Terms of Reference for the Hiring of the Design Validation and Supervision Consultancy Firm under The Balochistan Water Security and Productivity Improvement Project

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TERMS OF REFERENCE (Design Validation & Supervision)

1. Introduction

The Government of Balochistan has obtained a credit (No. 7790-PAK) from the World Bank for the implementation of the Balochistan Water Security and Productivity Improvement Project (BWSPIP). The BWSPIP Project will be implemented by the Government of Balochistan through the Balochistan Irrigation Department with support from other government departments and various consultants. A full description of the project is available in the Project Appraisal Document at https://documents1.worldbank.org/curated/en/099051225163528707/pdf/BOSIB-d5f825d8-fa60-461f-b51f-0994a030c196.pdf.

Balochistan, the largest province of Pakistan by area, faces persistent challenges related to water scarcity, climate variability, recurrent flooding, land degradation, and limited institutional capacity for effective water resources management. Seasonal floods, particularly in the Kachhi Plains, frequently cause extensive damage to agricultural land, infrastructure, and livelihoods and also to the canal system which is the back bone of agricultural productivity in the canal-fed area , while inadequate floodwater retention and utilization mechanisms result in the loss of valuable water resources that could otherwise support agriculture and rural development.

To address these challenges, the Government of the Islamic Republic of Pakistan, through the Government of Balochistan (GoB), with financing from the World Bank (IDA), is implementing the **Balochistan Water Security and Productivity Improvement Project (BWSPIP)**. The project aims to enhance water security, strengthen flood resilience, improve agricultural productivity, and reinforce institutional systems for sustainable and climate-resilient water resources management across selected river basins and flood-prone areas of the province.

The **Flood Management of Kachhi Plains Project (FMKP)** is a major sub-project under BWSPIP, focusing on both structural and non-structural flood management interventions, including spate irrigation, flood protection and conveyance infrastructure, floodwater harvesting and retention, watershed and catchment restoration, and community-based flood risk management measures. The Balochistan Irrigation Department – Project Management Unit (BID-PIU) is responsible for overall implementation and coordination of FMKP activities.

2. Objectives

The Government of Balochistan, through the BID-PIU, will select and engage a consulting firm that will provide services as per these TOR for an intended completion period of 54 months. These services will generally be validation of existing designs for flood protection and irrigation schemes, detailed design of small-scale infrastructure for community-based water and land management schemes/programs, and role of engineer during execution of all schemes and post defects notification period (DNP) closure.

They will assist the PMU in project planning and management, progress reporting, procurement planning and overall project management. Their work will primarily cover:

(i) Project and contract management including preparation of annual work plan;
(ii) Engineering design validation including site design verification and detailed design.

(iii) Engineering supervision of all works and quality assurance.

The Consultants will be responsible for all aspects of the performance of services as set out in the sections below.

3. Engineering Design Validation

The project will implement seven major irrigation schemes under **Subcomponent A1**, two in Nari, four in Talli, and one in Lehri river sub-basins. The Dispersal Weir structure at Jalal Khan and Kabba Chukra on Sharkal River are located in Nari River sub-basin. The Dispersal Structure at Saafii Wah, Qaisar Wah, Chachar Wah and Bohra are located in Talli River sub basin, whereas the Trifurcation weir at 3rd distribution point is located at the Lehri River sub basin.

The designs of all the structures are completed and only require validation and the consultant will directly move on to the supervision of the construction of these structures already designed. The consultants will be responsible in timely identification of any improvement in the design.

The Watershed & Rangeland Management and On Farm Water Management & Agriculture Productivity

The project also includes the watershed and on farm water management activities, for which detailed design, bidding documents and implementation supervision will be responsibility of the consultants.

The design activities will include following actions:

Environmental and Social Assessment

1. The Consultants will support the PIU and the field coordination unit concerning ESMPs implementation and compliance monitoring of contractors.

