

**GOVERNMENT OF THE
PUNJAB
IRRIGATION DEPARTMENT**



**TERMS OF REFERENCE (TOR) FOR
CONSULTANCY SERVICES
DISASTER AND CLIMATE RESILIENCE
IMPROVEMENT PROJECT IN PUNJAB**

January, 2016

Terms of Reference (TOR) For Consultancy Services

DISASTER AND CLIMATE RESILIENCE IMPROVEMENT PROJECT IN PUNJAB

A. BACKGROUND AND RATIONALE

In the first week of September 2014, heavy monsoon rains and floods in the catchment areas of the Jhelum and eastern rivers Chenab, Ravi and Sutlej, resulted in flash floods and caused damages in various districts of the Punjab province. The floods caused extensive damages to infrastructure, private assets and livelihoods. The causes of devastation can be classified into two categories in terms of their impacts i.e. (a) Flood- affected and (b) Rain-affected. In Punjab, while 16 districts were primarily affected by the flooding in the eastern rivers (particularly Chenab River) emanating from across the eastern borders, 12 additional districts also bore severe damages due to heavy rainfall leading to devastation in catchment areas and causing flash floods and damages to the physical public and private infrastructure and communication facilities in flood-hit areas.

The Government's primary efforts focused on search and rescue, relief, early recovery, and restoration. However, the need was recognized for achieving an integrated and sustainable recovery after the floods for a rehabilitation and reconstruction phase. In this regard, the World Bank is providing funding to the Government Punjab for the 'Disaster and Climate Resilience Improvement Project' (DCRIP) to restore flood protection infrastructure and strengthen government capacity to manage disaster and climate variability. As part of infrastructure reconstruction, the project will support restoration of flood embankments and related infrastructure to resilient standards. The potential flood related civil works to be undertaken through the project are in the irrigation zones of D.G.Khan, Sargodha, Bahawalpur, Multan and Faisalabad.

A dedicate Project Implementation Unit (PIU) has been established at the Punjab Irrigation Department, which is responsible for project implementation including, but not limited to, reporting, monitoring and evaluation, social and environmental safeguards compliance, procurement, financial management, audit and disbursements, as well coordination with other government departments and the World

Bank. In this regard, the Punjab Irrigation Department is looking to hire the services of Project Management and Implementation Consultants (PMIC).

B. SCOPE OF CONSULTANCY SERVICES

B-I General Responsibilities:

The principal purpose of acquiring the consultancy services is to ensure that the project is constructed with a high standard of workmanship and high quality of materials within the scheduled contract times and in conformity with the approved drawings and specifications, acceptable environmental standards and in accordance with the client's requirements and scope of work. The estimated duration of consultancy services is 36 months with stipulated Project closing date of 05-06-2019.

The consultants shall be required to provide the consultancy services under the control of Project Director, PIU, by providing technical guidance in the form of Engineer's Representative. The Engineer's role will rest with the Project Implementation Unit (PIU) which will be assisted by a Project Management Team consisting of a Project Director, Director Technical & Director Finance. The civil works will be executed under the supervision of Project Director while designs and drawings prepared by Consultants will be reviewed by the Director Technical. The Consultants would be required to produce designs for the rehabilitation / remodeling of flood embankments/flood infrastructure systems including all type of flood structures. They will also be responsible for resident supervision of civil works to ensure correct specification of materials and execution of works as per design. In discharge of these duties the consultants will exercise care and diligence, accuracy and completeness, economy and professional skill.

B-II Detailed Responsibilities:

1. Surveys and Investigations

Under this item of work, the consultant will be required to carry out followings activities and furnish reports:

- a. Counter checking of X-sections of flood embankments/flood infrastructure systems 100% for assuring its accuracy
- b. Technical scrutiny of the proposals and longitudinal sections etc and provisions contained in the Subproject / project estimates
- c. Condition survey of all flood embankments/flood infrastructure systems structures
- d. Flow analysis at and along flood embankments/flood infrastructure systems

2. Detailed Geo-Technical Surveys and Soil Investigation

The Consultant shall carry out sub soil investigations and laboratory analysis of the soil samples from approved laboratories to assess the ground conditions and its suitability for construction of flood embankments/flood infrastructure systems. Geo technical investigation of the site shall also be carried out to obtain information about engineering characteristics of sub soil and to establish appropriate design parameters for the proposed structures. Deliverables of geo-technical surveys and soil investigation will be as following:

