

Terms of Reference (TOR) for technical support in the design, implementation and evaluation of field trial on solar water pumping solutions appropriate for agriculture and allied value chains

Indo-German Energy Programme

Project number /

Promotion of Solar Water Pumps

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cost centre:

0. List of abbreviations	2
1. Context.....	3
2. Tasks to be performed by the contractor	5
3. Concept.....	10
Technical-methodological concept	10
Project management of the contractor.....	11
3.1. Personnel concept.....	11
Team leader	12
Technical Advisor (Expert 1)	13
Project Coordinator (Expert 2)	14
Assistant Project Coordinator (Expert 3)(2 Nos).....	15
Researcher (Expert 4) (1 No)	16
Field coordinator (Expert5) (6 Nos).....	17
4. Costing requirements	18
4.1. Assignment of personnel	18
4.2. Procurement.....	18
4.3. Travel.....	19
4.4. Workshops, Exposure visits, Field Evaluation Event (FEE)	19
5. Requirements on the format of the bid.....	20

0. List of abbreviations

AVB	General Terms and Conditions of Contract (AVB) for supplying services and work 2018
BMZ	Federal Ministry for Economic Co-operation and Development, Germany
IGEN PSWP	Indo German Energy Programme-Promotion of Solar Water Pumps
PM-KUSUM	Pradhan Mantri Kisan Urja Suraksha evam Utthan mahabhiyan
MNRE	Ministry of New and Renewable Energy
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
ToR	Terms of Reference
WB	West Bengal
RE	Renewable Energy

1. Context

The Promoting Solar Water Pumps component of the Indo-German Energy Programme (from now on referred to as PSWP module) is a bilateral technical co-operation measure between the Federal Ministry for Economic Co-operation and Development (BMZ), Germany and the Ministry of New and Renewable Energy (MNRE), Government of India. PSWP was commissioned by BMZ based on the lessons learned from the IGEN-Access module (2015 – 2019).

The project aims at promoting the sustainable use of solar water pumps in view of the Water Energy Food nexus. The IGEN-PSWP module is being implemented pan-India with a focus to the East and North-East of India. The module is implemented over a period of four years (October 2018 – September 2022). BMZ has commissioned the Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) with the implementation of the project. GIZ is a federal enterprise based in Eschborn and Bonn, Germany.

The PSWP module aims to improve, expand and speed-up the roll-out of sustainable Solar Water Pumps (SWP). The activities under the PSWP module will be implemented under the following four components:

- “Enabling Policy environment”, to enable policymakers to design government promotion programs for the productive use of solar pumps in a way that is effective and environmentally sound.
- “Business, Operator and Service Modules”, to enable market stakeholders such as project developers, facility operators and non-governmental organizations (NGOs) to successfully replicate tested business, operator and service models for the productive use of solar pumps in selected federal states.
- “Access to Finance”, to enable financial service providers to offer customized financial solutions for financing solar pumps for productive use.
- “Information, Dissemination, and Upscaling”, to provide agricultural extension service providers in selected federal states the necessary knowledge to carry out technical, environmental and economic assessments of solar pumps for productive usage.

Again, through the newly introduced KUSUM scheme and State Government programs there is a strong push in the promotion of Solar Water Pumps. The scheme has a subsidy component of 60% to be provided by Central and State Government.

Within these context, GIZ with the help of a consultancy firm did a technology review of sub 1 hp pumps (0.1,0.25,0.5,0.75,1 hp pumps) in June,2019 to assess the potential of micro pumps in India. In its 2nd phase, MNRE and GIZ want to test solar water pumps with specific focus on micro pumps (up to 1 hp) on the farmers' field against the specified technical parameters and its applications for various productive activities across agriculture and allied value chain. The field trial will be done with different operational /business models with marginal farmers in the state of Assam, Jharkhand and Odisha/WB in consultation with state livelihood missions/state agriculture and allied departments. The whole process will be documented and recommendation with appropriate operational framework will be prepared for its adoption through government programs.

