

PRE-QUALIFICATION DOCUMENT (PQD)

FOR

**RECRUITMENT OF PROJECT SUPERVISION AND
MONITORING CONSULTANTS (PSMC)**

UNDER

**PROMOTION OF HIGH VALUE AGRICULTURE
THROUGH SOALRIZATION OF DRIP & SPRINKLER
IRRIGATION SYSTEMS**



**DIRECTORATE GENERAL AGRICULTURE
(WATER MANAGEMENT) PUNJAB
LAHORE**

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PROMOTION OF HIGH VALUE AGRICULTURE THROUGH SOLARIZATION OF DRIP & SPRINKLER IRRIGATION SYSTEMS

1. INTRODUCTION

Agriculture is a crucial driver of economic development in Punjab. It contributes a quarter to Punjab' GDP and about half of total provincial manpower depends on agriculture for their livelihood. Punjab is country's agricultural and economic heartland that contributes to about 80 percent of country's food requirements. More than 70 percent cropped area of the Pakistan's Indus food machine is situated in the Punjab and over 90 percent of province's agricultural production comes from irrigated lands. About two third of the population residing in rural areas rely directly or indirectly on this sector for their livelihood.

Despite critical significance of irrigated agriculture to national as well as provincial development, it could not perform sustainably mainly due to lack of modernization of agricultural operations leading to colossal loss of precious inputs resulting in low productivity.

Government of the Punjab is committed to revamp the agriculture sector to utilize its full potential to drive prosperity in the province for wellbeing of the farmers. Punjab Growth Strategy (PGS), 2018 envisions making a secure, economically vibrant, industrialized and knowledge-based province, which is prosperous and where every citizen can expect to lead a fulfilling life. PGS also envisages to enhance growth in agriculture by facilitating productivity improvement, increasing competitiveness in agriculture marketing & trade by providing a conducive climate for private sector investment, improving supply chain and value addition.

The Government of the Punjab has launched various initiatives to stimulate agricultural growth in the province. "Promotion of High Value Agriculture through Solarization of Drip & Sprinkler Irrigation Systems" is one of such initiatives approved by the PDWP at a total cost of Rs.3,750.379 million including govt. share of Rs. 2000.379 million and farmers' contribution of Rs. 1,750.00 million. The project comprises of replacing conventional fuel for operating high efficiency irrigation systems sites with solar energy. It envisages provision of 50% subsidy for installation of solar systems for operating high efficiency irrigation systems on 20,000 acres

PROJECT OBJECTIVES

The key development objective of the project is to maximize productivity of precious crop production inputs (water, fertilizer, energy etc.), besides enhancement in crop yields. The undertaking will have following key objectives.

1. Reduce the operational cost of high efficiency irrigation system
2. Enhance crop and water productivity through optimal use of water and non-water inputs by application of modern climate smart technologies.
3. Promote use of solar energy in agriculture for promoting irrigated agriculture in remote areas.
4. Build farmers' capability at grassroots level for growing high value crops to get higher farm returns for alleviating poverty.

5. Create job opportunities in rural areas through introduction of climate smart technologies for high value irrigated agriculture.

2. PROJECT COMPONENTS

The technologies under the proposed project will result in productivity enhancement, efficient resource management, crop diversification, better quality produce and promotion of environment friendly free energy source. Major activity to be carried out under the proposed project would include provision of Solar Systems to the farmers for operating High Efficiency Irrigation Systems on **20,000** acres.