4. COMMUNITY MOBILIZATION

Active public participation/stakeholders' engagement in the early stages of Project implementation will be important for establishing community support and trust, and will minimize the risk of conflicts during or after Project implementation. To support community mobilization and stakeholder engagement, the consultants will:

1. Support community awareness campaigns and provide assistance to better inform beneficiary communities about the scope of activities to be undertaken by the project.
2. Maintain good communication and continued awareness building with communities in scheme areas.
3. Assist in the collection of baseline social baseline data of schemes where detailed designs have not yet been prepared.
4. Ensure communities are involved in the planning and design of development works, Command Area Development Works, Khushkaba farming and watershed & rangeland management activities.
5. Community mobilization to support and facilitate water user and farmer organizations (WUAs/FOs) and their capacity building including inter alia; training in organization, management and opening of bank account, book keeping and other trainings required for WUAs/FOs strengthening and to enable them to implement civil works under the Farmer Organization contract and for watershed/range land and on -farm improvements.
6. Assist in the development and implementation of gender action plan, developed by the PMU Gender Development Specialist, and gender-targeted interventions for female beneficiaries in scheme areas.
7. Provide training for social mobilizers/ community organizers to support Project implementation and implementation of the gender action plan.
8. Facilitate local level awareness, training, and demonstration programs under the Subcomponent A2 and A3, under guidance from CLIENT/ Watershed Management staff/ OFWM staff.

9. Conduct extensive stakeholder consultation to inform the planning, design and implementation of watershed and range management interventions and the training of CLIENT and Department of Forest staff and beneficiaries.

5. TIME-BASED COMPONENT (SUPERVISION)

5.1 Project and Contract Management

The consultants will:

Provide **broad support** to the Client for overall project management based on modern concepts for project planning/scheduling, design, review, supervision, quality control, implementation of works, including social management/ resettlement programs and environmental management and mitigation plans, and implementation of communication strategy and plan. This will include direct support for the preparation of project implementation plans, expenditure planning, budgeting, and financing forecast and work plans, as required under the Project. Specifically, this will require assistance and support in the preparation of annual Project work plans and budgets, and periodic updating of the Project Operations Manual; it will also include regular update of an online progress monitoring matrix and reporting of the physical and financial progress on monthly and quarterly basis. This will be done frequently, in addition to dedicated and detailed reports at a frequency that aligns with the Project's reporting requirements to the GoB and World Bank

1. The preparation of the Mid-Term and the "PC-IV" report of the project for submission to the Government of Pakistan upon Project completion.
2. Assist with procurement planning and processing, preparation of procurement documents at all stages (specifications, cost estimation, bidding documents, invitation of bids, evaluation, and contract award and management) in full compliance with World Bank procurement policies
3. Assist with contract administration and management and finalizing contract agreements for works, goods and services;
4. Assist in the implementation of Environmental and Social Management Plans, Cultural Heritage Management Plans and Social Impact Assessment & Management Plans during Project implementation.

5. Design review and detailed Supervision under Subcomponent A1 of (various Irrigation Infrastructure interventions)

6. Design and detailed Supervision under Subcomponent A2 of (various watershed and rangeland management interventions) and
7. Design and detailed Supervision under Subcomponent A3 of (command area development works to support improved on-farm water management).

5.2 Engineering Supervision

The consultants will be responsible for the supervision of all contracts, including works being carried out by the contractors, formation of Fos, works to be carried out by the farmer organizations, formation of WUAs and works to be carried out by the water user associations. Supervision will include Resident Supervision for Irrigation, OFWM and Watershed & Rangeland Management Works carried out by the main civil works Contractors, FOs, and WUAs,

The consultant will:

1. Act as Supervising Engineer for all civil works, goods, and equipment supply and installation contracts.
2. Prepare Construction Drawings for carrying out the construction activities by the contractor and/or review the shop drawings prepared by the contractor, the consultants will also be responsible for preparation of the as built drawings of all the works to be executed under the project.
3. Be responsible for inspection and supervision of all construction works, installation of equipment, and testing of construction material, to ensure that the works implemented and goods supplied are in

accordance with the designs, specifications, and terms and conditions of the relevant contracts and standards. Verify all works and equipment before releasing payments to contractors.