Some of the terms used in the ToR are defined in the context of the project as follows

- a) **Solar water pumping solutions:** appropriate solar water pumping systems with technical specifications (capacity, head, flow rate etc.) for increasing the productivity across various activities in different agriculture and allied value chain like dairy, goatery, poultry, fishery etc.
- b) **Operational/business model:** The model can be anything which can create value for marginal farmers. It can be entrepreneurial model or group-based service delivery model (indicative).
- c) **Marginal Farmer:** A farmer who has got total agricultural land less than 2.5 acre as defined by the GOI Census 2011.
- d) **Micro solar water pumps:** Solar water pumps having capacity up to 1 HP
- e) **Long term sustainability:** The solar water pumps should be functional and able to pump water for at least 10-15 years
- f) **Scale up potential:** huge potential for adoption through government programmes in the mentioned states after field trial
- g) **Exposure visit/Technology demonstration:** This would be organized before the selection of farmer/sites for giving the concerned stakeholders (farmers and others) an idea about the technology and its benefits. This should be organized in the same region/state and the duration should not exceed more than one day including the travel

of the participants. The minimum participants should be at least 25. Out of the total exposure visit/Technology demonstrations to be organized, ten should be budgeted in the proposal by the consultant; cost of rest twenty workshops will be arranged by GIZ through its partners.

- h) **Field Evaluation Event:** An event where the experts including the persons in the government and progressive farmers will evaluate the solar pumping solutions /operational models in operation at farmers' field based on its potential for increasing productivity of marginal farmers. This is a half day event to be organized after the deployment of pumping systems on farmers' field.
- i) **Monitoring Protocol:** We would expect the bidder to develop a mechanism/tool (document) , where all parameters (related to pump performance and productivity enhancement etc) can be monitored with frequency/time of monitoring of each parameter clearly mentioned for respective installed pumps.
- j) **Farmer sites:** the sites for installation of pumps with all the details like name of farmer/groups, area of land, crops grown, water sources for irrigation, availability of water in the water source etc
- k) **Workshops:** 3 workshops to be organized in each of the mentioned states with the government and other stakeholders on various themes at various stages (initiation, mid term , final dissemination) of the project. Rest one workshop can be decided during the course of the project. The duration of the workshops would not exceed one day and should have at least 25 participants.

2. Tasks to be performed by the contractor

GIZ is seeking the services of a specialized firm or a consortium of firms (hereinafter referred as "the bidder") to provide support in the designing, implementation and evaluation of field trial on solar water pumping solutions across agriculture and allied value chains with specific focus on micro solar water pumps. The operational area for the field trial will include different regions of the states of Assam, Jharkhand and Odisha/WB

2.1. Designing the field trial of solar water pumping solutions across agriculture and allied value chains with specific focus on the requirement of marginal farmers.

2.1.1. Support in the field trial of solar water pumping solutions for increase in economic productivity of marginal farmers across agriculture and allied value chains. The operational area for the field trial will include different regions of the states of Assam, Jharkhand and Odisha/West Bengal

