PUNJAB IRRIGATED AGRICULTURE PRODUCTIVITY IMPROVEMENT PROJECT (PIPIP) - REVISED

Terms of Reference (TORs)

of

Project Implementation Supervision Consultants (PISC)

I. Background

1.1 Punjab is population-wise the largest province of the country. Its geographical area is 20.63 million hectares out of total of 79.60 million hectares or 25.92% of Pakistan. Of which, 0.50 million hectares or 1.24 million acres (2.42 %) are under forests, 2.98 million hectares or 7.36 million acres (14.5%) are uncultivable, 1.63 million hectares or 4.03 million acres (7.90%) are culturable waste, and 12.57 million hectares or 30.06 million acres (60.93%) are cultivated. It contains more than 70 percent cropped area that produces food.

1.2 Punjab's share in total agricultural production of the country is more than 80 percent in case of cotton, almost 70 percent for wheat, nearly 60 percent for sugarcane, and 50 percent in rice. Overall contribution of the province towards agriculture sector is estimated to be more than 80 percent and about 90 percent of it comes from irrigated areas. The irrigation efficiencies at the farm level are however, dismally low that is a major constraint in achieving potential yields from otherwise highly productive agricultural lands. For solving the problem, Punjab has already implemented three (3) standalone projects (OFWM-I, II & III) and OFWM components of seven (7) multi-sector projects under OFWM program, Punjab since 1981. Those included improvement of watercourses, precision land leveling, establishing demonstration centers, installation of community tubewells and construction of storage tanks. Also, training was imparted to personnel under these projects.

1.3 On Farm Water Management (OFWM) interventions included improvement of un-improved watercourses in the province for minimizing conveyance loss and improve water availability at the farm level as well as provision of LASER units to the service providers in irrigated areas of the province in order to carry out land levelling to reduce water application losses. It also included promoting drip and sprinkler irrigation systems to compliment the efforts for conservation and efficient use of irrigation water at farmers' field. All these interventions have been implemented as standalone projects and improvements being made have been contributing significantly towards enhancing water productivity at the farm level. Using the integrated model, all OFWM interventions have been planned under the Punjab Irrigated-Agriculture Productivity Improvement Project (PIPIP). The combined effect of these advancements are leading to maximize productivity of available water by minimizing water losses at various levels in order to ensure its adequacy, reliability, and effectiveness at the farm level.

1.4 The original PIPIP was approved for a period of five years (2012-13 to 2016-17) with a total cost of Rs. 36,000 million (government share of Rs. 21,250 million, all IDA financing, and farmers' contribution of Rs. 14,750 million). The original PIPIP envisaged improvement of 5,500 unimproved watercourses, completion of lining on 1,500 already improved watercourses in canal commands, rehabilitation of 2,000 irrigation schemes outside the canal commands, provision of 5,000 LASER units to the farmers/service providers, and installation of high efficiency irrigation systems (HEISs) on 120,000 acres. The key objective of the project is to maximize productivity of irrigation water. In view of huge socio-economic benefits of the project activities, the donor has agreed to enhance scope of these activities as well as extend gestation period of the project. Accordingly, PIPIP-Revised has been

planned to further strengthen the ongoing efforts of upgrading the farm level water conveyance infrastructure and making the farmers well equipped with improved irrigation technologies together with creating an enabling environment for sustained technology transfer at the grassroots level for optimal and efficient management of available water resources. The key activities under the PIPIP-Revised for the extended period are given here under.

i) Installation of High Efficiency Irrigation Systems on about **120,000** acres (**30,000** acres completed under original project)

ii) Improvement of **6,100** Unimproved Canal Irrigated Watercourses (**5,500** watercourses improved under original project)

iii) Completion of **4,000** Partially Improved Watercourses (**1,500** watercourses improved under original project)

iv) Rehabilitation of **3,400** Irrigation Conveyance Systems in Non-Canal Commanded Areas (**2,000** schemes rehabilitated under original project)

1.5 **Project Location/Area**: The project activities would be implemented in the entire Punjab including canal irrigated and non-canal commanded areas of the province.

