TERMS OF REFERENCE

PROJECT IMPLEMENTATION CONSULTANT FOR DESIGN REVIEW AND RESIDENT SUPERVISION OF CONSTRUCTION OF SMALL DAMS IN SINDH UNDER SINDH RESILIENCE PROJECT SRP (IRRIGATION COMPONENT) (Structural Investment)

1. PROJECT BACKGROUND

Pakistan is exposed to a number of adverse natural events and has experienced a wide range of disasters over the past 40 years, including floods, earthquakes, droughts, cyclones and tsunamis. Exposure and vulnerability to hazards is further exacerbated by a rapid population growth, growing urbanization, environmental degradation and shifting climatic patterns that can result in the occurrence of increasingly severe natural disasters. Over the past decade, damages and losses resulting from natural disasters in Pakistan have exceeded USD 18 billion; as the population and asset base of Pakistan increases, so does its economic exposure to natural disasters. The geographic location and climatic conditions of the Province of Sindh, being the lowest riparian in the Indus basin, render it vulnerable to various natural disaster events.

Sindh experienced major floods in 1973, 1976, 1992, 1994, 1995, 2003, 2005, 2007, 2010, 2011, 2012 and 2013. Besides riverine floods, primarily involving the River Indus, torrential flash floods have also severely impacted parts of Sindh. Floods in 2010 and 2011 were amongst the most devastating in the history of the region. Floods in 2010 displaced 7.2 million people and affected 11,992 villages. The impact on the economy of Sindh was estimated at Pak Rupees 372 billion (USD 4.4 billion), with agriculture, livestock and housing contributing to major losses. The floods in 2011 inundated 38,347 villages, displacing 9.3 million people and human loss stood at 497 lives. The 2011 flood-affected districts constitute 86 percent of geographical area and 54% of the total population of the province.

Besides floods, Sindh province faces drought in northern and south eastern region on recurring basis. The drought from 1998 - 2002 affected 1.4 million people, 5.6 million cattle head and 12.5 million acres cropped area, triggering spread of malnutrition-based diseases in the population and food scarcity in the province due to poor overall crop output, as well as challenges on availability of safe drinking water.

2. THE PROJECT

On the request of the Government of Sindh, the World Bank has indicated the approval of US$ 130 million in addition to an amount of saving from Phase-I SRP project to enhance disaster and climate resilience; and to increase the technical capacity of Government entities to manage natural disasters and climate variability; through construction of small dams to alleviate drought impacts and support restoration of flood protection infrastructure on Indus River. The project is designated as Sindh Resilience Project Additional Financing

2.1 Project Components

The project, which will be implemented over three years will comprise of the following components.

Component 1: Strengthening Disaster and Public Health Emergency Management

The component will focus on two key institutions in terms of strengthening operational systems and capacities viz, the Provincial Disaster Management Agency (PDMA) Sindh and the Sindh Irrigation Department.

Component 2: Improving Infrastructure and Systems for Resilience

This component of the project is covering structural investments through construction of small dams to address the drought risk.

These terms of reference pertain to Component 2.

2.2 Project Location

The Project area is scattered in Sukkur, Malir, Hyderabad, Matiari, Suwajal, Tharparkar, Thatta, Dadu and Jamshoro Districts of the Sindh Province of Pakistan. The project area and location is shown in the Figure 1 below.