- a. Sub Soil investigations report
- b. Sub soil water table and water quality report
- c. Compilation of data relevant for design and other components of the project

3. Design Development and Tender Documentation

Under the items of work, the consultant will be required to perform the following functions:

- a. Review the existing planning and design
- b. Prepare detailed design and tender drawings for structural works
- c. Prepare detailed cost estimates based on prevailing Market Rates System (MRS) duly supported with rate analysis for each item of work.
- d. Prepare Tender Documents including:
 - i. Conditions of Contract
 - General Conditions of Contract

- Conditions of particular Application & specifications
- Special Provisions
- ii. Drawings
- iii. B.O.Q.
- iv. Technical Specifications for materials & works
- e. Work out list of machinery & equipment required for execution of civil works under each sub-project

Deliverables of activities will be as follows:

- a. Detailed design for items of all flood embankments/flood infrastructure systems
- b. Set of Tender drawings
- c. Detailed cost estimates

4. Tender Invitation and Award Of Contract

Under the item of work the Consultant will be required to perform the following functions:

- a. Assist client in pre-qualification (if applicable) of suitable contracting firms including preparation of pre-qualification (PQ) Documents
- b. Assist client in issuing of tender to invite bids on the basis of National competitive bidding (NCB), conduct job explanation and pre-bid meetings with pre-qualified contractors
- c. Assist and advise the client in bid evaluation and prepare recommendations for award of contract to the bidder most advantageous to the client

Deliverables of activities will be as below: -

- a. Develop the Pre-qualification Documents and assist the client in evaluation of offers for pre-qualification
- b. Arrange Pre-bid meetings, issuance of addendums to the Tender Documents
- c. Bid Evaluation Reports with recommendations

5. Detailed Design and Construction Drawings

Under this item the Consultant will be required to prepare and submit detailed design and construction drawings for all components of civil and mechanical works of the project. Such construction drawings / documents may interalia comprise:

- a. Review the existing design
- b. Prepare Detailed design and drawings
- c. Detailed design and drawings for infrastructure work
- d. Prepare any amended/modified designs and drawings as may be necessary during execution of works at the site
- e. Review and recommend all designs, drawings sketches, proposed by the contractors, if any, under the terms of the Contract Agreement.
- f. The consultants shall during the construction period maintain a record of changes/amendments to the Construction Drawings
- g. Also review "As-Built Drawings" prepared by the contractor to be included in the completion report of the project.
- h. Prepare activity wise Work Break down Schedules (WBS) for each package of civil works in consultation with contractors and Client on Primavera Software and update modify them as and when required.
- i. Training of PIU staff for SOE procedures under The World Bank loan.

Deliverables of this item of work will comprise complete set of working drawings and details for above items

6. Resident Supervision of Construction Works as Engineer's Representative

Consultant's staff will carry out the following activities;

- a. The consultants shall be responsible to check all surveys and benchmarks established by the contractors at each site of work and ensure accuracy of surveys and benchmarks before start of work.
- b. Check the quality of material brought by the contractors at the site of works to ensure that it corresponds to the required specifications/quality.

- c. Supervise the works under execution by contractor with respect to quality and quantity as per specifications laid down in contracts and point out defects/deficiencies if any for their timely correction.
- d. Review contractor's day to day progress of work, prepare and submit to the Project Director, the weekly progress reports (physical and financial), ensure implementation of site safety standards.
- e. Payments to the Consultants for Consultancy services shall be linked with deliverables including Design work, overall Physical progress and certification of works at site by the contractors. In case of delays in completion of Design work by the Consultants and implementation of works by the contractors as compared to the agreed schedules, the payments to the Consultants shall be withheld proportionately.
- f. Monitoring the implementation of Environmental Management and assessment as provided in the Construction contract.
- g. Advise, manage and supervise, required tests and surveys including joint inspections with the client, of under construction works and maintain systematic record of these activities/tests.
- h. The Consultants shall prepare Quality Assurance Plan including a detailed description of the Contractor's organization, procedures and facilities proposed to ensure that the construction is carried out in accordance with the Contract, Specifications and Drawings.
- i. The Consultant will assist the client to administer the contractors' contracts, in order to make engineering decisions and watch that all clauses of the Contract Agreement between the client and the contractor are respected.
- j. The Consultants will prepare a "Construction Management Manual" in first three months of the construction phase outlining routines & standard operating procedures to be applied on Contract Management, Construction Management and Administration.