- Analyse and prepare a **list of solar water pumping solutions for different contexts**, suggesting potential solar water pumping solutions (refer point 1.a), across agriculture and allied value chains like horticulture, floriculture, dairy, fishery etc to increase the productivity of marginal farmers. The designs would include **(i) identifying the activities within value chain** where solar water pumping solutions have enormous potential to increase the productivity of marginal farmers; **(ii) listing out various solar water pumping systems (with technical specifications)** appropriate for these activities **(iii) developing long term sustainability strategy** (refer point 1.e) of these solar pumping systems in terms of maintenance and asset utilization **(iv) identifying scale up potential** (refer point 1.f) of these solutions at regions/states under **state government programmes**
 - Suggest various operational/business model (refer point 1.b) for field trial of these solutions with marginal farmers. The solutions should be finalized in consultation with **respective state livelihood/agriculture and allied state departments** keeping the long-term sustainability and future scaling up in mind.
 - Develop the criteria for **selection of farmers/groups/sites** (refer point 1.j) for field trial of pumping solutions and suggest a list of sites/farmers/farmer groups based on the above criteria to deploy these solutions in different regions of the states
 - Organize **workshops** bringing all the stakeholders like livelihood mission, government departments/renewable energy agencies and the solar water pump manufacturers/system integrators into one platform to **shortlist the required solar water pumping solutions in the respective states.**
- 2.1.2. Finalize the designs by coordinating with farmers and other stakeholders like government institutions.
- Finalize the designs of solar water pumping solutions along with respective farmer/farmer groups by mobilizing contribution from the beneficiary **(at least 25% of the cost for pumps).**
 - Develop an agreement with suppliers on long term maintenance and procure the required number of solar water **pumps through open tender** in consultation with GIZ

- Ensure that all solar water pumping solutions are sustainable in long term by establishing a **local repairing and maintenance** mechanism in coordination with both farmers and the supplier.

2.2. Support in implementing the field trial on farmers' fields by coordinating with all the stakeholders

- Develop the **capacity of progressive farmers/groups, government institutions** on solar water pumps by organizing demonstration/ exposure visits.
- Coordinate with **the suppliers and government departments** for successful installation of pumps at the designated sites
- Deploy Solar Water Pumping solutions on the farmers' field within stipulated deadline in **coordination with the vendors, farmers and government institutions.**

2.3. Monitoring and evaluation of solar water pumping solutions installed on the farmers' field

- Prepare data collection formats and **collect the relevant data** to record the **pump performance and productivity enhancement** of the farmer after applying the solutions respectively.
- Ensure the monitoring of the installed solar water pumping solutions by developing a **monitoring protocol** (refer point 1.i) to ensure timely collection of data at the field level
- Develop **evaluation sheets for evaluation of pumps** by the experts and the community (farmer groups) respectively.
- Organize **Field Evaluation Event (FEE)** (refer point 1.h) to evaluate the installed solar pumping solutions by bringing the experts and farmers into one platform.

2.4. Documentation of the solar water pumping solutions installed in respective states/regions

- Create reports on the solar water pumping solutions appropriate across agriculture and allied value chains by **documenting the enhancement in productivity** of the farmers due to application of the solutions
- **Document the field tested operational /business models** by critically analysing the factors affecting the operation/business.
- **Organize workshops** to share the learnings from the field trial with government as well as other stakeholders and strategize for the scaling up the solar pumping solutions (See point 1.k for further details)

The bidders will be evaluated based on the answers to the following questions. The

bidder must answer each of the questions, failing which, it may lead to disqualification.

1. Based on the understanding of the assignment, we would expect the contractor to provide the approach for field trial of solar water pumps in the mentioned states. The approach should include the evaluation of the sizing of the solar pump, partnership with relevant stakeholders, targeting of farmers?
2. What could be the potential applications of solar water pumps for marginal farmers in different agriculture and allied value chains and how will this be assessed? How would you ensure the contribution of the farmers for ensuring access to the physical asset?
3. What could be the parameters to be monitored the installed pumps during the field trial and why these parameters are essential for monitoring? Give us an idea of the functioning monitoring mechanism (physical data collection or based on remote monitoring)
4. Based on your approach suggested for the assignment, can you please highlight the associated risks and its subsequent mitigation process?