4. Establish Quality Assurance (QA) procedures for all construction works, supervisory staff, including construction techniques, quality control, and health and safety requirements.
5. Ensure quality of sources and materials for construction and review all material tests from construction contracts, and taking follow up action on those where quality deviates from requirements.
6. Assist and guide contractors on the preparation of construction programs in accordance with their contractual requirements.
7. Notify the Client of compliance or non-compliance of all completed works.
8. Prepare and submit monthly and quarterly progress on all construction to the PMU.
9. The Consultant shall arrange to produce a set of colour photographs with date and caption of not less than 20 photographs showing all the major phases of construction of the project related to each IPC from the Contractor.
10. The Consultant shall arrange to produce a video film in colour reflecting the physical progress at site, showing all the major phases in the construction of the Project related to each IPC from Contractor. On completion of the project, these individual videos will be merged together so that a completed video films shall be provided to the Employer on a suitable medium as required by the Employer.
11. Develop feasible and practical draft O&M manuals for each design reviewed. The 1st review of draft O&M manuals to be submitted at 50% completion stage"

12. Ensure proper demobilization and restoration of all construction sites after completion of works by contractors. Assist with contract administration and management regarding reviewing contractor's submittals, verification of progress and interim payment requests; supervision of contract/works/goods acceptance and close of contracts, issuance of completion certificates, preparation of documents as required for acceptance of works/goods; progress reporting, quality control and inspection systems to be followed during execution of civil work contracts; resolving contractual issues; and maintenance of records;
    1. Advise and assist PMU and CLIENTs in overseeing implementation of the Resettlement Action Plans if any and other possible resettlement activities in subprojects.
    2. Advise on an appropriate community-driven development model of procurement in accordance with principles stated in the World Bank Procurement Regulations.

5.3 Community Mobilization & ESF

1. Maintain good communication and continued awareness building with communities in scheme areas.
2. Provide support for social mobilizers/ community organizers to support Project implementation and implementation of the gender action plan.
3. Facilitate local-level awareness, training and demonstration programs under the Subcomponent A3, under guidance from CLIENT/ OFWM staff.
4. Conduct extensive stakeholder consultation to inform the planning, design and implementation of watershed and range management interventions and the training of CLIENT and Department of Forest staff and beneficiaries.
5. Community mobilization to form and register water user and farmer organizations (WUAs/FOs) and their capacity building including inter alia; training in organization, management and opening of bank account, book keeping and other trainings required for WUAs/FOs strengthening and to enable them to implement civil works under the Farmer Organization contract and for watershed/range land and on -farm improvements.
6. Obtaining baseline Monitoring and Evaluation. PSIA consultants will provide the PMU with baseline information on updated key project development indicators.
7. Advise on an appropriate community-driven development model of procurement in accordance with principles stated in the World Bank procurement guidelines.

6. DELIVERABLES AND SCHEDULE

The following Table 2.1 below describes the schedule of deliverables:

Table 2.1: Key Deliverables and Delivery Schedule

#	Document	Copies	Due
1	Draft Inception Report	05	30 days after the effectiveness of the Consulting Services Agreement
2	Final Inception Report	O5	One week after the issuance of comments by the Client on Draft Inception Report
3	Monthly Progress Report (Physical & Financial)	05	10th of the following month
4	Quality' Assurance Plan (QA/QC Manual)	05	Before starting the physical activities
5	Quarterly Progress Report (Physical & Financial)	10	10th of the first month of following quarter
6	Annual Summary Progress Report (Physical & Financial)	10	10th of the first month of following year
7	Annual Progress Report (Physical & Financial)	10	During first month of the following year
8	Annual Quality Control / Assurance Report	10	10th of the first month of following year
9	Revised Planning Commission Proforma-I (PC-I)	10	As and when required
10	Planning Commission Proforma-IV (PC-IV)	50	At completion of project activities
11	Complete inventory of works/activities completed	1	At completion of the project
12	Special Reports including Bidding Documents, Screening Reports, Design Reports, Working Drawings. Variation Orders, Bid Evaluation Reports, Various Forms, as built drawings.	10	As and when required
13	O&M Manual (separately for each work contract)	05	On completion of 50% work of each contract
14	Geotechnical investigation and hydrological analysis report	5	Prior to execution of works

Since the Design Component is now based on Lump Sum cost, the schedule of Deliverables has been modified as following:

7. STAFFING AND DEPLOYMENT

Table 2.4 provides a preliminary estimate (subject to change) of the person-months required for the entire assignment. Consultants should propose a staffing plan and skill mix necessary to meet the objectives and the scope of work..

