



# GOVERNMENT OF SINDH

Irrigation Department

TERMS OF REFERENCE (TOR)

FOR

Project Implementation Support and Supervision  
Consultant (PISSC) Consultancy SERVICES  
FOR  
SINDH RESILIANCE PRJECT (SRP)

MARCH 2016

**TERMS OF REFERENCE FOR  
Project Implementation Support and Supervision Consultant (PISSC)  
Consultancy SERVICES**

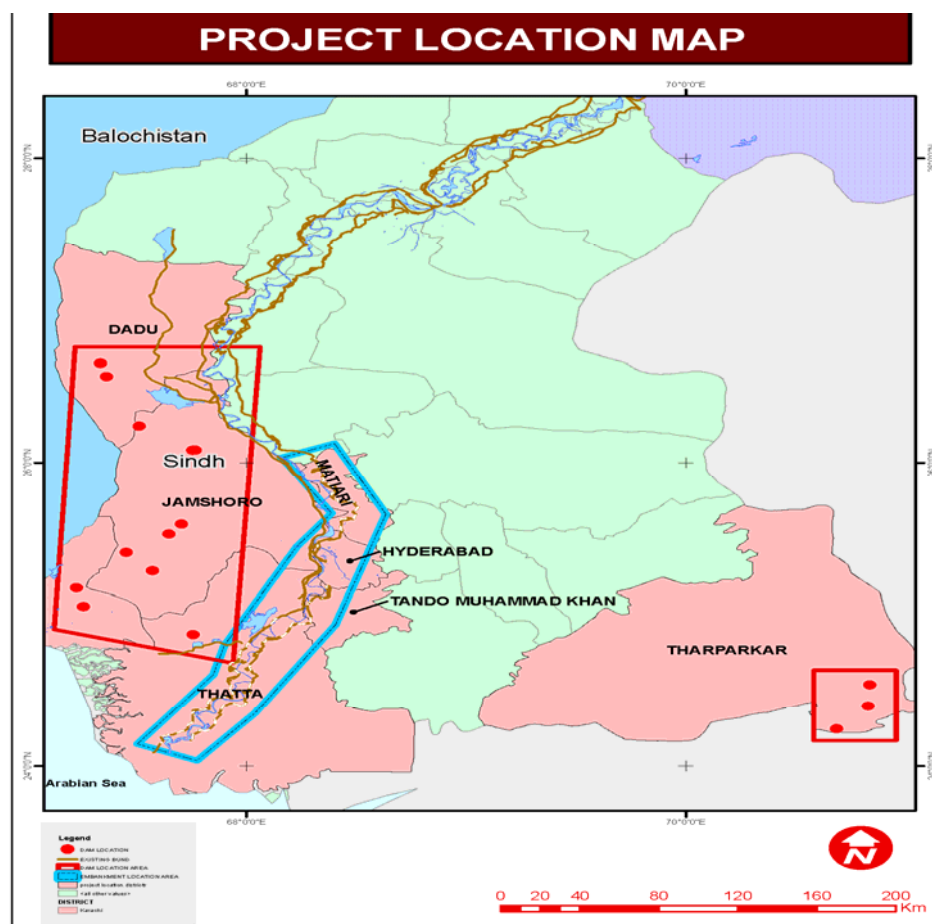
**1. THE PROJECT**

**1.1 Project Background**

The Government of Sindh have proposed to the World Bank, a project to enhance disaster and climate resilience; to increase the technical capacity of Government entities to manage natural disasters and climate variability; construction of small dams to elevate drought impacts and support restoration of flood protection infrastructure on Indus River. The project is designated as Sindh Resilience Project (SRP) Sindh. The project shall be funded through a credit from World Bank.

**1.2 Project Location**

The SRP area is scattered in 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**

### **1.3 Project Components**

SRP will be implemented in 5 years and have the following components that are related to the activities covered under these TORs:

#### **1.3.1 COMPONENT 1: Strengthening Institutions and Systems for Disaster Risk Management.**

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

#### **1.3.2 COMPONENT 2: Structural Investments**

This component of the project is covering two sub-components i.e. structural investments through flood protection and construction of small dams to address the drought risk. The details are given in the following paragraphs below and listed in Table 1.

**(a) Flood Protection Works:** The component will support structural investments including infrastructure up-gradation and new works to increase resilience to flooding events in Sindh. This will help plug gaps in existing lines of defense through upgrading of dykes / bunds to protect communities and economically productive areas along the Indus River, as well as river training works to ensure preservation and continued operation of existing flood protection works at key sites. The Sindh Irrigation Department has identified a list of high risk sites and corresponding flood mitigation investments. The design and cost estimates of these works have been prepared by Sindh Irrigation Department. The Component will focus on these high risk sites to facilitate clustering of investments and maximizing impact.

**(b) Construction of small dams to address drought risks:** The project will support physical investments for rainwater harvesting through the construction of small dams in the Kohistan and Nangarparkar 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. 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 service of some consultants.