Deliverables

The deliverables will be considered only after approval from GIZ and payments will be made accordingly

1. Prepare **at least ten designs of solar water pumping solutions** and provide a **list of Eighty shortlisted farmer sites** for their field trial keeping the gender balance into the consideration. Demonstrate these solutions through **Four business/operational models** across agriculture and allied value chains like horticulture, floriculture, dairy, fishery etc to increase the productivity of marginal farmers. (For details see point 2.1.1)
2. Establish field trial of solar water pumps with required specifications by procuring them from shortlisted suppliers and installing at the shortlisted locations. **25% of the total cost of solar water pumps must be mobilized from farmers** and suitable number of pumps need to be installed with this money in consultation with GIZ. (please look at the procurement part in point 4.2 for details). Additional pumping systems to be under field trial will be leveraged by GIZ through relevant partners.
3. Organize **ten state level workshops** (See point 1.k for further details) within the mentioned states. Duration for each workshop should not be more than one day and should at least have 25 participants each. The workshops should be finalized based on the discussion with GIZ.
4. Organize **thirty exposure visits / technology demonstrations in the respective mentioned states.** (for details please look at point 1.g)

5. Organize **Ten field evaluation events** (at least three in each mentioned state) with half day duration at the installed pump locations. (for details please look at point 1.h)
6. Prepare **4 policy papers (of 2 pages each) with recommendations on different themes** for state livelihood programmes/Government departments working on improving livelihood based on mutual agreement between GIZ and the consultant.
7. Prepare **5 Case studies on the field tested operational /business models of the solar pumping solutions** by critically analysing the factors affecting the operation/business
8. Submit **quarterly reports** on the field trial of solar water pumping solutions appropriate across agriculture and allied value chains by documenting the progress in the tasks assigned and deliverable achieved.

We would request the consulting firm to facilitate in setting up a core advisory group of technical experts (3-4) to comment on the training materials, training methodology and for commenting of the outcomes. We expect that the group would play an advisory role to the proposed intervention and would be independent of the core experts from the consulting firm. The consulting firm will be responsible for suggesting the names of experts for advisory group. GIZ will be responsible for finalizing the composition of the advisory group. We expect the consulting firm to organize a round table with the advisory group once in every quarter during the project duration at one of the project states. It is worthwhile to mention that the consulting firm will have to co-ordinate with the advisory team. The travel & accommodation costs, honorarium and other associated costs of the advisory group will be borne by GIZ. The advisory group should remain active throughout the assignment duration.

Milestone	Deadline/Place/Person responsible
Successfully conducted 5 workshops and 20 exposure visits/ technology demonstration	3 months from the date of contract award
Procurement of all pumps and mobilization of contribution from farmers	5 months from the date of contract award
Demonstration of four business models	6 months from the date of contract award
Monitoring and data collection of the operational farmer sites	16 months from the date of contract award
Ten field Evaluation events	17 months from the date of contract award
Submission of four policy papers and five case studies	18 months from the date of contract award

Project period- The Project will be of total 18 months from the date of signing the contract.

To accomplish the above-described assignment, sub-contracting by the bidder will not be allowed.

3. Concept

In the bid, the bidder is required to show how the objectives defined in Chapter j) are to be achieved, if applicable under consideration of further specific method-related requirements (technical-methodological concept). In addition, the bidder must describe the project management system for service provision.

Technical-methodological concept

Strategy: The bidder is required to consider the tasks to be performed with reference to the objectives of the services put out to tender (see Chapter 1). Following this, the bidder presents and justifies the strategy with which it intends to provide the services for which it is responsible (see Chapter j)).

The bidder is required to present the actors relevant for the services for which it is responsible and describe the **cooperation** with them.

The bidder is required to present and explain its approach to **steering** the measures with the project partners and its contribution to the results-based monitoring system.

The bidder is required to describe the key **processes** for the services for which it is responsible and create a schedule that describes how the services according to Chapter 2 are to be provided. In particular, the bidder is required to describe the necessary work steps and, if applicable, take account of the milestones and contributions of other actors in accordance with Chapter 2.

Project management of the contractor

The bidder is required to explain its approach for coordination with the GIZ project.

- The contractor is responsible for selecting, preparing, training and steering the experts (international and national, short and long term) assigned to perform the advisory tasks.
- The contractor makes available equipment and supplies (consumables) and assumes the associated operating and administrative costs.
- The contractor manages costs and expenditures, accounting processes and invoicing in line with the requirements of GIZ.