2. Objective(s) of the Assignment

2.1 **General**: Consultancy services for project implementation and supervision are required to supervise and ensure that the activities of Punjab Irrigated-Agriculture Productivity Improvement Project (PIPIP)-Revised are executed in an orderly manner with a high standard of workmanship and specified quality of materials within the envisaged implementation period and in conformity best possible and latest technical (design, specification and drawing) social and environmental standards. The tasks and activities include, but not limited, to:

i) Review the designs and standards & specifications for civil works for improvement of watercourses, installation of HEIS, Pre-cast Concrete Parabolic Lining etc.;

ii) Provide resident supervision on PCPS yards through deployment of sub-engineers;

iii) Provide support in procurement process e.g. pre-qualification exercises; advertising invitations to bid; evaluation of bids and make recommendations; as well as prepare all relevant documents for award of contracts;

iv) Maintain detailed financial accounts and other project records, and prepare other documentation as may be required by the Client and project financiers;

v) Extend technical support to maintain a website containing information on facilities and services, applications, procedures, watercourses database etc. as well as issuance of a periodical about water management activities;

vi) Assist in procurement and financial management, social and environmental management;

vii) Preparation of TORs for additional studies etc;

viii) Liaise with provincial, divisional, and district project management for smooth execution of field activities;

ix) Notify the Director General Agriculture (Water Management) of compliance/ non-compliance of works with agreed criteria and standards & specifications;

x) Prepare monthly, quarterly, and annual reports for proposed project activities besides other periodic reports as per requirements of project management;

xi) Carry out contract/works or goods acceptance and close of contract, issuance of completion certificates, and preparation of documents as required for acceptance of works/goods by the Client (Government of Punjab);

xii) Check the completed works, carry out measurements, estimate the cost & payments, Certify the payments, and quality of the works and prepare disbursements information for Government of the Punjab and the development partner (World Bank), as well as support in preparing disbursement applications.

xiii) Support in project management based on modern concepts, implementation of works, including social and environmental management program, implementation of the communication strategy and plan, including support to Director General Agriculture (WM) Punjab for preparation of project implementation plans, expenditure planning, budgeting and financing forecast and work plans, as required by the government and financing agency(s) of the project as well as assistance in developing the procurement plans, contract management, and financial management.

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

3.1 Specific Scope of Services: The PISCs will be responsible for supervision of all contracts and in this context will carry out, but not limited to the following activities:

Task-I: High Efficiency Irrigation Systems

i) Review the designs of the High Efficiency Irrigation Systems.

ii) Provide technical assistance in preparation of the design and specification, and cost estimation of the HEIS schemes. Provide guidelines, data, information, and criteria in each district on which the SSCs would base their designs that would be acceptable for the project and to the PISCs.

iii) Prepare technical documents/agreement for SSCs including contract conditions, specifications for design, materials and installation of equipment, itemized list of typical items etc.

iv) Assist in evaluation of the technical and financial proposals of SSCs.

v) Assist in mobilization and screening of farmers.

vi) Facilitate in finalization of rates for various items and services required for system installation.

vii) Review and approve plans, designs, cost estimates prepared by the SSCs for HEIS.

viii) Check for quality of material delivered at the site by SSCs, conformity with specified standards and quantities based on an agreed quality assurance plan.

ix) Certify quantities and quality of all completed works for payments of systems cost to SSCs.

x) Prepare completion certificates, measurements of the works, and disbursement applications for the GoPunjab and the financier of the Project.

xi) Provide technical support for training of OFWM staff in high efficiency irrigation systems.

xii) Review and advise on standards, specifications and criteria for high efficiency irrigation system best suited to local conditions.

xiii) Facilitate timely completion of intended works and recommend onsite design modifications.

xiv) Check for quality of works during construction based on agreed quality assurance plan.

xv) Verify financial resource transfer applications at various stages of works execution.

xvi) Prepare operation, maintenance and management manuals for high efficiency

irrigation systems.