- k. The Consultant will evaluate and finalize contractor's work programs, method statements, material sources, working / shop drawings, setting out of works, etc. and recommend approval thereof from client.
- l. The Consultants will regularly evaluate the contractor's resource requirements regarding construction machinery, manpower, materials, office/site staff establishment and laboratory facilities to ensure their compliance with respect to the approved construction schedule.
- m. The Consultants shall provide general guidance, furnish timely assistance to the contractor in all matters relating to the execution of works and facilitate the contractor by providing necessary details of minor design changes as and when required during construction of the project.
- n. The Consultant will keep a record of the running / Interim Payment Certificates & certify the quantities of work done for progressive payments based on approved / tendered rates and final payment to the contractor.
- o. Prepare Variation Orders, if necessitated, under the provisions of Construction Contracts and submit to the Project Director.
- p. Assist the client in processing the claims of the contractors, if any, as per procedures laid down in the Contract Documents.
- q. Update cost of contract work on quarterly basis.
- r. The Consultant will, with the approval of client, give notice to the contractor of any defects and deficiencies, and if required, other suspension of the work(s), and ensure removal and substitution of the improper works, and recommend any additional appropriate actions against the contractor to client.
- s. The Consultant will assist client in settling disputes (if any) with the contractor and make recommendations to client for resolving the contractor's claims regarding time extensions and additional cost.
- t. The Consultant will set up a computerized project control system for monitoring the progress of implementation for each package of civil

works as per planned schedules on Primavera Software and update/modify these as and when required.

- u. The Consultant will provide the client with complete records, reports and review “As built” drawings & plans prepared by the contractor and provide a final completion report testifying to the satisfactory completion of the works including the measurement of final quantities and certification final payment due to the contractor.
- v. Inspect the completed works periodically during the defect liability period, prepare list of deficiencies (if any), design and plan remedial works and carry out their supervision and recommend to issue the defect liability certificates after the rectification of defects by the contractor.
- w. Prepare the “Operation and Maintenance Manuals” for major flood embankments/flood infrastructure systems and provide 10 copies for the use of client for operation and maintenance of the system.
- x. The Consultant shall assist the client for taking any of the following actions pursuant to the construction contract.
 - i. Consenting Sub-contracting of any part of the works
 - ii. Determining / certifying additional cost
 - iii. Suspension of works
 - iv. Determining an extension of time claim
 - v. Issuing a substantial completion certificate
 - vi. Issuing a variation order
 - vii. Revision / fixing rates or prices

7. Project Performance Monitoring

The Consultant shall:

- a. Establish a baseline reporting format in consultation with the client for monitoring the project performance, including its safeguards performance.
- b. Establish systems for recording data and statistics for such monitoring

- c. Co-ordinate with the contractor in preparing a comprehensive document which clearly and accurately describes the total verified work done and payment due to the contractor, in order to process interim certificates for payment to the contractor on the basis of measured / verified work items and certify the completion of the works or parts thereof.
- d. Make presentations on digitized / multimedia systems and progress reports on computer based techniques to be displayed in meetings & conferences.
- e. Prepare the following reports and distribute the client each in ten copies along-with soft records.

8. Reporting Requirements

- a. Inception Report: The consultants shall submit an Inception Report to client within 08 weeks of commencement of the respective services. The Report will include the consultants detailed work program.
- b. Monthly Report: Monthly reports are to include works accomplished, status of payment made, claims for cost or time extensions, changes in scope, variation orders, graphical representation of progress against approved program, charts of physical progress for major items, relevant photographs, detail of impediments to the works, actions required by client and give recommendations on how these problems may be over come. At the initial instance, draft contents of such report are prepared and got approved from the client.
- c. Quarterly & Annual Reports: The consultant will prepare a comprehensive report summarizing all activities under the services at the end of each quarter and annual reports, when considered warranted by either party. Such reports shall summarize not only the activities of the “Engineer in charge” but also the progress of the contract including all variations and change orders, the status and brief description of the contractor’s claims (if any), technical & contractual problems being encountered and other relevant information. At the initial

instance, draft contents of such report are prepared and got approved from the client.