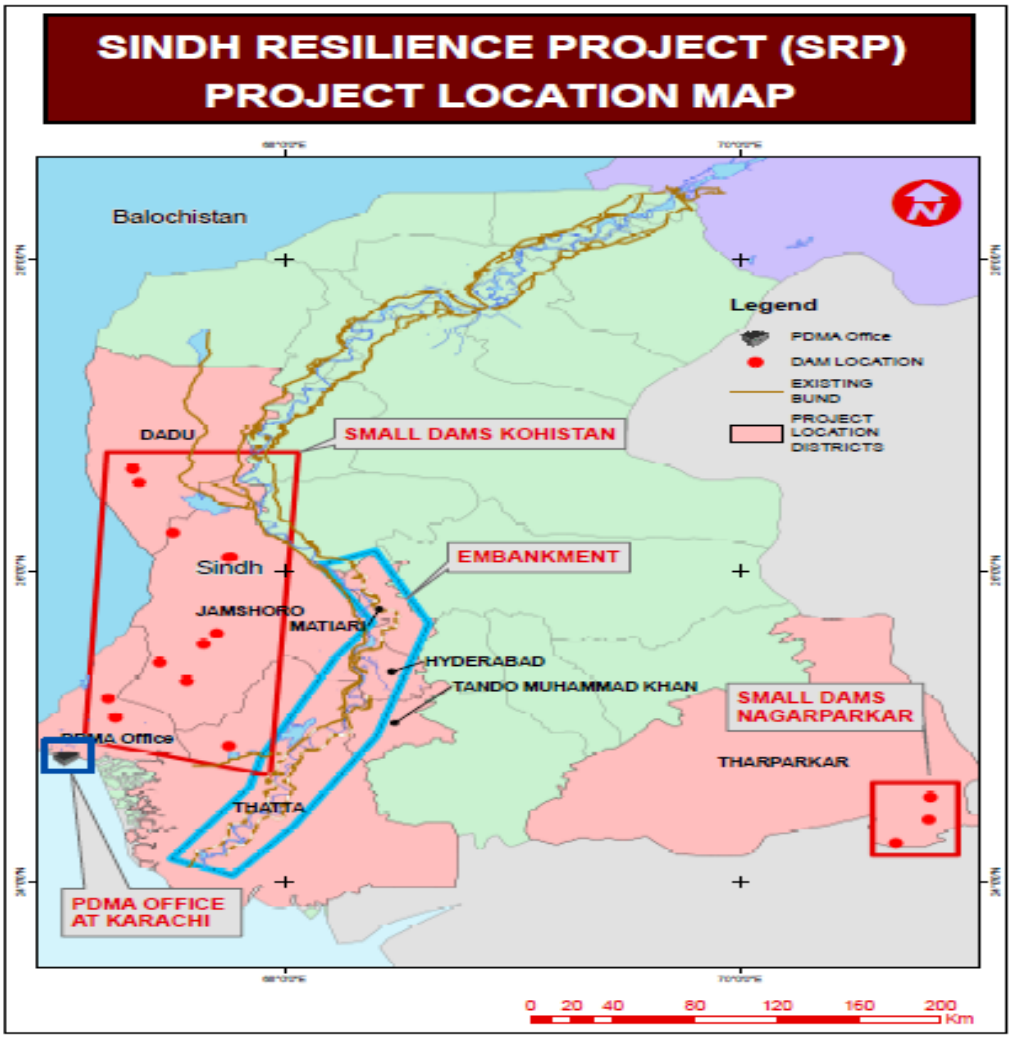

Figure 1: Location Map

a. Construction of small dams

The project will support physical investments for rainwater harvesting through the construction of not limited to 53 Nos. Small Dams in the Kohistan and Nagarparkar regions that will contribute significantly to the provision of water to communities during dry periods and the recharging of underground aquifers in adjacent drought prone areas.

Table 1: Scope of Works / Schemes under SRP (Irrigation Component)

A SMALL DAMS
Kohistan-I Dadu
Kohistan-II Jamshoro
Nagarparkar at Mithi
Sukkur / Khairpur

3. CONSULTANCY SERVICES

3.1 General

The Client through the Project Management team (PMT) intends to hire services of a reputed and experienced consulting firm for design review, procurement assistance, contract management, construction supervision, quality assurance and monitoring of implementation of Environmental and Social Management Plans (ESMP), Resettlement Action Plans (RAPs) and development of grievances redressal mechanisms.

The main purpose of acquiring the consultancy services is to ensure that the project is implemented with a high standard of design and workmanship and high quality of materials within the scheduled contract time and in conformity with the approved drawings and specifications, acceptable environmental and social standards and in accordance with the Client's requirements and scope of work. The estimated duration of consultancy services is 42 months with stipulated Project closing date of 30-06-2024.

The Sindh Irrigation Department is sufficiently advanced with preparatory activities, and has already prepared feasibility studies for most of the prospective physical investments under consideration through services of a consulting firm. The Consultant shall be required to provide technical guidance and implementation supervision by performing the role of the Engineer for the execution of works. The Consultant would be required to produce/ review designs for construction of small dams They will also be responsible for resident supervision of civil works to ensure enforcement of applicable specifications for materials and execution of works as per design. In discharge of these duties the Consultant will exercise care and due diligence, accuracy and completeness, economy and professional skills.