Consultants are strongly encouraged to ensure a gender balance across the team, and to ensure appropriate skills and experience in gender issues relevant to Project implementation.

Table 7.1. **Expected Staffing Requirement**

No.	Position	Staff Months
A. Key Staff for Design Validation and Supervision		
1	Team Leader	46
2	Contract Engineer	30
3	GIS and Data Manager	10

4	Chief Resident Engineer	46
5	Design Engineer	42
6	Agriculture Engineering Specialist	12
7	Watershed Management Specialist	12
	Sub Total (A)	**198**
B. Non Key Staff		
B-1 Engineering Design validation (02 Months)		
8	Irrigation Engineer/ (02)	4
9	Geotechnical Engineer (01)	2
10	Structural Engineer (01)	2
11	Junior Engineer (10)	12
12	CAD Operators (02)	4
13	Quantity Surveyors (05)	6
14	Field Surveyors (05)	6
15	Computer Operators (01)	4
	Total	**40**
B-2 Engineering Supervision		
16	Resident Engineer (2 Positions)	80
17	Material Engineer (2 Positions)	60
18	Junior Design Engineer (1 Position)	36
19	Site Supervision Engineers(Positions)	72
20	Site Surveyors(2 Positions)	72
21	Environmental Engineer/ Environmental Compliance Expert (02 Positions)	72
22	Environmental Field Officer (2 positions)	72
23	Sociologist /Social and Community Organizers (2 Positions)	72
24	Community Development Specialist (2 Positions)	72
25	Social Field Officer (2 Female positions)	72
26	Other Staff (10), peons, office guard, drivers, sweeper	540
27	Computer Operators (03)	120
28	CAD Operators (02)	72
29	Quantity Surveyors (02)	72
	Sub Total (B)	**1484**
	Grand Total	**1722**

8. OTHER EXPENDITURE DETAILS

30	Rent and POL/ maintenance/ repair (4 x 4 Wheel Drive) +POL+ driver (4 Nrs)	**4x42=168 2x12=24 total=192**
31	Rental Office Building (Head office at Quetta including utilities and food items for staff (LS)	**54**
32	Field Office (site office at Sibi also including the camp offices) including utilities and food items for staff (LS)	**42**
33	Stationary, Photostate etc (LS)	**54**
34	Purchase of office equipment, computers, laptop, printers, digital cameras (Drone and Digital), office furniture etc & topographic/ Alignment Survey (LS)	**LS**

Deployment of Consultant's personnel:

To maintain the quality assurance of the assignment, the deployment of consultant's staff is subject to need-based and prior approval of the Client.

9. REQUIREMENTS FOR KEY STAFF: -

Designation	Qualification	Experience
Team Leader	• Bachelor's or Master's degree in Civil Engineering, Water Resources Engineering, or a related field from a recognized institution. • Professional engineering license or certification in irrigation engineering or related discipline preferred. • Excellent leadership, communication, and interpersonal skills, with the ability to effectively engage with diverse stakeholders and build consensus. • Strong project management skills, including proficiency in project planning, budgeting, monitoring, and evaluation. • Fluency in English required; proficiency in local other languages, particularly those commonly spoken in project countries, is advantageous.	• Minimum of 15 years of experience in managing large-scale irrigation engineering projects, including experience as a team leader or project manager on similar projects. • Strong technical background in irrigation engineering, with expertise in hydraulic design, water resources management, and agricultural engineering. • Demonstrated experience in leading multidisciplinary teams and managing complex projects in diverse cultural and geographical settings. • Proven track record of successfully delivering projects on time, within budget, and to the satisfaction of stakeholders.
Contract Engineer	• Bachelor's or Master's degree in Civil Engineering, Construction Management, Procurement, or a related field from a recognized institution. • Professional certification in contract management, procurement, or related discipline preferred. • Excellent analytical, negotiation, and communication skills, with the ability to effectively manage contractual relationships and resolve disputes.	• Minimum of 10 years of experience in contract management and procurement, preferably in the context of infrastructure projects. • Demonstrated experience in managing procurement processes, including preparation of bidding documents, bid evaluation, and contract negotiation. • Strong technical background in civil engineering, construction management, or related field, with expertise in contract