**TABLE 1: PROPOSED SCOPE OF WORKS / SCHEMES UNDER SRP**

<b>A: EMBANKMENTS</b>	
1	Recoupment of Stone Apron Along S.H Bund Mile 1/6 To 2/1 Widening Along S.H Bund From Mile 0/4 To 3/2 In Kalri Baghar Division Thatta
2	Providing Stone Pitching Along B.U Bund Mile 13/3 To 35/3 & Indo Bund Mile 0/0 To 15/6 In Sakro Division Mirpursakro
3	Stone Pitching Along M.S Bund From Mile 29/2 To 29/5, 36/0 To 40/0, 45/0 To 58/2 And Raising And Strengthening Of Along M.S Bund Mile 55/4 To 58/2 In Lower Pinyari Division Sujawal
4	Providing Stone Pitching Along P.B Bund Mile 0/0 To 8/5 & 11/4 To 15/0 In Kalri Baghar Division Thatta
5	Earth Work & Repair Damaged Stone Pitching Along Up Stream Left Side Guide Bund From Rd 0+000 To R.D 5+700 In Kotri Barrage Division, Jamshoro
6	Recouping Stone Apron And Repairs Stone Pitching Along H.P. Bund Mile 1/5, Mile 7/7 To 8/1, 13/2 To 13/5 And 14/1 To 14/7 In Upper Pinyari Division Hyderabad
7	Providing Stone Pitching Along M.S Bund From Mile 0/0 To 14/0 And 22/0 To 24/7 In Upper Pinyari Division Hyderabad
8	Providing Stone Pitching Along Kuka Link Bund 0/0 To 20/6, Raising And Strengthening Along Kuka Wari Bund Mile 3/6 To 7/4 And Kuka Wari Retarded Bund Mile 0/0 To 3/0 In Lower Pinyari Division Sujawal
9	Providing Stone Pitching Along B.U Bund From Mile 3/0 To 5/0 In Kalri Baghar Division Thatta.(Baghar Circle Hyderabad)
10	Recoupment Of Damaged Stone Pitching & Earth Work Along S.M Bund From Mile 123/0 To 172/0 (Different Reaches) In Hala Irrigation Division Hala
<b>B: SMALL DAMS</b>	
<b>KOHISTAN-I DADU</b>	
1	Construction Of Naing-li Recharge/Small Dam In Central Kohistan.
2	Construction Of Gabol Recharge/Small Dam In Central Kohistan.
3	Construction Of Nali Recharge/Small Dam In Central Kohistan.
4	Construction Of Qasim Tok Recharge/Small Dam In Central Kohistan.
5	Construction Of Dhal Dhoroli Recharge/Small Dam In Central Kohistan.
<b>KOHISTAN-II JAMSHORO</b>	
1	Construction Of Upper Mole-li Recharge/Small Dam In Lower Kohistan.
2	Construction Of Aripir Recharge/Small Dam In Lower Kohistan.
3	Construction Of Sureshi Recharge/Small Dam In Lower Kohistan.
4	Construction Of Tikho-li Recharge/Small Dam In Lower Kohistan.
5	Construction Of Jung Shahi Recharge/Small Dam In Lower Kohistan.
6	Construction Of Kunkar Recharge/Small Dam In Lower Kohistan.
7	Construction Of Karmatiani Recharge/Small Dam In Lower Kohistan.
<b>NAGARPARKAR AT MITHI</b>	
1	Construction Of Bhansar Small/Recharge Dam In Nagarparkar Area (Thar Region)
2	Construction Of Sabusan Small/Recharge Dam In Nagarparkar Area (Thar Region)
3	Construction Of Sankar Small/Recharge Dam In Nagarparkar Area (Thar Region)

## **2. SCOPE OF CONSULTANCY SERVICES**

### **2.1 General**

The PMU intends to hire services of a reputed and experienced firms or joint venture for design review, procurement assistance, contract management, supervision and monitoring of implementation of ESMP, RAP and development of grievances redressal systems.

The principal 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 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 person months requirements are 874 and duration of consultancy services is 48 months with stipulated Project closing date of 30-06-2020.

The consultants shall be required to provide technical guidance by performing the role of Engineer for works. The designs and drawings will also be prepared by Consultants. The Consultants would be required to produce/ review designs for construction of small dams and 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.

Detailed duties of consultants are stated as under.

### **2.2 Surveys & Investigations**

The consultant will be required to carry out followings activities & furnish necessary reports:

#### **a) River Embankments**

- i. Counter checking of X-sections of flood embankments/flood infrastructure systems 100% for assuring its accuracy
- ii. Technical scrutiny of the proposals and longitudinal sections etc and provisions contained in the Subproject / project estimates
- iii. Condition survey of all flood embankments/flood infrastructure systems structures
- iv. flow analysis at and along flood embankments/flood infrastructure systems

#### **b) Small Dams**

- i. Carryout necessary surveys if required for completion of the design of small dams.