3.2 Scope of Work

Consultant will carry out, but not limited to, the following scope of work

3.2.1 Design Review

Consultant will carry out review of design of small dams for which the feasibility and design have already been completed. For design review, the Consultant will examine the basis of design followed giving consideration to the following:

Small Dams

1. Rangeland inventory and management
2. Catchment characteristics
3. Hydro-meteorological data (validity)
4. Derivation of probable maximum flood
5. Fixation of storage capacity
6. Survey of reservoir area
7. Spillway capacity
8. Geotechnical investigation for dam foundation design
9. Choice of dam type (earth fill or concrete)
10. Suitability and availability of embankment material
11. Embankments and spillway design
12. Financial and Economic evaluation and assessment, including sensitivity analysis etc.
13. Environment and re-settlement considerations
14. BOQ and cost estimates

3.2.2 Survey & Investigation

The consultant will carry out survey and geotechnical investigations where found to be inadequate to justify design. In the initial 3 months of the assignment, the Consultant will submit to the Client the method statement and the bill of quantities of such surveys and investigations that is deemed essential for supporting the design. The Project Director will review and revise the proposal and instruct the Consultant to proceed in accordance with the approved method / bill of quantities. These would be reimbursable activities subject to prior approval of Client.

3.2.3 Validation of Design and Detailed Drawings

1. Consultant will review and validate the existing design and prepare detailed design and engineering drawings. Where needed, Consultant will modify design to conform to standards and specification with approval of the Client.

2. Review detailed cost estimates prepared by the feasibility study consultants, based on prevailing market rates system (MRS), duly supported with rate analysis for each item of work, and make revisions if deemed necessary.

3.2.4 Deliverables Design Review

Consultant will submit the following deliverables after the review of design of small dams.

1. Detailed review of designs and drawings
2. Bidding documents level drawings
3. Review detailed cost estimates and produce the Engineer's Cost Estimate.

3.3 Procurement Assistance

Consultant will assist the Client in the procurement process and in this regard prepare the following:

Prepare Bidding Documents including:

i) Request for Bids
ii) Bid Data Sheet
iii) Conditions of Contract
   - Conditions of particular Application & specifications

- Special Provisions

iv) Drawings
v) B.O.Q.
vi) Technical Specifications for materials & works
vii) Assist Procurement Committee in preparation of Bid Evaluation Report with Recommendation of award of contract
viii) Assist Procurement Committee in identification and treatment of Abnormally Low Bids.
ix) Assist the client in prequalification (if applicable) process starting from preparation of prequalification (PQ) Documents
x) Assist Client in responding to queries raised by prospective bidders, assist in pre-bid meetings

Deliverables of this item of work will be as under:

1. Complete set of Bidding Documents as per agreed procedures
2. Engineer's Cost Estimate
3. Pre/ Post qualification Documents
4. Minutes of pre-bid meetings
5. Replies to queries from bidders
6. Bid Evaluation Reports with recommendations
7. Verify and Examine Performance Security
8. Contract Documents

3.4 Environment and Social Safeguards Management

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

i. Evaluate preparation of Land Acquisition & Resettlement Plans and ESMPs.
ii. Assist PMT and field staff in the implementation of RAPs and ESMPs.
iii. Ensure compliance with World Bank Environmental and Social Safeguards operational policies / guidelines and national laws and regulations.

3.5 Preparation of Construction Drawings

The Consultant is required to prepare and submit detailed construction drawings for all components of the project works. Such construction drawings/ documents may inter alia comprise.

i. Reviewed design construction drawings
ii. Prepare any amended/ modified designs and drawings as may be necessary during execution of works at site
iii. Review and recommend all designs, drawings sketches, proposed by the contractors, if any, under the terms of the Contract Agreement.
iv. The Consultant shall during the construction period maintain a record of changes/amendments to the Construction Drawings.