3. APPROVED IMPLEMENTATION PROCEDURES FOR PROVISIO OF SOLAR SYSTEM FOR HEIS OPERATION

- a) It has been planned to provide solar systems to the farmers who are willing/ have already installed HEIS under the proposed project.
- b) The department will pre-qualify the eligible supply & service companies (SSCs) for installation of solar system at HEIS site. Prequalification Committee (PQC) already constituted under the PIPIP will carry out these tasks and may co-opt additional members for assigned tasks. Agriculture Department may adopt already approved standards & specifications of solar equipment or may develop new specifications and get it standardized through specification standardization committee.
- c) Applications will be submitted by the farmers individually on a prescribed application form and only one member of the family will be eligible. Application forms will be available in the office of Director Agriculture / Deputy Director Agriculture /Assistant Director Agriculture (OFWM) free of cost.
- d) The application will be accompanied by an affidavit containing following declarations for which necessary documents would also be attached to support the claims.
 - i) Canal/ rainwater stored in the water storage pond for drip irrigation.
 - ii) Farmer has installed or willing to install drip/ sprinkler irrigation system.
 - iii) The beneficiary is ready to contribute his share as per approved cost sharing formula as well as willing to bear post installation maintenance costs.
 - iv) Applicant is not a defaulter of any government organization or financial institution.
 - v) Applicant is willing to get requisite training in operation & maintenance of solar system.
 - vi) The beneficiary farmer agrees to use solar system for operating HEIS only and will not use it for flood irrigation.
 - vii) The farmer will not sell/ transfer/ handover the solar system to any other person in any form within five years.
 - viii) The farmer will not alter the parts of the solar system to change the capacity/ power of the system.
 - ix) The applicant will pay back entire amount of subsidy in case of violation of terms and conditions of subsidy.
 - x) The farmer will be responsible for any physical damage/ theft and its rectification at his/ her own cost.
 - xi) The farmer will abide by all directions/ decisions of the department/ authority and will not challenge in any court of law.

- e) The applications will be scrutinized against approved criteria and eligible applicants will be advised to approach the pre-qualified SSC of their own choice for survey, design, and cost estimation of the solar system for operating drip/ sprinkler irrigation system.
- f) It will be ensured by the concerned DDA (OFWM) that the drip/ sprinkler irrigation system has already been installed/ being installed and/ or drip/ sprinkler system has been designed for its operation on solar systems before processing of case for solar system.
- g) The selected SSC will survey the site, prepare design, bill of quantity (BOQ), and cost estimates considering site specific power requirement (5.76 & 8.96 KW) for operating HEIS with water from water storage pond (Brackish groundwater and shallow watertable areas) or other sources. However, the ponds are not sustainable in some area especially in Thal area under undulated & sandy environment. Furthermore, there are deeper watertables beyond 100 feet in the Potohar region. In both scenarios, solar system of 10.4 KW would be provided for operation of HEIS for the promotion of high value agriculture and offered the same to the concerned DDA (OFWM/ project consultants for review and approval.
- h) The farmer, after approval of design and cost estimates, will be advised by the concerned DDA (OFWM) to deposit his/her entire share in the form of pay order/bank draft drawn in favor of selected SSC , which will be transmitted to Director General Agriculture (Water Management) Punjab alongwith requisite papers for issuance of work order.
- i) The work order will be issued by the DGA (WM)/ Project Director and SSC will be bound to deliver the solar equipment alongwith other accessories as per BOQs at site within the prescribed time frame mentioned in Tri-partite Agreement or work order.
- j) The delivered equipment will be inspected against approved specifications and BOQs by the project consultants as third party validation.
- k) After inspection of the delivered equipment, 50 percent of the system cost including pay order/ bank draft submitted by the farmer and remaining from the project funds will be paid by the DGA (WM) as 1st installment on recommendation of the consultants conveyed by concerned DDA (OFWM).
- l) The SSCs will complete the installation of solar system within prescribed time period after delivery/inspection of equipment. The installed system will be verified by the project consultants for its performance as per approved design and specifications.
- m) The consultants will ensure that coupling of solar system with drip/ sprinkler irrigation system is according to the approved guidelines, compatibility, and performs successful operation of the HEIS.
- n) The performance of installed solar system will be evaluated in terms of operation, design and discharge efficiency etc. and solar system will be handed over by the SSC to the beneficiary farmers in the presence of consultants and departmental representatives. At the time of commissioning/ handing over the system, the SSCs would ensure that
 - i) farmer has been trained in operation & maintenance of the solar system;
 - ii) logbook has been provided to the farmer;
 - iii) O&M manual in Urdu has been provided to the farmer; and
 - iv) Warranty card of the equipment has been handed over to the farmer.
- o) On the recommendation of the project consultants conveyed through DA (OFWM)/ DDA(OFWM), DGA (WM) will make 40% payment to the SSC on commissioning/ handing over of the solar system to farmer (2nd installment) by keeping 10% as retention money, which will be released after two years on provision of satisfactory post-installation services for successful system operation.

- p) Concerned DDA (OFWM) will visit the site on monthly/ quarterly basis and submit the report to the DA (OFWM) and Director General Agriculture (Water Management) Punjab/ Project Director on performance/ any issue in the installed solar system.
- q) The SSCs will be bound to provide the post installation services for at least two years.