- d. Technical Reports: The Consultant will produce technical reports and position papers, as necessary, dealing with technical matters arising during the life-cycle of the project.
- e. Final Completion Report: The Consultant will prepare a comprehensive Final Completion Report (PCR) once the project reaches the stage of substantial completion. The report must be submitted immediately (10 Nos. copies along with soft copy) after the “taking over” of the completed works and shall include the key information, but not limited to the following:
 - i. Summarize the method of construction
 - ii. “as-built” record showing the location & details of all works carried out
 - iii. The construction management performed
 - iv. Recommendations for future projects of similar nature to be undertaken by the client
 - v. Project Archives
 - vi. Lessons learned
- f. Inventory of Works: The consultants will provide the Client a complete inventory of works / structures completed / T&P used in the project.

C. FACILITIES FROM THE CLIENT

- a. The Client through the Project Director PIU will facilitate the Consultants to obtain all reports, maps, data, or any other information, available with PID which are needed by the Consultants to carryout the Tasks. The client will also provide the Consultants with all permissions, approvals or other things needed by the Consultants to obtain (if available) maps, aerial photographs, remote sensing data and images, or to import into Pakistan equipment and supplies needed to enable the consultants to

carry out the Tasks. The client will assist the Consultants and each of its personnel with work permits and such other documents as shall be necessary to enable them to perform their services; and also assist in issuance of entry and exit visas, residence permits, and other necessary documents for the expatriate employees of the Consultants and their eligible dependents, required for their stay in Pakistan. Any duties, fees or other port charges on staff or equipment shall not be reimbursable by client (PID). Facility to stay in Rest Houses will be provided to the Consultants as per availability on payment of the prescribed charges.

b. Offices, Equipment and Supplies

Equipment, vehicles, computers, instruments and furniture etc required by the Consultants under the Consultancy Services will be arranged by PIU out of the consultancy cost and on completion of the project, all these equipment and vehicles shall be returned to the PIU/PID.

D. MONITORING OF CONSULTANTS PERFORMANCE BY WORLD BANK

- a. The client is responsible for supervising the consultant's performance and ensuring that the consultant carries out the assignment in accordance with the contract, however, the World Bank may also monitor the Consultant's performance as necessary to satisfy itself that it is being carried out in accordance with the appropriate standards and is based on acceptable data. As appropriate, the World Bank may take part in discussions between the client and the consultants.
- b. In the case of a difference of opinion between the client and the consultant on any important matters involving professional judgment that might affect the proper evaluation or execution of the project, the client shall allow the consultant to submit promptly to the client a written report and, simultaneously, to submit a copy to World Bank. The client shall

forward the report to World Bank with its comments in time to allow World Bank to study it and communicate with the client before any irreversible steps are taken in the matter. In case of urgency, a Consultant shall have the right to request the client and/or World Bank that the matter be discussed immediately between the client and World Bank.

INDICATIVE TEAM COMPOSITION

PROJECT MANAGEMENT AND IMPLEMENTATION CONSULTANTS (PMIC) for DISASTER AND CLIMATE RESILIENCE IMPROVEMENT PROJECT

TEAM LEADER / IRRIGATION FLOOD MANAGEMENT SPECIALIST

The expert will have a Master's degree in water resources engineering / flood management with preferably 20 years of experience in design, implementation and management for flood protection works and irrigations infrastructures; and team leadership of preferably two World Bank financed projects. The Project Manager must have demonstrated ability to lead teams composed of international and national consultants and create a strong working relationship with the EA/IA.

The responsibilities of the Team Leader will be but not limited to the following:

- (i) reports to consultants Board of Management (BOM);
- (ii) works as "The Engineer" for management of project contracts and carries out all duties and responsibilities assigned under the contract;
- (iii) review & determine Contractor's Claims;
- (iv) provide overall responsibility for technical support during implementation, including preparation and implementation of work plans;
- (v) assists the Employer in any project issue whenever required;
- (vi) participates in Dispute Review Board (DRB) meetings to explain and discuss issues raised by the Contractor / Employer / DRB;
- (vii) assists the Employer in preparing the response to Audit Objections;
- (viii) assists the Employer in preparing response to financiers or other authority's queries, observations, requirements etc;
- (ix) coordinates with all concerned / involved / related organizations for project issues;
- (x) monitor progress against project implementation schedule and coordinate preparation and submission of periodic progress reports and technical reports;
- (xi) works closely with Project Implementation Unit and advise the Project Director;
- (xii) maintain good coordination among World Bank, PIU and others stakeholders and assure links with key institutions as PID, PIU and Local Authorities;
- (xiii) provide guidance to Team to ensure that the quality of works meet a required standard;

- (xiv) monitor work of the Civil Works Contractors;
- (xv) assist PIU in procurement and contracts management;
- (xvi) monitor financial performance of the Project; and
- (xvii) monitor the environment, health and safety, quality assurance & control, resettlement and social safeguards aspects to bring minimum delays to the project work.