Task-2: Watercourse Improvement

i) Review the already developed standards and specifications for civil works required for watercourses and improve the same as per latest requirements to assure compliance with agreed criteria.

ii) Assist in mobilization of water users associations (WUAs) and selection of watercourses as per criteria.

iii) Facilitate in finalization of rates for construction materials.

iv) Verify rate assessment of construction materials to be procured for the procurement committee for civil works.

v) Check surveys carried out by the OFWM staff.

vi) Review and approve plans, designs, cost estimates for watercourses.

vii) Check for quality of works during construction according to the agreed quality assurance plan; Facilitate timely completion of civil works and recommend onsite design modifications.

viii) Certify quality and quantity of completed civil works.

3.2 The PISCs would be engaged for following assignments to provide requisite consultancy services.

Assignment-A: Consultancy services for project activities to be carried out with original/ existing IDA credit till effectiveness of Additional Financing to the PIPIP.

Assignment-B: Consultancy services for project activities to be carried out till 30th June 2021 with IDA credit/ IBRD loan after signing Additional Financing to the PIPIP.

3.3 In the event of contractual dispute which may result in legal action, adjudication or arbitration between the contractor/supplier and the Client, on the instruction from the Client, the Consultants will collate and prepare factual documentation which describes the circumstances of the dispute. The Consultants will attend hearings and provide all legal and other support to the Client.

3.4 They will be designated as "*the Engineer*" and undertake agreements in respect of goods and equipment to be procured relating to HEIS and watercourse improvement works, and will be responsible for inspection of goods and equipment in order to ensure that goods and equipment supplied are in accordance with the deigns, specifications and terms & conditions of the relevant contracts and standards. The consultants shall ensure that procurement of goods, services, civil works contracts are in accordance with the World Bank Polices and guidelines, the contracts are signed, and managed properly including any changes or variation orders during implementation.

3.5 Project Management Support: The consultants will provide support to Director General Agriculture (Water Management) in overall project management activities such as preparation of project implementation plans, expenditure planning, budgeting and financing forecast and plans, monthly, quarterly and annual progress reports or work programs as required by the Government of Punjab and financiers of the project. They will also help in developing the procurement plans, contract management, and financial management. The plans will be updated on a regular basis as required by Client.

3.6 Management of the Website. The consultants would assist DGA (WM) office for management of the website. All project related information including procurement, project progress, material procured rates, works in progress, works completed etc. would be placed on the website.

4. Team Composition & Qualification Requirements for the Key Experts

4.1 The consultants are encouraged to use the expertise available in Pakistan to the extent possible. However, international experience and experience with the World Bank financed projects are necessary to carry out the assignment. The consultants are free to propose a staffing plan and skill mix in order to ensure that necessary requisite objectives and scope of services are achieved. If all the required skills are not available within the consulting firms, they are encouraged to make joint ventures with other firms. The Consultants shall ensure deployment of qualified competent staff to supervise installation of high efficiency irrigation systems, demonstration/evaluation of modern water management interventions etc. The team of experts required for the project implementation consultancy must have sufficient field experience of the related activities preferably in previous on farm water management projects.

4.2 Following is the indicative core team of experts alongwith minimum academic qualification, experience and requisite input for the assignment:

Sr. No.	Position	Qualification	General/ overall experience (years)	Job Specific Experience (years)	Tentative Man-months	
					Assignment A	Assignment B
1	Project Manager/Team Leader (One Position)	Master's Degree or its equivalent in Agricultural Engineering / Water Resources / Irrigation Engineering after B.Sc. Agri. Engineering	15	10 (Multi-sectoral Water Resources Project)	9	39
2	Design Engineer (One Position)	Master's Degree or its equivalent in Irrigation Engineering / Agricultural Engineering / Water Resources Engineering after B.Sc. Agri. Engineering	10	3 (High Efficiency Irrigation Systems Designing)	9	39
3	Field Engineer (36 Positions)	B.Sc. Agricultural Engineering or equivalent	5	3 (On Farm Water Management)	324	1,404
4	Unallocated/ support staff				9	39
N	**Total**				**351**	**1,521**

Note: The client has the right to increase/ decrease the input of any experts as and when required

4.3 Indicative Duties / Job Description of Project Implementation Supervision Consultants (PISCs) Core Team of Experts required for PIPIP.