4. SUPERVISION AND MONITORING OF PROJECT ACTIVITIES

The PC-I envisages engagement/ recruitment of Project Supervision and Monitoring Consultants (PSMC) to provide supervision and monitoring support required to ensure that the activities envisaged under “Promotion of High Value Agriculture through Solarization of Drip & Sprinkler Irrigation Systems” are executed in an orderly manner with high standard of workmanship and specified quality of materials within the envisaged implementation period and in conformity with latest technical, social and environmental standards.

It has been approved in the PC-I that a well reputed and specialized consultancy firm would be recruited in accordance with the Punjab Procurement Rules 2014 for provision of project supervision and monitoring support. The objectives of PSM consultancy services include, but not limited, to:

- i) Review the designs and standards & specifications for installation of solar system for operating high efficiency irrigation systems.
- ii) Monitor all project activities including technical, environmental, social, economic aspects etc. to evaluate actual achievement against the activities planned in the PC-I;
- iii) Provide support in procurement process including pre-qualification of supply and service companies (SSCs), invitations of bid, evaluation of bids and make recommendations as well as prepare all relevant documents for award of contracts;
- iv) Maintain detailed technical record and financial accounts & other project records and prepare other documentation as may be required by the client and government of the Punjab;
- v) Extend technical support for maintaining information related to project activities regarding facilities/ services, applications, procedures, progress etc.;
- vi) Assist in procurement, financial, social and environmental management of project activities;
- vii) Prepare Terms of Reference (TORs) for carrying out any additional studies, recruitment of SSCs etc;
- viii) Liaise with provincial, divisional, district and tehsil offices for smooth execution of field activities;
- ix) Notify the Director General Agriculture (Water Management) Punjab/ Project Director about compliance/ non-compliance of works against agreed criteria and standards & specifications;
- x) Prepare daily, monthly, quarterly, and annual progress & monitoring reports for proposed project activities besides other periodic reports as per requirements of project management;
- xi) Provide support for contract management and preparation of contract documents as required 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 in accordance with the approved standards and specifications as a third party;
- xiii) Carry out impact evaluation of project activities to assess the project benefits;

- xiv) Implement the overall monitoring and evaluation plan including collecting, analyzing, and reporting project data for continued effective tracking of project objectives; and
- xv) Support in project management based on modern concepts, implementation of works, implementation of the communication strategy and plan, support to Director General Agriculture (WM) Punjab/ Project Director 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.

5. SCOPE OF SERVICES

The Project Supervision & Monitoring Consultants (PSMC) will be responsible for supervision and monitoring of all contracts for installation of solar system and in this context will carry out, but not limited to the following activities:

- i) Review the designs of the solar systems for operating HEIS.
- ii) Advice on standards, specifications and criteria for solar system coupled with HEIS best suited to local conditions including solar photovoltaic modules/ panels, inverter/ pump controller, electric cables for solar array wiring, solar panel structure and integration with pump sets.
- iii) Review and approve the design of solar array structure drawing, its material, diameter of pipes used and thickness of various items.
- iv) Review and approve the required civil work to support solar array structure to carry out required load to withstand high wind velocity.
- v) Provide technical assistance in preparation of the design and specification, and cost estimation of the solar systems coupled with HEIS. Provide guidelines, data, information and criteria on which the SSCs would base their designs that would be acceptable for the project and to the PSMCs.
- vi) Prepare technical documents/ agreement for SSCs including contract conditions, specifications for design, materials and installation of equipment itemized list of typical items etc.
- vii) Monitor installation of solar system in accordance with approved criteria.
- viii) Assistance in evaluation/ prequalification of the technical and financial proposals of SSCs.
- ix) Assistance mobilization and screening of farmers.
- x) Facilitate in selection of high quality brands of solar panels inverter/pump controller, cables, pump sets etc.
- xi) Facilitate in finalization in rates for various items and services required for solar system installation.
- xii) Review and approve plans, designs, cost estimates prepared by the SSCs for solar system
- xiii) Prepare proformas for ICR-I (material verification report) and ICR-II (final completion report)
- xiv) Check for quality of material delivered at the site by SSCs and carried out works in conformity with specified standards and quantities based on an agreed quality assurance plan.
- xv) Certify quantities and quality of all completed works for payments of solar systems cost to SSCs.

