** The Consultant will produce as necessary technical/ due diligence reports and position papers dealing with project matters during implementation.

6. Client's Input and Counterpart Personnel

- a. Coordination: A special task group will be constituted by P&D under the PD Data Clearance House, P&D Punjab. The group will be responsible for overall coordination and monitoring of the exercise. It will also ensure that other concerned departments are fully cooperating with the Consultant. The group will have regular progress review meeting and iron out any problems reported and review the monthly reports generated by Consultant. The meetings can also be called at the request of the Consultant and can be more frequent if required. The Consultant will coordinate closely with the P&D task group and other concerned departments in discharging its obligations under the contract.
- b. The Consultant will coordinate and liaison for all the matters related to the assignment with Program Coordinator, Member Infrastructure Development, Planning and Development, Punjab.

7. Information on Selection Process:

Firms which submit Expression of Interest (EOI) will be evaluated and a shortlisting will be based on the following general criteria:

- a) Technical Competence: Relevant experience of the firm(s) in the last five years or so and the list of ongoing projects in this respect including name of the client(s) and value of the assignments with person-month inputs to be provided separately. Corporate profile indicating years of operation, core competencies and management systems.
- b) Management Competence: Organization of the firm, list of permanent technical staff with qualification, experience, address and certification that they are in the employment with the firm. Short CVs/Introduction should be submitted for Director of firms and permanent senior technical staff members related to assignment for both the Lead and Associate firms.
- c) Geographical Competence: Geographic experience of the firm in the Project area.

The shortlisted firms will then be requested to prepare and submit detailed technical and financial proposals and will be evaluated according to the quality of technical proposal and the quotation on the cost for providing the service. Firms will be selected as per Quality and Cost Based Selection (QCBS) Method in accordance with ADB Guidelines on the Use of Consultants.