1. Project Manager/Team Leader

Qualifications: The Team Leader will possess a Master's degree or its equivalent in Agricultural Engineering / Water Resources Engineering / Irrigation Engineering after B.Sc. Agri. Engineering with 15 years' experience including implementation of multi sectoral projects preferably World Bank financed and involving social mobilization. A minimum of 10 years of experience will be required in the management of similar consultancy services with demonstrated ability to work with government officials, technical field staff, NGO representatives, and farmers. In addition, the Team Leader would be required to have familiarity with the principles and practices of participatory community development, irrigated agriculture, water management related issues, and knowledge of project management information systems besides, having fluency in spoken and written English,

Responsibilities of the Project Manager/Team Leader will be but not limited to the following:

i) Report to the Client

ii) Assume overall responsibility for management of the supervision team.

iii) Work as the "the Engineer" as per Client's agreement with the Water Users Associations (WUAs)/ beneficiary farmers/ service providers to supervise construction/installation/equipment delivery with the best professional and consulting standards to ensure that the scheme/task is completed satisfactorily.

iv) Keep the Client informed of technical issues and the progress of all works both by direct contacts and through discussions or correspondence.

v) Attend, at Project level, all meetings as required and keep a record of all such meetings.

vi) Assist the Client in any project issue which the Employer may require.

vii) Ensure preparation of a project completion report (PCR).

viii) Assist the Client in preparing the response to Audit Objections.

ix) Assist the Client in preparing response to financiers or other authority's queries, observations, requirements etc.

x) Coordinate with all related Client's organizations for project issues.

2. Design Engineer (HEIS)

Qualifications: The Design Engineer should possess a Master's degree in Irrigation Engineering/Agricultural Engineering/ Civil Engineering/ Water Resources Engineering after B.Sc. Agricultural Engineer with 10 years' work experience including at least three (3) years' experience in high efficiency irrigation under irrigation water management projects. Work experience in related computer tools, good communication skills, fluency in English and proven satisfactory record of similar consultancies would be preferred.

Responsibilities of the Design Engineer will be but not limited to the following:

i) Lead the design engineering team for high efficiency (drip & sprinkler) irrigation systems (HEISs).

ii) Supervise the scoping, surveying, and designing tasks for installation of drip & sprinkler irrigation systems as well as provide technical assistance for the purpose as, where and when required.

iii) Monitor the designing process of HEISs carried out by the supply & service companies to ensure economic designs in accordance with the prescribed standards, specifications, and parameters.

iv) Carry out continuous monitoring of the designing plans and maintain liaison with implementation staff/ other stakeholders.

v) Assist in reviewing and modifying the HEIS designs for cost effectiveness and technical suitability.

vi) Develop designs for showcasing modern water management technologies and practices at farmers' fields.

vii) Coordinate for ensuring adoption of international/ national standards for designs.

viii) Perform other duties as assigned.

3. Field Engineer (36 Positions)

Qualifications: The Field Engineer should possess a Bachelor degree in Agricultural Engineering and five (5) years work experience including at least three (3) years in on farm water management projects preferably high efficiency irrigation. Work experience in related computer tools, good communication skills, fluency in English and proven satisfactory record of similar consultancies would be preferred. Responsibilities of the Field Engineer will be but not limited to the following:

i) Coordinate and supervise the construction/installation activities.

ii) Ensure quality as well as quantity of works by spot-checking.

iii) Certify release of funds for ongoing as well as completed works.

iv) Bring any deficiency into the notice of the controlling officers of district and provincial governments.

v) Develop close liaison with project stakeholders including project management, SSCs and farmers.

vi) Any other relevant duties assigned by the project management

5. Duration of the Assignment

5.1 The gestation period of original project is five years (2012-13 to 2016-17) which has been extended for four years (2017-18 to 2020-21). As such, the estimated duration of the consultancy services for extended period is four years i.e. FY 2017-18 to FY 2020-21.