### **2.3 Detailed Geotechnical Surveys & Soil Investigation**

The Consultant shall review and assure the suitability of previous investigations carried out for dams and embankment subprojects. 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 and small dams wherever considered necessary. Geo technical investigation of each site shall also be carried where necessary to obtain information about engineering characteristics of sub soil and to establish appropriate design parameters for the proposed structures. Deliverables of survey and investigation items of work will be as under:

- i) Sub Soil investigations report
- ii) Sub soil water table and water quality report
- iii) Compilation of data relevant for design and other components of the project

#### **2.4 Development/ Validation of Design & Detailed Drawing**

The consultant will be required to perform the following functions:

1. Review and validate the existing designs, where available
2. Update / prepare detailed design and drawings for:
  - i) Embankments
  - ii) Small Dams
3. Prepare detailed cost estimates based on prevailing market rates system (MRS) duly supported with rate analysis for each item of work.

Deliverables of this item of work will be as under:

- i) Detailed design for items of all flood embankments/flood infrastructure systems and small dams
- ii) Bidding Documents level drawings
- iii) Detailed cost estimates (Engineer Estimate)

#### **2.5 Procurement Assistance**

4. Prepare Bidding Documents including:
  - i) Invitation for Bids
  - ii) Bid Data Sheet
  - i) Conditions of Contract
    - a) General Conditions of Contract
    - b) Conditions of particular Application & specifications
    - c) Special Provisions
  - ii) Drawings
  - iii) B.O.Q.
  - iv) Technical Specifications for materials & works
5. Prepare list of machinery and equipment required for execution of civil works under each sub-project
6. The Consultant will be required to assist in following area of bidding process:

- i) Assist Client in prequalification (if applicable) process starting from preparation of prequalification (PQ) Documents
- ii) Assist Client in issuing bidding documents, assist in responding to queries raised by prospective bidders, assist in pre-bid meetings
- iii) Assist and advise the Client in bid evaluation and prepare recommendations for award of contract

Deliverables of this item of work will be as under:

- i) Complete set of Bidding Documents
- ii) Engineer Cost Estimate
- (iii) Prequalification Documents
- iv) Minutes of pre-bid meetings
- v) Replies to queries from bidders
- vi) Bid Evaluation Reports with recommendations

## **2.6 Preparation of Detailed Design & Construction Drawings**

The Consultants are required to prepare and submit detailed design and construction drawings for all components of the project works. Such construction drawings / documents may interalia comprise.

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

Also review "As-Built Drawings" prepared by the contractor to be included in the completion report of the project.

## **2.7 Resident Supervision of Construction Works as Engineer**

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 and overall physical progress 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 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 respected.
- j. The Consultants will prepare a "Construction Management Manual" in first month of the construction phase outlining routines & standard operating procedures to be applied on Contract 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 ( or any other) 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.
    - a. Consenting Sub-contracting of any part of the works
    - b. Determining / certifying additional cost
    - c. Suspension of works
    - d. Determining an extension of time claim
    - e. Issuing a substantial completion certificate
    - f. Issuing a variation order
    - gi. Revision / fixing rates or prices

## **2.8 Support in Implementation of EMP, RAP and Communication Strategy**

The Consultants would provide support in the implementation of the EMP. The EMP activities would be incorporated in the main construction contracts to the extent possible. The EMP activities which cannot be included in the main construction contract would be implemented through additional construction contracts, management, institutional, or technical assistance. The consultants would carry out the designs of such program and help, monitor and supervise their implementation.

Provide support in implementation of RAP activities during the project implementation, including support to purchase of properties, for that purpose, preparation of documentation to help in negotiations with the beneficiaries, in obtaining of local permits, etc. This may also include identification of alternative sites for resettling people and related assets and cultural properties, development of the sites for resettlement, including planning, infrastructure, utilities, and replacement houses etc.

The consultants would also provide support in implementation. This may include, but not limited to, implementation of communication plan, development of information base, messages, information to users, delivery of messages etc.

## **2.9 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.
- iv. The Consultant shall make presentations on digitized / multimedia systems and progress reports on computer based techniques to be displayed in meetings & conferences.

## **3. REPORTING REQUIREMENTS**

The Consultant will prepare the following reports and distribute the Client each in ten copies along-with soft records.

### **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 programme.

### **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 & 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 difficult / special times 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 as necessary technical reports and position papers 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 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

**4. FACILITIES FROM THE CLIENT**

The Client through the Head PMU will facilitate the Consultants to obtain all reports, maps, data, or any other information, available with SID which are needed by the Consultants to carry out 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 (SID). Facility to stay in Rest Houses will be provided to the Consultants as per availability on payment of the prescribed charges.

**5. SELECTION PROCESS:**

A consulting firm will be selected in accordance with Quality and Cost Based Selection (QCBS) method set out in the World Bank’s Guidelines: Selection and Employment of Consultants by World Bank Borrowers (January 2011) [www.worldbank.org/procure](http://www.worldbank.org/procure).