3.1 Personnel concept

The bidder is required to provide personnel who are suited to filling the positions described, on the basis of their CVs (see Chapter 6), the range of tasks involved and the required qualifications.

The below specified qualifications represent the requirements to reach the maximum number of points.

Eligibility Criteria for Firm

- The bidder should have a minimum of 15 years of experience (implementation/ advisory) in agriculture and allied sector. Experience of at least 2 years in the solar powered irrigation systems will be an added advantage.
- Experience of minimum of 5 years with at least two projects in implementation of water pumping solutions in agri and allied value chains.
- The bidder should have worked with government departments on at least two projects

on agriculture/energy/rural livelihood) within last three years in any two of the above-mentioned states (Assam, Jharkhand, Odisha/WB)

- The bidder should have operational offices in at least two of the three mentioned states.
- The bidder should have direct engagement with farmers in the mentioned states, or it may collaborate with grassroot organizations in the states for mobilization and capacity development of farmers while applying for the tender.
- The bidding organizations require an average annual turnover of 300,000 EURO over the last three financial years and must have employed as on 31.12.2019 at least 15 persons full time. In case of a consortium, the lead agency should meet the stated criteria.
- The technical assessment is also based on reference projects with a minimum commission value of 30,000 EURO.

If the bidder forms a consortium, then they must provide the signed agreements/letter from the consortium partners highlighting their willingness to collaborate. The roles and responsibility of the consortium partners should be clearly mentioned in the proposal.

Team

The bidder is required to provide personnel who are suited to filling the positions described, on the basis of their CVs, the range of tasks involved and the required qualifications

The below specified qualifications represent the requirements to reach the maximum number of points.

The bidder **should provide relevant documents to demonstrate the below mentioned skill sets**

I. Team leader

Tasks of the team leader

- Overall responsibility for the advisory packages of the contractor (leading the team, provide guidance, responsible for the quality of the deliverables and deadlines)
- Coordinating and ensuring communication with GIZ, livelihood missions and other departments (Agriculture, Horticulture, Animal husbandry, Fishery and MGNREGA etc.)
- Personnel management as well as planning and steering assignments and supporting the experts

Qualifications of the team leader

- **Education/training:** Masters in Renewable Energy /Agriculture/ Management
 - **Language:** Good business language skills in English
 - General professional experience:** 20 years of professional experience in agriculture/Renewable Energy and allied sector.
 - Specific professional experience:** 10 years working experience with various State Government Projects.
 - Leadership/management experience:** 6 years of management/leadership experience as project team leader or manager in a company
- Other:**
- Should have proven experience and expertise in agriculture water management, solar powered irrigation systems
 - Understanding and knowledge of various processes within the Government project.
 - Flexible and able to multitask; can work within an ambiguous, fast-moving environment, while also driving toward clarity and solutions; demonstrated resourcefulness in setting priorities

II. **Technical advisor (Expert No 1) (1 No)**

Tasks

- Prepare a list of designs suggesting potential solar water pumping solutions across agriculture and allied value chains like horticulture, floriculture, dairy, fishery etc to increase the productivity of marginal farmers.
- Suggest various operational/business model (e.g. community based solar irrigation systems) for field trial of these solutions with marginal farmers.
- Design the criteria for selection of farmers/groups for field trial of pumping solutions
- Develop the capacity of progressive farmers/groups, government institutions on solar water pumps by organizing demonstration/ exposure visits.
- Support with technical inputs on solar water pumps in meetings and workshops organized during the project duration
- Support in Procuring of the required solar water pumps from the shortlisted suppliers based on the mutually agreed criteria.
- Ensure that all solar water pumping solutions are sustainable in long term (i.e at least for 10 years) by establishing a local repairing and maintenance mechanism in coordination with both farmers and the supplier.