4. RESIDENT CONSTRUCTION SUPERVISION

Consultant will carry out the following activities as "Engineer" defined in the construction contract.

a. The Consultant 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 to the site of works by the contractors and ensure that it corresponds to the prescribed 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 / rectification.

d. Review contractor's day to day progress of work, prepare and submit to the Client, the weekly progress reports (physical and financial), ensure implementation of site safety standards.

e. Payments to the Consultant for consultancy services shall be linked with deliverables including design work and overall physical progress of works at site by the contractors. In case of delays in completion of design work by the Consultant and implementation of works by the contractors as compared to the agreed schedules and milestones, the payments to the Consultant shall be withheld proportionately.

f. Monitoring the implementation of ESMPs and assessment as provided in the construction contract.

g. Submit monthly progress report on environmental, social, occupational health and safety management plans, pointing out the deficiencies in the work and suggestions for its remedial measures.

h. 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 performed in the field and laboratory.

i. The Consultant 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 and Designs.

j. The Consultant will assist the Client to administer the contracts of civil works contractors', in order to make engineering decisions and watch that all clauses of the Contract Agreement between the Client and the contractor are being followed.

k. The Consultant will prepare a "Construction Management Manual" in the first month of the construction phase outlining routines & standard operating procedures to be applied on Contract Management and Administration.

l. 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.

m. The Consultant 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.

n. The Consultant 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.

o. 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.

p. Prepare Variation Orders, if necessitated, under the provisions of construction contracts and submit to the Project Director.

q. Assist the Client in processing the claims of the contractors, if any, as per procedures laid down in the Construction Contract.

r. Update cost of contract work on quarterly basis.

s. 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 action against the contractor.

t. 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, if any.

u. 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 (or any other) Software and update/modify these as and when required.

v. 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 on the prescribed format testifying to the satisfactory completion of the works including the measurement of final quantities and certification of final payment due to the contractor.

w. Inspect the completed works periodically during the defect liability period, prepare list of deficiencies (if any), and plan remedial works and carry out their supervision and issue the defect liability certificates after the rectification of defects by the contractor.

4.1 Project Performance Monitoring

i. Establish a baseline reporting format in consultation with the Client for monitoring the project performance

ii. Establish systems for recording data and statistics for such monitoring

iii. The Consultant will 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.

5. CONSULTANT OFFICE

The Consultant will establish their separate project office in Karachi Consultant will report to the Client PMT appointed by Sindh Irrigation Department. Consultant will work under the overall guidance, coordination and direction of the Project Director.

6. REPORTING REQUIREMENT

The Consultant will prepare the following reports and submit to the Client each in ten copies along-with soft record.

a. Inception Report

The Consultant shall submit an Inception Report to Client within 08 weeks of commencement of services. The Report will include the Consultant's detailed work program, approach, methodology, scope staffing schedule and delivery milestones.

b. SOP for usage of ground water

The Consultant shall submit an SOP (Standard Operating Procedure) for usage of ground water to Client within 12 weeks of commencement of services. The Report will include the Consultant's detailed SOP finalized with the Department.

c. 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 overcome. At the initial instance, draft contents of such report are to be prepared and got approved from the Client.

d. Quarterly & Periodic Report

The Consultant will prepare a comprehensive report summarizing all activities under the services at the end of each quarter and also at other times when 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 to be prepared and got approved from the Client.

e. Technical Reports

The Consultant will produce as necessary technical reports and position papers dealing with technical matters arising during the life-cycle of the project.

f. PC-IV and Final Completion Report

The Consultant will prepare a comprehensive final completion report once the project reaches the stage of substantial completion. The report 10 Nos. copies along with soft copy must be submitted soon 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" drawings and designs with other related 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

7. FACILITIES FROM THE CLIENT

The Client will facilitate the Consultant to obtain all reports, designs, maps, data, or any other information, available with SID, which are needed by the Consultant to carry out the task. The Client will also provide the Consultant with all permissions, approvals or other things needed by the Consultant to obtain (if available) maps, aerial photographs, remote sensing data and images, or to import into Pakistan equipment and supplies needed to enable the Consultant to carry out the Tasks. The Client will assist the Consultant 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 Consultant 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 (SID). Facility to stay in Rest Houses will be provided to the Consultants as per availability on payment of the prescribed charges.

Equipment, vehicles, computers, instruments and furniture etc required by the Consultant under the Consultancy Services shall be procured by Consultant with prior approval of the Client out of the consultancy cost and on completion of the project, all these equipment and vehicles shall be returned to the PMT/SID and properly accounted for in the account books of the client.

7. CONSULTANT OFFICE

The Consultant will establish the main office in Karachi and three site office in Jamshoro, Nagarparkar and Larkana for the consultancy services and resident supervision of works.