PROCUREMENT & CONTRACT MANAGEMENT SPECIALISTS

The expert will have a Master's degree in Construction Management / Engineering Management or other related fields with preferably 15 years' experience in procurement of works and goods, preparation of tender and contract documents, evaluation of bids, and contracts managements of projects, and recruitment of consultants including at least one World Bank financed project. The specialist should have demonstrated experience with developing and managing FIDIC contracts for large works.

The responsibilities of the Contract Management Specialist are:

- (i) assisting the PIU in preparing bidding documents;
- (ii) assist the PIU in preparing RFP for Third Party Monitoring (TPM);
- (iii) assist PIU in the evaluation of bids / proposal, prepare bid evaluation reports / for recruitment of TPM;
- (iv) renders necessary advice and help to the Project Manager in Contract administration and procurement issues / assignments;
- (v) assist PIU in negotiations and finalizing contract agreements for works, goods and services;
- (vi) develop, and organize contract management capacity building and training covering FIDIC, and World Bank procurement guidelines and procedures for the project implementation staff of the EA and PIU;
- (vii) advise Team Leader/team on the progress reporting, quality control and inspection systems to be followed during execution of civil work contracts;
- (viii) advice PIU in resolving contractual issues;
- (ix) assists the Project Manager in reviewing and determining Contractors claims; and
- (x) assists the Project Manager in keeping the Employer informed of contractual issues both by direct contacts and through discussions or correspondence.

FINANCIAL AND ACCOUNTING SPECIALIST

The expert must have a Master's degree in Finance / Accounting with preferably 15 years of relevant work experience including experience working with international consultants preferably in donor funded projects and government institutes. He /she will have experience in financial management and accounting of preferably on one World Bank financed project.

Tasks include:

- (i) assist the EA in preparing withdrawal applications to World Bank, management of impress account, in accordance with World Bank disbursement guidelines;
- (ii) assist in developing procedures for financial disbursement, accounting, reporting and auditing of O&M budget for the subprojects in accordance with procedural requirements of the Government and World Bank; and
- (iii) assist in processing World Bank loan withdrawal including certificates and reporting formats for efficient flow of funds between World Bank, Government, and contractors.

MONITORING AND EVALUATION SPECIALIST

The expert must have a Master's degree in related field with preferably 15 years of relevant work experience. He / she will have experience working with international consultants preferably in donor funded projects. He/she will have demonstrated ability to work in a multidisciplinary team.

The expert will:

- (i) establish the project performance monitoring system (PPMS) and update every six months;
- (ii) establish data collection, analysis and reporting mechanism for the PPMS;
- (iii) collect benchmark/baseline data for performance indicators in the DMF;
- (iv) prepare quarterly progress reports (QPRs), annual reports and Borrower's project completion report.

CONSTRUCTION MANAGEMENT ENGINEER

The expert will be qualified Civil Engineer, with Master's degree in construction management with 7 years of experience of managing construction of Hydraulics and Irrigation and Flood infrastructures of donor financed projects.

Job responsibilities include:

- (i) prepare construction schedules;
- (ii) ensure construction progress adheres to the schedules;
- (iii) monitor progress and quality of construction works;
- (iv) review measurements for completed works, and verify bills for payment;
- (v) take measures to minimize contract variations;
- (vi) assess adequacy of contractors' input in terms of materials, equipment, construction machinery, workers, and construction approach and methodologies;
- (vii) monitor physical and financial progress against the milestones, for timely completion;
- (viii) review and approve the construction drawings of the contractor and permit the contractors to carry out construction work effectively and efficiently and to the highest standards of quality; and
- (ix) report progress, disputes and all the other matters to the Team Leader.