- Flexible and able to multitask; can work within an ambiguous, fast-moving environment, while also driving toward clarity and solutions; demonstrated resourcefulness in setting priorities and guiding investment in people and systems

Qualifications

- Education/training: a bachelor's degree in Engineering/Agriculture Engineering.
- Language: Good business language skills in Hindi and English
- General professional experience: 10 years of professional experience in irrigation sector
- Specific professional experience: 6 years in designing/integrating/manufacturing of water pumps /irrigation systems
- Leadership/management experience: 2 years
- Experience in solar water pump is an added advantage.

III. **Project Coordinator (Expert No 2) (1 no)**

Tasks

- Should be based out of one of the mentioned states for performing the tasks; specific state to be decided after the consulting agency in place
- Suggest various operational/business model (e.g. community based solar irrigation systems) for field trial of these solutions with marginal farmers.
- Organize workshops with livelihood mission, government departments and the solar water pump manufacturers/system integrators to shortlist the required solar water pumping solutions in the respective states.
- Suggest a list of sites/farmers/farmer groups for deployment of the selected solar water pumping solutions for field trial in different regions of the states in consultation with the respective livelihood/agriculture and allied state departments.
- Finalize the designs of solar water pumping solutions for the selected farmers/groups with suitable contribution from the beneficiary (in the range of 20-25% of the cost).
- Procure the required solar water pumps from the shortlisted suppliers based on the mutually agreed criteria.
- Ensure that all solar water pumping solutions are sustainable in long term (i.e at least for 10 years) by establishing a local repairing and maintenance mechanism in coordination with both farmers and the supplier.
- Develop the capacity of progressive farmers/groups, government institutions on solar water pumps by organizing demonstration/ exposure visits.

- Coordinate with the manufacturers/system integrators and government departments for successful installation of pumps at the designated sites
- Deploy Solar Water Pumping solutions on the farmers' field within stipulated deadline in coordination with the vendor, farmers and government institutions.
- Ensure the monitoring of the installed solar water pumping solutions by creating a monitoring protocol to make sure timely collection of data at the field level
- Develop evaluation sheets for evaluation of pumps by the experts and the community (farmer groups) respectively.
- Organize half day Field Evaluation Events (FEE) to evaluate the installed solar pumping solutions by bringing the experts and farmers into one platform.
- Organize workshops to share the learnings from the field trial with government as well as other stakeholders and strategize for the scaling up the solar pumping solutions

Qualification

- Education/training: Post graduation in agriculture/Engineering/water resources management/rural management/management
- Language: Good business language skills in Hindi and English
- General professional experience: 8 years of professional experience in project management
- Specific professional experience: Minimum 3 years' experience in working with state government departments in rural livelihood/agriculture/energy / agriculture and allied
- Leadership/management experience: 2 years
- Regional experience: 3 years' of work experience in the eastern region (Jharkhand/Odisha/West Bengal), of India
- Experience in solar water pump is an added advantage.

IV. Assistant Project Coordinator (Expert-3) (2 no)

Tasks

- Should be based out of one of the mentioned states during the project duration for performing the tasks
- Suggest various operational/business model (e.g. community based solar irrigation systems) for field trial of these solutions with marginal farmers.
- Organize workshops with livelihood mission, government departments and the solar water pump manufacturers/system integrators to shortlist the required solar water pumping solutions in the respective states.

- Suggest a list of sites/farmers/farmer groups for deployment of the selected solar water pumping solutions for field trial in different regions of the states in consultation with the respective livelihood/agriculture and allied state departments.
- Finalize the designs of solar water pumping solutions for the selected farmers/groups with suitable contribution from the beneficiary (in the range of 20-25% of the cost).
- Ensure that all solar water pumping solutions are sustainable in long term (i.e at least for 10 years) by establishing a local repairing and maintenance mechanism in coordination with both farmers and the supplier.
- Develop the capacity of progressive farmers/groups, government institutions on solar water pumps by organizing demonstration/ exposure visits.
- Coordinate with the manufacturers/system integrators and government departments for successful installation of pumps at the designated sites
- Deploy Solar Water Pumping solutions on the farmers' field within stipulated deadline in coordination with the vendor, farmers and government institutions.
- Organize half day Field Evaluation Events (FEE) to evaluate the installed solar pumping solutions by bringing the experts and farmers into one platform.
- Organize workshops to share the learnings from the field trial with government as well as other stakeholders and strategize for the scaling up the solar pumping solutions