6. Reporting Requirements and Time Schedule for Deliverables

6.1 Reporting: The consultant will prepare the following reports in English and provide the copies as per sub para 5.3 regarding Deliverables and Schedule, alongwith respective soft copy:

- An inception report;
- Progress monthly reports;
- A mid-term report on the format acceptable to the Client;
- Quality Assurance Plan - (QA/QC Manual);
- Revised Planning Commission Proforma-I (PC-I);
- Completion Report; and
- Any special reports as may be necessary from time to time for specific item / issue within the scope of the assignment.

6.2 **Deliverables & Schedule**: The schedule for various reports, the consultants are likely to prepare is given below. Additional reports have to be prepared as needed. The consultants will supply the deliverables as per schedule given below:

Sr.#	Document	Copies	Due
1.	Draft Inception Report	5	3 weeks after the effectiveness of the Consulting Services Agreement

2.	Final Inception Report	15	One week after the issuance of comments by the Client on Draft Inception Report
3.	Monthly Progress Report (Physical & Financial)	10	10th of the following month
4.	Quality Assurance Plan *(QA/QC* Manual)	10	Before starting the physical activities
5.	Quarterly Progress Report (Physical & Financial)	10	l0th 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.	Quality Control / Assurance Report	10	After each year
9.	Revised Planning Commission Proforma-I (PC-I)	25	As and when required
10.	Draft Assignment Completion Report	5	At completion of physical works/activities
11.	Final. Assignment Completion Report	25	At completion of works as well as financial transactions
12.	Planning Commission Proforma IV *(PC-IV)*	50	At completion of project activities
13.	Complete inventory of works/ activities	10	At completion of the project
14.	Special Reports	10	As and when required

7. Client's Input and Counterpart Personnel

7.1 The Consultant shall work closely with the Director General Agriculture (Water Management) to whom they will be reporting on a day to day basis. The Consultant will establish their offices in the field at suitable locations and Lahore. Most of the consultants' staff will be located in the districts.

7.2 Director General Agriculture (Water Management) Punjab will be representative of the Client who will also resolve various administrative issues relating to consultants arising during the course of assignment. The Consultants' Team Leader will be the principal contact and will be expected to be readily available during project implementation.

7.3 The Consultants shall be responsible for all aspects of performance of services as set forth in the preceding sections of these TOR. All records and sites will be made available to the consultant to enable them to perform their functions.

7.4 Selection Procedure and Form of Contract: The consultants will be selected following Quality and Cost Based Selection (QCBS) criteria under the World Bank Guidelines for selection of consultants, and form of contract will be Complex Time Based Contract.

8. Professional Liability

The consultants would be responsible for professional liability as per World Bank guidelines as well as the followings.

i) The Consultants selected and awarded the contract will be liable for the consequence of errors and omissions on their part or on the part of their employees.

ii) The consultant shall be held liable for all losses or damages suffered by the procuring agency on account of any misconduct by the consultant in performing the consulting services

iii) The extent of liability of the consultant shall form part of the contract and such liability shall be in accordance with the relevant World Bank guidelines.

iv) The consultants would also be liable for the consequences as per provisions contained in bye-laws of Pakistan Engineering Council for "Conduct and Practice of Consulting Engineers".

v) The consultants will provide insurance for liabilities on part of the consultant @ 10 percent of contract cost and necessary costs shall be borne by the consultants in this regard.

vi) Consultants will not engage any person, who is paid employee of another consulting firm, works part-time in its offices or performs any piece of work or work on contract, until they have not obtained permission in writing of the Consultants who are the employer of such person.

vii) Consultants shall not make any offer of employment to employees of their Client and if they are approached by employees of their Client regarding employment with them, they shall make certain that they have their Client's consent before entering into any negotiations with such employees.

viii) In case of any dispute between the consultants and Client, the matter shall be referred to the competent authority for arbitration as per Rules. The decision of the arbitrator shall be final and non-appealable