Designation	Qualification	Experience
	• Proficiency in project management software and Microsoft Office applications, with the ability to generate reports, analyze data, and track project progress. • Fluency in English required; proficiency in other languages, particularly those commonly spoken in project countries, is advantageous.	administration, construction supervision, and quality assurance. • Experience working in multicultural and multidisciplinary teams, with the ability to effectively communicate and collaborate with diverse stakeholders. • Familiarity with environmental and social framework policies and requirements, as well as project management principles and practices.
GIS and Data Manager	• Bachelor's or Master's degree in Geographic Information Systems, Geography, Environmental Science, Civil Engineering, or a related field from a recognized institution. • Professional certification in GIS or related discipline preferred. • Strong analytical and problem-solving skills, with the ability to interpret and analyze complex spatial data and provide meaningful insights and recommendations. • Proficiency in programming languages and scripting tools for GIS data analysis and automation, such as Python, R, or SQL, is advantageous. • Fluency in English required; proficiency in other languages, particularly those commonly spoken in project countries, is advantageous.	• Minimum of 5-8 years of experience in geographic information systems (GIS) and data management, preferably in the context of engineering or infrastructure projects. • Demonstrated experience in developing and managing GIS databases, conducting spatial analysis, and producing maps and visualizations to support project planning and decision-making. • Proficiency in GIS software and tools, such as ArcGIS, QGIS, and Google Earth, as well as data management platforms and techniques for data collection, processing, and storage. • Experience working with multidisciplinary teams and stakeholders to integrate GIS data and analysis into engineering design and supervision activities. • Familiarity with environmental and social framework requirements, as well as project management principles and practices. • Excellent communication, interpersonal, and teamwork skills, with the ability to effectively collaborate with diverse

Designation	Qualification	Experience
		stakeholders and translate technical information into actionable insights.
Chief Resident Engineer	• Bachelor's or Master's degree in Civil Engineering, Construction Management, or a related field from a recognized institution. • Professional engineering license or certification preferred. • Excellent leadership, communication, and interpersonal skills, with the ability to effectively manage construction teams and resolve technical issues. • Proficiency in construction management software and Microsoft Office applications, with the ability to generate reports, analyze data, and track project progress. • Fluency in English required; proficiency in other languages, particularly those commonly spoken in project countries, is advantageous.	• Minimum of 15 years of experience in construction management and supervision, with a focus on irrigation engineering projects, similar to ones stated in TOR. • Strong technical background in civil engineering, with expertise in structural design, hydraulic engineering, and construction materials and methods. • Demonstrated experience in managing large-scale construction projects, including experience as a resident engineer or construction manager on infrastructure projects. • Proven track record of successfully delivering projects on time, within budget, and to the satisfaction of stakeholders, with a focus on quality and safety. • Experience working in multicultural and multidisciplinary teams, with the ability to effectively communicate and collaborate with diverse stakeholders. • Familiarity with environmental and social framework policies and requirements, as well as project management principles and practices.
Senior Design Engineer	• Bachelor's or Master's degree in Civil Engineering, Hydraulic Engineering, Water Resources Engineering, or a related field from a recognized institution. • Professional engineering license or certification preferred.	• Minimum of 10 years of experience in engineering design and analysis, with a focus on irrigation infrastructure projects, similar to ones stated in TOR. Strong technical background in hydraulic engineering, with expertise in open channel flow, pipe flow, and