8. TECHNICAL PERSONNEL

Sr. No.	Description of Personnel	No. of Persons	Person Months	Total Months	Type of Input
A. Key Staff					
1	Team Leader/Resident Engineer	1	36	36	Full Time
2	Procurement and Contract Management Expert	1	36	36	Full Time
3	Dam Design Engineer	1	12	12	Intermittent
4	Hydraulic Design Engineer	1	12	12	Intermittent
5	Engineering Geologist	1	8	8	Intermittent
6	Hydrologist	1	8	8	Intermittent
7	Materials/ Quality Control Engineer	1	30	30	Intermittent
8	Environmental Specialist	1	36	36	Full time
9	Social Safeguards/ Resettlement Specialist	1	36	36	Full time
Sub-Total (Key Staff)				**214**	
B. Non –Key Staff					
1	Resident Engineer-1 Nagarparkar	1	15	15	Full Time
2	Resident Engineer-2 Upper Kohistan	1	15	15	Full Time
3	Resident Engineer-4 Lower Kohistan	1	15	15	Full Time
4	Assistant Resident Engineer-Nagarparkar	2	16	32	Full Time
5	Assistant Resident Engineer-Upper Kohistan	2	18	36	Full Time
6	Assistant Resident Engineer-Central Kohistan	2	18	36	Full Time
7	Assistant Resident Engineer-Lower Kohistan	3	15	45	Full Time
8	Monitoring & Evaluation Officer	1	24	24	Full Time
9	Agriculture Engineer / Agronomist	1	12	12	Intermittent
10	Quantity Surveyor	2	15	30	Intermittent
11	Site Inspector	30	15	450	Full Time
12	Surveyor	4	15	60	Full Time
13	Environment Officer	1	36	36	Full Time
14	Social Safeguard Officer	1	36	36	Full Time
15	AutoCAD Draftsman	2	15	30	Full Time
Sub Total Non-Key Staff				**872**	
Grand Total (Key Staff + Non Key Staff)				**1086**	

The staff should meet the following criteria.

A. Design Team (Key Staff)

i) Team Leader

The expert will have a Master's degree in water resources engineering /civil engineering with preferably 25 years of experience in design, and construction management of dams and irrigations infrastructures; and team leadership of similar projects. The Team Leader must have demonstrated ability to lead teams composed of international and national consultants and create a strong working relationship with the PMT-Sindh Irrigation Department.

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

- Works as "The Engineer" for management of project contracts and carries out all duties and responsibilities assigned under the contract;
- Review and finalize design, BoQ, estimates, drawings, environment and social safeguard reports and plans, bidding documents, bid evaluation reports and final contracts to be signed with the contractors
- Review & determine Contractor's Claims;
- Provide overall responsibility for technical support during implementation, including preparation and implementation of work plans;
- Assists the Employer in any project issue whenever required;
- Participates in Dispute Review Board (DRB) meetings to explain and discuss issues raised by the Contractor / Employer / DRB;
- Assists the Employer in preparing the response to Audit Objections;
- Assists the Employer in preparing response to financiers or other authority's queries, observations, requirements etc;
- Coordinates with all concerned / involved / related organizations for project issues;
- Monitor progress against project implementation schedule and coordinate preparation and submission of periodic progress reports and technical reports;
- Works closely with Project management team (PMT) and advise the Project Director;
- Maintain good coordination among WB, PMT and others stakeholders and assure links with key institutions as P&DD, SID, PDMA and Local Authorities;
- Provide guidance to team to ensure that the quality of works meets a required standard;
- Monitor work of the civil works contractors;
- Assist PMT in contracts management;
- Monitor financial performance of the Project; and
- Monitor the environment, health and safety, quality assurance & control, resettlement and social safeguards aspects to bring minimum delays to the project work.

ii) Procurement & Contract Management Expert

The experts will have a Master Degree (sixteen years of education) in Engineering/Management/Procurement or Social Sciences with 15 years' experience in procurement of works and goods, preparation of tender and contract documents, evaluation of bids, and contracts managements projects. The expert should have demonstrated experience with managing of FIDIC contracts for large works.

The responsibilities are;

- Assisting the PMT in bidding process
- Assist TL / PMT in the evaluation of bids/ prepare bid evaluation reports for contract award.