Qualification

- Education/training: Post graduation in agriculture/Engineering/water resources management/rural management/management
- Language: Good business language skills in Hindi, English and one of the regional languages of the project states
- General professional experience: 5 years of professional experience in project management
- Specific professional experience: Minimum 2 years' experience in working with state government departments in rural livelihood/energy / agriculture and allied
- Regional experience :2 years' of work experience in east and northeast region (Assam/Odisha/West Bengal) of India.
- Experience in solar water pump is an added advantage.

V. Researcher (Expert-4) (1 No)

Tasks

- Prepare a list of designs, suggesting potential solar water pumping solutions across agriculture and allied value chains like horticulture, floriculture, dairy, fishery etc to increase the productivity of marginal farmers. s
- Suggest various operational/business model (e.g. community based solar irrigation systems) for field trial of these solutions with marginal farmers. The solutions should be finalized in consultation with respective livelihood/agriculture and allied state departments keeping the long-term sustainability and future scaling up in mind.
- Design the criteria for selection of farmers/groups for field trial of pumping solutions and suggest a list of sites/farmers/farmer groups for their deployment in different regions of the states
- Prepare formats and collect the relevant data to show the pump performance and productivity enhancement of the farmer after applying the solutions respectively.
- Ensure the monitoring of the installed solar water pumping solutions by creating a monitoring protocol to make sure timely collection of data at the field level
- Develop evaluation sheets for evaluation of pumps by the experts and the community (farmer groups) respectively
- Create reports on the solar water pumping solutions appropriate across agriculture and allied value chains by documenting the enhancement in productivity of the farmers due to application of the solutions
- Document the operational /business models by critically analysing the factors for their success and failure.
- Flexible and able to multitask; can work within an ambiguous, fast-moving environment, while also driving toward clarity and solutions; demonstrated resourcefulness in setting priorities and guiding investment in people and systems

Qualifications

- Education/training: Post Graduation in Agriculture/Renewable Energy/water resources engineering/Agri Engineering
- Language: Good language skills in English and Hindi
- General professional experience: 5 years of professional experience in Agriculture/water resources engineering/Renewable Energy sector
- Specific professional experience: 3 years in designing water pumping solutions in agri and allied value chain
- Experience in solar water pumps will be an added advantage

VI. Field Coordinator (Expert-5) (6 Nos)

Tasks

- Should be based out of the district level in one of the mentioned states for performing the tasks.
- Develop the capacity of progressive farmers/groups, government institutions on solar water pumps by organizing demonstration/ exposure visits.
- Coordinate with the manufacturers/system integrators and government departments for successful installation of pumps at the designated sites
- Deploy Solar Water Pumping solutions on the farmers' field within stipulated deadline in coordination with the vendor, farmers and government institutions
- collect the relevant data to show the pump performance and productivity enhancement of the farmer after applying the solutions respectively
- Organize a half day Field Evaluation Event (FEE) to evaluate the installed solar pumping solutions by bringing the experts and farmers into one platform.
- Flexible and able to multitask; can work within an ambiguous, fast-moving environment, while also driving toward clarity and solutions; demonstrated resourcefulness in setting priorities and guiding investment in people and systems

Qualifications

- Education/training: Graduation in Agriculture/Renewable Energy/social science
- Language: Good language skills in Hindi and relevant regional language
- General professional experience: 4 years of professional experience in Agriculture/Rural sector
- Specific professional experience: 3 years in operational Experience with rural livelihood projects/Agriculture projects
- Experience in the solar irrigation sector is an added advantage.