- xvi) Help in procurements of equipment required for testing of solar system after installation including irradiance meter, PV analyzed, micrometer, hot dip galvanization thickness checking equipment etc.
- xvii) Prepare completion and certification reports of the completed works including those completed before effectiveness of contract agreement.
- xviii) Perform the following during site visits in the process of installation of solar system.
 - I. Selection of location for installation of solar system & approval of design
 - II. Material verification and spot check at eh time of foundation civil work
 - III. Commissioning
 - IV. Revisit of deferred site after rectification of shortfalls (one visit is included)
Subsequent visit (s) to be charged to SSCs through the department
- xxix) Provide technical support for training of stakeholders including farmers and OFWM staff in solar system design, installation, operation & maintenance etc.
- xxx) Facilitate timely completion of planned works and recommend onsite design modifications.
- xxxii) Verify financial resource transfer applications at various stages of work execution; and
- xxxii) Prepare design, operation, maintenance and management manuals for solar systems for operating HEIS.

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.

They will be designated as “the Engineer” and undertake agreements in respect of equipment to be procured (solar system), and will be responsible for inspection of equipment in order to ensure that equipment supplied are in accordance with deigns, specifications and terms & conditions of the relevant contracts and standards. The consultants shall ensure that procurement of works and equipment are in accordance with the relevant guidelines of government of the Punjab and managed properly including any changes or variation orders during implementation.

Third Party Validation Support: The consultants will provide support to Director General Agriculture (Water Management) and Project Director in overall project management & monitoring 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 Client and Government of the Punjab. 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. The overall role of consultants is third party validation of project works and monitoring of project activities.

Management of information on the Website. The consultants would assist DGA (WM)/ Project Director for placing data on the website and its management. All project related information including procurement, work plan, project progress, works in progress, works completed etc. would be placed on the website.

6. TEAM COMPOSITION & QUALIFICATION OF KEY EXPERTS

The consultants are encouraged get the international expertise as well as available in Pakistan to the extent possible. However, international experience of similar project is 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 and monitor installation of solar system coupled with high efficiency irrigation systems. The team of experts required for the project implementation consultancy must have sufficient field experience of the related activities preferably use of solar for farm level development projects.

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 Input (Man Month)
1	Project Manager/ Team Leader (One Position)	Master's Degree or its equivalent in Agricultural Engineering / Electrical Engineering/ Water Resources Engineering or Management/ Project Management	15	10 (Multi-sectoral Agriculture Development /Water Resources/ Renewable Energy Projects)	36
2	Renewable Energy Expert/ Deputy Team Leader (One Position)	Master's Degree or its equivalent in Electrical Engineering / Mechatronics/ Electronics/ Renewable Energy	10	7 (Renewable Energy/ Solar System)	30
3	Field Engineer (9 Positions)	B.Sc. Agricultural Engineering	3	2 (Solar Systems/ Solar Coupled HEIS)	324
4	Monitoring and Evaluation Specialist (One Position)	Master's Degree in Agricultural Engineering/ Water Resources Engineering/ Agriculture Development related studies	10	5 (M&E of Agriculture Development Projects)	30
Total					420

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

7. TIME SCHEDULE/ASSIGNMENT DURATION

The gestation period of original project is three years (2019-20 to 2021-22). The estimated period for engagement of consultants is about 30 months i.e. upto June 2022.

8. ELIGIBILITY EVALUATION REQUIREMENTS

Any firm or consortium of companies expressing interest will need to demonstrate significant experience of managing similar consultancies. Interested consulting firms/ consortia must provide information indicating that they are qualified to perform above services (e.g. brochures, descriptions of similar assignments, value of previous assignments; if the firm was in JV/association, then the role of the firm in that assignment and value of the respective services); experience under similar conditions, availability of appropriate skills among staff, etc. Following information must be accompanied with the application:

- (i) Firm(s)/joint venture(s) name, offices, addresses, copy of the Registration Certificate with relevant professional bodies, supported by latest / updated renewal, Memorandum / Article of Association / Partnership Deed or Joint Venture Agreement (if applicable) etc.;
- (ii) Registration with Securities & Exchange Commission or Registrar of Firms
- (iii) Audited account statements for last three years and registration with Income Tax and Sales Tax Department;
- (iv) Relevant experience and past performance of firm(s)/joint venture(s);
- (v) List of permanent professional staff alongwith CVs (resume) of relevant core staff indicating project wise experience with exact time duration for each project and their current commitments;
- (vi) List of most relevant works/ assignments/ projects completed during last 10 (ten) years with total cost of consultancy services, dates of commencement and completion;
- (vii) List of similar works currently in progress, with total cost of consultancy services, date of start and expected date of completion;
- (viii) A firm, which was a team member in a previous joint venture, should furnish a statement providing details of works, component of works performed individually and its over-all share (percentage) in the works performed by the joint venture;
- (ix) Any additional document to support relevant experience/ competency of firm(s)/Joint Venture(s);
- (x) History of litigation (if any) in courts or any arbitration proceedings;
- (xi) Affidavit confirming that (a) applicant firm(s)/joint venture(s) have never been blacklisted by any government department and/or by any government owned company/ foundation/ authority (If ever black listed, then provide the case history and current status of the firm regarding this decision) and nor in any litigation (b) all the information provided by the applicant firm/joint venture are correct.

9. PROPOSAL EVALUATION CRITERIA

The evaluation of proposals will be carried out **using the Quality and Cost Based Selection (QCBS) method** under Punjab Procurement Rules 2014 on the basis of applicant

firm(s)/joint venture(s) responsiveness to the evaluation criteria based on following allocated scores to each broad category. The minimum qualifying score will be **65**.

Sr. No.	Evaluation Criterion	Maximum Marks	Marking Criteria
A.	Qualifications	20	
i).	Number of Electrical Engineers/ equivalent with relevant experience	5	0.5 Marks per 2 B.Sc. Engineers 1 Mark per 1 M.Sc. Engineer 2.5 Mark per 1 Ph.D. Engineer
ii).	Number of Agricultural Engineers/ equivalent with relevant experience	15	1 Marks per 2 B.Sc. Engineers 2 Mark per 1 M.Sc. Engineer 3 Mark per 1 Ph.D. Engineer
B.	Relevant Experience & Past Performance	30	
i).	Number of similar/ relevant assignments completed during Last 10 years	20	2 mark per one project upto 10 projects
ii).	Number of similar/ relevant assignments in-progress	10	3 marks for 1 on-going project 6 marks for 2 on-going projects 10 marks for 3 on-going projects
C.	Capabilities with Respect to Personnel, Equipment and Plant	20	
i).	Organizational Structure	5	Excellent = 100%, Good = 65%, Average = 30%
ii).	Quality Management Structure	5	ISO Certification = 5 marks
iii).	Permanent Staffing Strength	5	1-100 Personnel = 3 marks 101-200 Personnel = 4 marks > 200 staff Personnel = 5 marks
iv).	Offices	5	National Office = 2 marks National & Provincial Office = 3 marks National, Provincial & Regional offices = 5 marks
D.	Financial Position	25	
i).	Value (cost) of similar assignments completed during last 10 years (Maximum 10 projects)	10	Cost Rs.100-200 million = 5 marks Cost Rs.201-400 million =7 marks Cost > Rs. 400 million = 10 marks
ii).	Value (cost) of similar assignments in-progress	10	Cost Rs.10-50 million = 5 marks Cost Rs.51-100 million =7 marks Cost > Rs. 100 million = 10 marks
iii).	Total turn over during last three years	5	Cost Rs.100-200 million = 2 marks Cost Rs.201-400 million =3 marks Cost > Rs. 400 million = 5 marks
E	Managerial Capability	5	
i).	Total number of projects undertaken by the firm(s)/joint venture(s)	5	1-20 projects = 3 marks 21-40 projects = 4 marks > 40 projects = 5 marks
Total		100	

10. EOI SUBMISSION

A consulting firm/ consortium will purely be selected on merit in accordance with the criteria mentioned in the PQD and procedure laid down in the Punjab Procurement Rules 2014. However, pre-qualification/ shortlisting of any firm/consortium does not guarantee award of work and it would depend on evaluation of their proposals (technical and financial) submitted by the pre-qualified/shortlisted firm at later stage. Expressions of interest must be delivered by hand or reached by post at the address given below not later than the advertised date and time.

Directorate General Agriculture (Water Management)

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