HYDROLOGIST

The expert will have a Master's degree in Hydrology / Water Resources engineering with preferably 15 years of experience in hydrological studies, modeling and estimating flows. He /She will have demonstrated ability to work in a multidisciplinary team.

Hydrologist responsibilities will include:

- (i) carry out hydrological studies for subprojects and update the hydrological analysis and data for the purpose of determining water availability;
- (ii) in close coordination with all the concerned parties, facilitate and monitor institutional operations, managing on-site data collection and processing;
- (iii) assist in modernizing engineering operations, implementing relevant regulations;
- (iv) employing statistical and hydrological modeling techniques;
- (v) working with specifically designed computer modeling packages to assess the most effective methods of managing available water in a particular area;
- (vi) assist in designing flood protection works based on the return period; and
- (vii) provide awareness and trainings on watershed management.

HYDRAULIC STRUCTURAL ENGINEER / DESIGN ENGINEER

The expert will have a Master's degree in Water Resources Engineering / Hydraulics Engineering with preferably 10 years of experience in design of hydraulic structures; cost estimation, preparation of BOQs, including experience working with international consultants preferably in donor funded projects. He /she will have demonstrated ability to work in a multidisciplinary team.

The Hydraulic Structural Engineer will assist the Project Manager in:

- (i) leads the design team and controls the design section;
- (ii) assists the Project Manager in reviewing & giving approval of all proposals and designs submitted by the Contractors for temporary works as well as permanent works if needed;
- (iii) responsible for design review regarding any query from site or any other position, preparation and issuance of construction drawing reviews;
- (iv) responsible for checking of shop drawings prepared by the Contractor;
- (v) responsible for checking of as-built drawings prepared by the Contractor and any other duty / assignment the Project Manager may entrust;
- (vi) review and update of hydraulic calculation for flood protection works and irrigation infrastructure;
- (vii) design flood protection structures and appurtenant structures of all other subprojects; and
- (viii) supervise topographic surveys, review the results of the topographical survey and geotechnical studies and integrate these considerations in the design.

GEO-TECHNICAL/ QUALITY CONTROL ENGINEER

The experts will have a Bachelor's degree in Civil Engineering / Geotechnical / Material Engineering with preferably more than 10 years' experience in geo-technical and quality control of construction projects preferably flood and irrigation infrastructure with an International / Multinational consultancy / construction firm.

Their task will be to ensure the quality of construction is as per the design specifications.

The responsibilities of the Geo-technical/Quality Control Engineer will be:

- (i) report to Project Manager and Chief Resident Engineer;
- (ii) review the Geotechnical Investigations already done and identify further needs;

- (iii) supervise the recommended additional investigations and advise Project Manager regarding necessary steps to be taken;
- (iv) resolve Geotechnical problems as they arise;
- (v) prepare a Geotechnical Investigation Report for submission to the Employer;
- (vi) responsible for source identification & recommendation to Chief Resident Engineer for different construction materials;
- (vii) keeps the CRE well informed regarding the QA / QC aspects of all works;
- (viii) responsible for carrying out Mix Design for concrete and review of contractor's design;
- (ix) responsible for strict compliance of quality assurance / control standards and contract provisions;
- (x) responsible for strict compliance of project specifications; and
- (xi) overseeing and control of quality of Batching, placement at sites and laboratory.

SOCIAL SAFEGUARDS / RESETTLEMENT SPECIALIST

The expert will have Master's degree in social sciences with preferably 10 years of relevant work experience including experience working with international consultants, preferably in donor funded projects and government institutes. He / she will have experience of working on World Bank financed projects and fully familiar with World Bank's Safeguard Policy Statement (SPS), 2009.

Social Safeguards / Resettlement Specialists have the responsibilities listed as:

- (i) be responsible for the scope of work related to Institutional and Sociological aspects of the Project and SDAP;
- (ii) screen subprojects for involuntary resettlement impacts to determine eligibility of the subproject for financing under the project;
- (iii) for subprojects with involuntary resettlement impacts, prepare Resettlement Plans in accordance with the Resettlement Framework;
- (iv) assist and supervise detailed design of subprojects to ensure involuntary resettlement impacts are minimized, if not avoided;
- (v) based on detailed design, conduct detailed measurement survey and update the Resettlement Plan in accordance with the Resettlement Framework;
- (vi) assist in organizing and conducting consultations with affected people to ensure that the Resettlement Plan have been fully discussed and agreed;

- (vii) assist PIU and field staff in the implementation of Resettlement Plans in the subproject areas;
- (viii) develop and conduct training modules to ensure proper understanding and implementation of Resettlement Plans;
- (ix) monitor implementation of Resettlement Plans; and
- (x) contribute to the PPMS for monitoring and reporting on resettlement by developing monitoring and evaluation indicators for involuntary resettlement and assisting in the preparation of monitoring reports for involuntary resettlement.