Designation	Qualification	Experience
	• Excellent analytical, problem-solving, and communication skills, with the ability to translate technical information into actionable insights and recommendations. • Proficiency in hydraulic modeling software, GIS tools, and other relevant engineering software applications. • Fluency in English required; proficiency in other languages, particularly those commonly spoken in project countries, is advantageous.	hydraulic structure design and analysis. • Experience working in multicultural and multidisciplinary teams, with the ability to effectively communicate and collaborate with diverse stakeholders. • Familiarity with environmental and social framework requirements, as well as project management principles and practices.
Agricultural Engineering Specialist	• Bachelor's or Master's degree in Agricultural Engineering, Agronomy, Crop Science, Soil and Water Management, or a related field from a recognized institution. • Professional certification or licensure in agricultural engineering or related discipline preferred. • Excellent analytical, problem-solving, and communication skills, with the ability to translate technical information into actionable insights and recommendations. • Proficiency in agricultural engineering software and tools, including irrigation scheduling models, crop simulation models, and geographic information systems (GIS). • Fluency in English required; proficiency in other languages, particularly those commonly spoken in project countries, is advantageous.	• Minimum of 10 years of experience in agricultural engineering, with a focus on irrigation and water management, similar to ones stated in TOR. Strong technical background in agronomy, crop science, soil and water management, and agricultural engineering principles and practices. • Demonstrated experience in conducting field assessments, surveys, and research studies to evaluate agricultural practices, water use efficiency, and crop performance. • Experience working in multicultural and multidisciplinary teams, with the ability to effectively communicate and collaborate with diverse stakeholders. • Familiarity with environmental and social framework requirements, as well as project management principles and practices.
Watershed Management Specialist	• Bachelor's or Master’s degree in Watershed Management, Hydrology, Forestry, Natural Resource Management, Environmental Engineering, or a related field from a recognized institution.	• Minimum of 10 years of professional experience in watershed management, natural resource management, hydrology, or related fields, with demonstrated expertise in watershed planning and implementation.

Designation	Qualification	Experience
	• Professional certification in watershed management, hydrology, or natural resource management is an advantage. • Strong analytical and problem-solving abilities, with the capability to translate field data and hydrological assessments into actionable recommendations. • Proficiency in watershed modeling tools and geospatial software. • Excellent written and verbal communication skills; fluency in English required, with additional regional language skills considered an asset.	• Proven experience conducting watershed assessments, hydrological modeling, erosion estimations, and designing nature-based or structural watershed interventions. • Experience working with rural communities, local institutions, and multidisciplinary project teams, with strong skills in stakeholder engagement and participatory planning. • Familiarity with environmental and social framework requirements, climate-resilient landscape management, and integrated water resources management (IWRM) principles. • Demonstrated experience preparing watershed management plans, technical studies, and analytical reports for development projects, preferably donor-funded (e.g., World Bank, ADB).

10. CONSULTANTS OFFICE

The Consultant shall establish main office in Quetta in close proximity (walking distance) from the CLIENT office. Similarly, the consultant shall have to establish field office near the site.

11. FACILITIES FROM THE CLIENT

The Client will facilitate the Consultants to obtain all reports, maps, data, or any other information relevant to the project and available with provincial Irrigation Department or other line departments. The Client will also provide the Consultants with all permissions and approvals 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 relevant to the assignment. 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.
Equipment, computers, instruments and furniture etc required by the Consultants under the Consultancy Services shall be returned to Irrigation Department.

12. QUALIFICATION OF CONSULTANTS:

The selection criteria and requirements are:
1. Firm should have corporate capacity for offering similar services (Core business) for Ten (10) years.

2. At least five (5) similar assignments completed/undertaken in the last ten years, indicating the nature and scope of these assignments in areas of design, supervision, procurement, contract administration, quality assurance, environment, management planning, implementation of resettlement action plan,
3. The firm should provide details, including documentary evidences regarding contract awards, reference letters, undertaken projects completion/ongoing progress from the clients along with postal address and client contact numbers, stating the scope of services and deliverables of projects completed/under taken in the last Ten (10) years,
4. In the case of a Joint Venture (JV), the details of such projects will be provided separately for the primary or associated consultant.
5. Details of the logistic capacity of the firm, including general availability of technically qualified staff.

13. SELECTION PROCESS:

A consulting firm will be selected in accordance with the Quality and Cost Based Selection (QCBS) method set out in the World Bank's Procurement Regulations (September 2023) www.worldbank.org/procure.