4. Costing requirements

4.1. Assignment of personnel

Team leader	Assignment in India (<i>broken down by country of assignment</i>) for	12	expert days
Technical adviser (Expert-1) (1 no)	Assignment in India (<i>broken down by country of assignment</i>) for	60	expert days
Project Coordinator (Expert-2) (1 no)	Assignment in India (<i>broken down by country of assignment</i>) for	200	expert days

Assistant Project Coordinator (Expert-3) (2 no)	Assignment in India (<i>broken down by country of assignment</i>) for	100 (2)=200	expert days
Researcher (Expert-4)(1 no)	Assignment in India (<i>broken down by country of assignment</i>) for	60	expert days
Field Coordinator (Expert-5) (6 no)	Assignment in India (<i>broken down by country of assignment</i>) for	120(6)=720	expert days

4.2. Procurement of pumps

DC solar water pumps will be procured during the project duration by the consultant for field trial across different Agri and allied value chains.

Steps to be followed

- The procurement of pumps must be through open tendering process and consultant should follow GIZ procurement guidelines.
- GIZ asset handover protocol should be followed while handing over the pumps to the respective farmers.
- The cost of the pumps will be reimbursed as per the actual cost of the pumps. **25% of the total cost of solar water pumps must be mobilized from farmers** and suitable number of pumps need to be installed with this money in consultation with GIZ.

The consultant is required to allocate a budget for procurement of suitable capacity of solar water pumps as per the following table (Number and capacity of pumps are tentative and solely for the purpose of budget calculation). **The total cost of the procurement should not be more than 20% of the total proposed budget.** In this context procurement of pumps will not come under sub-contracting.

Pump capacity	No of DC pumps to be procured
0.2-0.5 hp	20
0.5 hp	25
1 hp	6
Total	51

Disclaimer- Number and capacity of pumps are tentative and solely for the purpose of budget calculation

4.3. Travel

The bidder is required to calculate the travel by the specified experts and the experts it has proposed based on the places of performance. The consultant is required to list the expenses with breakups as per the following estimation:

- Flight/train costs (across three focus states) up to 25 round trips
- Intercity travel expenses upto 200 trips
- daily allowance and accommodation as per the envisaged trips above

4.4. Workshops, Exposure visits, Field Evaluation Event (FEE)

- **Ten workshops** will be organized for one day at state level in the mentioned states therefore they should be budgeted accordingly in the proposal by the bidder. (for details please see point 1.k)
- **Ten Field Evaluation Events** will be organized at farmers' sites in the mentioned states, therefore they need to be budgeted in the proposal. (for details please see point 1.h)
- **Out of thirty exposure visits/technology demonstration** to be organized inside the state, **ten should be budgeted in the proposal by the consultant.** The cost of rest twenty exposure visits/technology demonstrations will be arranged by GIZ through its partners. (for details please look at point 1.g)

5. Requirements on the format of the bid

The structure of the bid must correspond to the structure of the ToRs. In particular, the detailed structure of the concept (Point 3) is to be organised in accordance with the positively weighted criteria in the assessment grid (not with zero). It must be legible (font size 11 or larger) and clearly formulated. The bid is drawn up in English (language).

The complete bid shall not exceed 30 pages (excluding CVs).

The CVs of the personnel proposed in accordance with point 3.1 of the ToRs must be submitted using the format specified in the terms and conditions for application. **The CVs shall not exceed 2 pages.** The CVs must clearly show the position and job, the proposed person held in the reference project and for how long. The CVs must be submitted in English (language).

If one of the maximum page lengths is exceeded, the content appearing after the cut-off point will not be included in the assessment.

Please calculate your price bid based exactly on the aforementioned costing requirements. In the contract the contractor has no claim to fully exhaust the days/travel/workshops/ budgets.

The number of days/travel/workshops and the budget amount shall be agreed in the contract as 'up to' amounts. The specifications for pricing are defined in the price schedule.