ENVIRONMENT SPECIALIST

The expert will have a Master's degree in environmental sciences or other relevant field with preferably 10 years of relevant work experience. H/she will have experience of working on World Bank financed projects as an environmental safeguards specialist and will be fully familiar with the relevant national and provincial legislation and World Bank's environmental safeguards policies, and demonstrated ability to work in a multidisciplinary team.

Tasks include:

- (i) manage proper socio-environmental control on the project
- (ii) ensure compliance with World Bank's environmental safeguards and continuing improvement of the project's environmental safeguards performance.
- (iii) monitor implementation of ESMPs and prepare quarterly monitoring reports for submission to the relevant government forum and the World Bank;
- (iv) carry out screening IEE of subprojects by using the Environmental Assessment and Review Procedures (EARF) as described in the Environment and Social Management Framework (ESMF) of the Project
- (v) coordinate concurrence of the IEEs from relevant Government agencies and ensure public disclosure
- (vi) provide training for PIU staff involved in the project implementation to strengthen their capacity to manage and monitor environmental safeguard; and
- (vii) assist the Chief Resident Engineer and Project Manager in all socio-environmental issues and any other relevant matter referred by Project Manager, Chief Resident Engineer or Employer.

JUNIOR ENGINEER

Qualified Engineer with Bachelor's degree in Civil Engineering and preferably 3 years of experience in site supervision of construction works preferably irrigation and hydraulic structures.

Job Description of Junior Engineers includes:

- (i) reporting to the Construction Management Engineer;
- (ii) supervise and monitor the construction of works, prepare measurements for works completed and in progress;
- (iii) certify contractors' bills;
- (iv) check the construction schedule submitted by contractor, and assist contractor's site manager to make detailed construction plan;
- (v) report weekly and monthly construction progress and issues to the Construction Management Engineer;
- (vi) report field variations to the Construction Management Engineer and regularly monitor physical and financial progress against the milestones, according to the contracts to ensure the completion of the contracts on time;
- (vii) examine contractors' claims for time extension, variations, and additional compensation, etc., and recommend appropriate decisions to the Construction Management Engineer;
- (viii) assist PIU in resolving contractual issues and overall contract management; and
- (ix) ensure quality of construction as per design specifications.

GIS / REMOTE SENSING SPECIALIST

The expert must have a Master's degree in GIS / Remote Sensing field with preferably 7 years of experience. He /she will have demonstrated ability to work in a multidisciplinary team.

The specialist will:

- (i) Do process modeling and design a spatial solution for flood infrastructures;
- (ii) Development of inundation maps in case of Floods;
- (iii) Synchronizing GIS application with Decision Support system;
- (iv) GIS Hydro application;
- (v) Quality control during application development and provide Technical Assistance in integration of distract-based GIS and its linkage to Pⅅ

- (vi) Contribute in producing the business process modeling document, requirement specification and function specification documents; and
- (vii) Provide technical assistance in spatial data handling and GIS application development imparting trainings.

QUANTITY SURVEYOR

Quantity Surveyor needs to have the requisite diploma in Associate Civil Engineering with preferably 5 years of experience.

The jobs of Quantity Surveyor will include:

- (i) supervising staff;
- (ii) seeking funding sources and submitting bids;
- (iii) carrying out feasibility studies;
- (iv) preparing estimates, bills of quantities and other documentation;
- (v) Prepare tender and contract documents, including bills of quantities;
- (vi) performing risk analysis evaluations;
- (vii) cost control;
- (viii) writing reports;
- (ix) preparing and submitting final accounts;
- (x) providing advice and forecasts about costs;
- (xi) monitor and keep track of project progress and are responsible for the measurement and valuation of variations in the work during the contract, for agreement of interim payments and the final account; and
- (xii) work as part of a team to ensure that the requirements of the client are delivered.