- Renders necessary advice and help to the Team Leader in contract administration and management.
- Assist PMT in negotiations and finalizing contract agreements for works and goods.
- Assist PMT / TL n resolving contractual issues.
- Assist the Team Leader in reviewing and determining Contractors claims;
- Assist the Team Leader in keeping the Employer informed of contractual issues both by direct contacts and through discussions or correspondence.

iii) Dam Design Engineer

The expert will have a Master's degree in Hydraulic Structural Engineering / Geotechnical Engineering with preferably 15 years of experience in design of dam and other irrigation structures; including dams cost estimation, preparation of BOQs, including experience working on donor funded projects. He will have demonstrated ability to work in a multidisciplinary team.

The Dam Design Engineer will assist the Team Leader/RE in:

- Leads the design review team and controls the design section;
- Assists the Team Leader/RE in reviewing & giving approval of all proposals and designs submitted by the Contractors for temporary works as well as permanent works if needed;
- Responsible for design review regarding any query from site or any other expert, preparation and issuance of construction drawing reviews;
- Responsible for checking of shop drawings prepared by the Contractor;
- Responsible for checking of as-built drawings prepared by the Contractor and any other duty / assignment the Team Leader may entrust;
- Review and update of structural design calculation for dams, flood protection works and irrigation infrastructure;
- Design dams, flood protection structures and appurtenant structures of all other subprojects; and
- Supervise topographic surveys, review the results of the topographical survey and geotechnical studies and integrate these considerations in the design review.

iv) Hydraulic Design Engineer

The expert will have a Master's degree in Water Resources Engineering / Hydraulics Engineering with preferably 15 years of experience in design of hydraulic structures; including cost estimation, preparation of BOQs, including experience working on donor funded projects. He will have demonstrated ability to work in a multidisciplinary team.

The Hydraulic Design Engineer will assist the Team Leader in:

- Leads the design review team and controls the design section;
- 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;
- Responsible for design review regarding any query from site or any other position, preparation and issuance of construction drawing reviews;
- Responsible for checking of shop drawings prepared by the Contractor;
- Responsible for checking of as-built drawings prepared by the Contractor and any other duty / assignment the Team Leader may entrust;
- Review and update of hydraulic calculation for dams, flood protection works and irrigation infrastructure;

- Design hydraulic structures and appurtenant works of all other related subprojects; and
- Supervise topographic surveys, review the results of the topographical survey and geotechnical studies and integrate these considerations in the design review.

v) Engineering Geologist

The expert will have a Master's degree in Geology with preferably 15 years of experience in geological investigations of dam projects and have demonstrated ability to work in a multidisciplinary team

The responsibilities of the Engineering Geologist must include but not limited to the following:

- Review all reports related to, geological and geotechnical investigations, carried out for design.
- Recommend additional investigations if required and supervise these investigations/ field data collection and analysis.

vi) Hydrologist

The expert will have a Master's degree in Hydrology / Water Resources engineering with preferably15 years of experience in hydrological studies, modeling and estimating flows. He will have demonstrated ability to work in a multidisciplinary team.
Hydrologist responsibilities will include:

- Carry out review of hydrological data pertaining to catchment of dams used for determining catchment and probable maximum flood.
- Review river flow data and determine maximum flood levels along reaches of streams and rivulets, for preparation of safe dam design.

vii) Materials / Quality Control Engineers

The experts will have a Bachelor's degree in Civil Engineering /Master Degree in Geology with preferably 10 years' experience in quality control of similar projects

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

The responsibilities of the Materials / Quality Control Engineers may be but not limited to:

- Report to Team Leader;
- Responsible for source identification & recommendation to Team Leader for different construction materials;
- Keeps the Team Leader well informed regarding the QA / QC aspects of all works;
- Responsible for carrying out Mix Design for concrete and review of contractor's design;
- Responsible for strict compliance of quality assurance / control standards and contract provisions;
- Responsible for strict compliance of project specifications; and
- Overseeing and control of quality of works at sites and for laboratory tests.

viii) Environmental Specialist

The expert will have a Master's degree in environmental sciences with 15 years or more professional experience in conducting environmental screening and assessment and monitoring and implementation of environment management plan of major flood & irrigation sector projects. He/she will have experience of working on similar projects should be fully familiar with the relevant national and provincial legislation and international environmental safeguards policies, and demonstrated ability to work in a multidisciplinary team.

Tasks include:

- Review of ESMP/IEE/EIA/EMP/EMMP and revise or update if required.
- Carrying out frequent field visits and conduct monitoring for ESMP implementation
- Ensure compliance with World Bank's environmental safeguards and continuing improvement of the project's environmental safeguards performance.
- Implementation of ESMPs /EMP/EMMP and prepare monitoring reports for submission to the World Bank;

ix) Social Safeguards / Resettlement Specialist

The expert will have Master's degree in social sciences with preferably 15 years of relevant work experience including experience of social surveys and monitoring and implementation of social safeguards and resettlement plans. Should be fully familiar with WB's Safeguard Policy Statement (SPS), 2009 or equivalent

Social Safeguards / Resettlement Specialist will the responsibilities listed as:

i) Ensure that the project design has incorporated social safeguards to be undertaken during construction.
ii) Ensure implementation of RAP.
iii) Ensure that all resettlement issues have been settled prior to construction.
iv) Supervise construction to ensure implementation of social safeguards in accordance with ESMPs.
v) Monitor GRM and effective compliance.

B. Non- Key Staff

i) Resident Engineers

The experts will have a Bachelor degree in Civil Engineering with preferably 15 years' experience in construction supervision and quality control of projects preferably irrigation infrastructure/dams/embankment projects.

The responsibilities of the REs must include but not limited to the following:

- RE will be incharge of site supervision staff.
- RE will assist Team Leader in all matters related to construction supervision of dam and appurtenant structures
- Coordinate with the Team Leader regarding site issues and problems
- Coordinate with design review team with respect to design changes and additional surveys if required
- Guide ARE and Site Inspectors about day to day supervision of the works, quality assurance and field tests / documentation.
- Check the Contractor's IPC and recommend to Team Leader for payment.

- RE will ensure that all quality related tests are conducted at sites and will provide the record to PMT regularly.

ii) Resident Engineers

The Assistant Resident Engineers will have at least a degree in Civil Engineering and a minimum of seven (07) year experience in the construction of small dams and flood embankments projects. Their duties with respect to subprojects under their supervision will include but not limited to the following:

- Incharge of site supervision as per design, drawings and specifications as per instructions of RE.
- Report progress of work as per schedule periodically.
- Assist RE in verification of work for payment to contractors.
- Will ensure that quality control tests are performed regularly at sites.

iii) Monitoring & Evaluation Officer

The Monitoring & Evaluation Officer will have at least a Master's Degree in Social Sciences/ Engineering/ Management and a minimum of five (05) year relevant experience in M&E

iv) Agriculture Engineer / Agronomist

The Agriculture Engineer/Agronomist must have Bachelor Degree in Agriculture Engineering/Economics with minimum of five year of relevant experience.

v) Quantity Surveyor

He will have a diploma of Civil Technology with at least 5 years work experience as quantity surveyor with an irrigation/ water resources project.

- Preparation, review and updation of estimates and BOQ
- He will assist design staff in verification of BOQ and cost estimates.
- Assist ARE/ RE in measurement of work at site for payment to contractor.

vi) Site Inspectors

Site Inspectors needs to have a degree in civil engineering / diploma of Civil Technology with preferably at least 5 years of experience.

- He will be carrying on site supervision of works as per instructions of ARE/ RE.
- Promptly report progress of work and ensure timely, supply of materials, labor and deployment of machinery by contractor.

vii) Site Surveyors

The Survey will have diploma of Civil Technology with experience of 5 years' experience in surveying and marking layouts of major hydraulic structures. His duties will include but not limited to the following:

- Supervise all additional surveys where required.
- Check the layout of various components of the Project.
- Assist the Measurement Engineer when help is needed for measurements of quantities.

viii) Environment Officer

The Environment officer will have relevant degree with experience of 5 years in HESE major works and donor funded projects.

ix) Social Safeguard Officer

The Social Safeguard will have relevant degree with experience of 5 years in Specific experience major works and donor funded projects.

x) AutoCAD Draftsman

The AutoCAD Draftsman will have relevant certification with experience of 5 years in auto CAD designing major irrigation projects.

9. SELECTION PROCESS

A consulting firm will be selected in accordance with Quality and Cost Based Selection method set out in the “World Bank Procurement Regulations for IPF Borrowers (July 2016) Revised November 2017 & August 2018 www.worldbank.org/procure.