**TERMS OF REFERENCE (TOR)**

**Solar Irrigation for Agriculture Resilience-South Asia (SoLAR) and One-CGIAR Initiative Agroecology**

**1. BACKGROUND OF THE RESEARCH PROJECTS**

**1.1. SoLAR (Solar Irrigation for Agricultural Resilience)**

Solar Irrigation for Agricultural Resilience (SoLAR) in South Asia aims to sustainably manage the water-energy and climate interlinkages in South Asia through the promotion of solar irrigation pumps (SIPs). The main goal of the project is to contribute to climate-resilient, gender-equitable, and socially inclusive agrarian livelihoods in Bangladesh, India, Nepal and Pakistan by supporting government efforts to promote solar irrigation. This project aims to achieve three broad outcomes:

Generating improved empirical evidence to support the development of climate-resilient, gender-equitable, socially-inclusive, and groundwater-responsive solar irrigation policies;

Validating innovative actions and approaches for promoting gender-equitable, socially-inclusive, and groundwater-responsive solar irrigation; and

Increasing national and global knowledge and capacity for developing gender-equitable, socially inclusive, and groundwater-responsive solar irrigation policies and practices.

The SoLAR project responds to government commitments to transition to clean energy pathways in agriculture. All countries in this project have NDC commitments to reduce greenhouse gas (GHG) emissions and SIPs can play a significant role in reducing emissions in agriculture.

**1.2.One CGIAR initiative: Agroecology**

One CGIAR’s new initiative “Transformational agroecology across food, land, and water systems (AE I: Agroecological Initiative) aims to develop and scale agroecological innovations for small-scale farmers, and other agricultural and food-system actors across diverse socio-ecological contexts in seven low- and middle-income countries. The initiative will codesign, test and adapt agroecological practices, from food production to consumption, linking markets and investments, while considering policy dimensions and consumer behaviors by establishing Agroecological Living Landscapes (ALLs). In India, the AE Initiative team and its partners have established Agroecology Learning Labs (ALLs) in Andhra Pradesh (AP) and Madhya Pradesh (MP). Madhya Pradesh, characterized by an agrarian economy, derives 35% of its Gross Value Added (GVA) from the primary sector, including agriculture. The state's 11 agroecological zones facilitate the cultivation of unique crops and varieties. In MP, the ALL is situated in Narayanganj, Bichiyya, and Niwas blocks of Mandla District, where approximately 28% of land is rainfed, meeting food needs for six months. The remaining months rely on income from wage labor and forest product sales. Forest degradation, due to factors like over-exploitation and invasive species, poses challenges. Community-led initiatives supported by NGOs have enhanced ecological services in communal forest areas, aiding forest-dependent communities. Leveraging government schemes, communities have restored lands, implemented erosion control measures, and promoted water conservation, resulting in improved crop yields. Integrated farming has diversified livelihoods and reduced dependence on chemical inputs. Women's self-help groups have been formed, enhancing community decision-making. Near Kanha National Park, efforts aim to improve institutional governance and livelihoods while coexisting with forest commons. Through these initiatives, the AE initiative in MP aims to promote sustainable agriculture, enhance socio-economic resilience, and conserve the environment.

**2. OBJECTIVES**

**2.1. Survey in Rajasthan**

Despite India's ambitious target of deploying 3.5 million pumps under PM KUSUM by 2026, progress has been slower than expected, with only 2.7 lakh SIPs installed under PM KUSUM. The SDC-SoLAR project recognizes the potential of solar irrigation pumps (SIPs) in addressing gender and equity issues in agriculture. However, a significant gender and social disparity apparent in the adoption of SIPs under PM KUSUM. Whilst the government guidelines prioritize small and marginal farmers, there is a conspicuous policy gap for women beneficiaries.

The primary objective of this study in the context of Rajasthan is to gather an understanding of the socio-economic characteristics of the existing PM KUSUM beneficiaries, their cropping as well as their irrigation patterns. All in all - to analyse whether the scheme is reaching women, as well as marginal and small farmers. The study will additionally identify the primary barriers encountered by women, as well as marginal and small farmers, in embracing Solar Irrigation Pumps (SIPs). The second objective of the study is to assess the impact on women and small and marginal farmer-beneficiaries. The successful execution of these studies will contribute to the increased adoption of SIPs amongst marginalised groups ensuring gender equality and social inclusion. The long-term goal is to ensure sustainable gender mainstreaming in solar irrigation starting with women and marginal farmers in the SoLAR project in India.

**2.2.Survey in Madhya Pradesh**

The primary objective of this study is to conduct a baseline survey in Mandla, Madhya Pradesh, before implementing two interventions in the region: 1) Installation of Solar Irrigation Pump (SIP) for the women self-help group towards improved access to irrigation, and 2) Integrated Farming System Interventions (IIFS). The Agro-Ecological (AE) initiative has partnered with a local civil society organization called PRADAN as an implementing partner, and the Indian Council of Agricultural Research-Indian Institute of Farming Systems Research (ICAR-IIFSR) as a technical partner. PRADAN, as a collaborator in the research, will demonstrate field pilots including comprehensive homestead models, community nutrition gardens, fisheries/pisciculture, and other co-developed interventions.

**3. PURPOSE OF THIS ASSIGNMENT**

As part of this research work, IWMI is looking for an organization that will support our work through its presence in the states of Rajasthan and Madhya Pradesh, India, and also lead the data collection. The vendor will work closely with IWMI, and will report to Dr. Deepak Varshney (Regional Researcher-Impact Assessment). The sample plan and questionnaires will be developed by IWMI. Similarly, IWMI will lead the analysis, but we expect the partner to contribute and become co-authors of research outputs by standard research practices.

**4. TASKS AND RESPONSIBILITIES**

In Rajasthan, the household survey will target a sample size of 800 households. The questionnaire includes sets of questions tailored for both male and female respondents. To ensure cultural sensitivity and comfort, female enumerators will conduct the interviews with female respondents. The survey will span across 3-4 districts in Rajasthan, covering approximately 100 villages. Additionally, a key informant survey will be also conducted in each of the sample villages i.e. 100 villages. The objective of the key informant survey is to collect basic village-level characteristics along with the implementation status of the PM KUSUM scheme in the village. Each interview (both hhs and key informant) is expected to take 60 minutes, and the list of households will be provided by IWMI.

Similarly, in Madhya Pradesh, the baseline survey will target 200 households. Female enumerators will conduct interviews with female respondents to ensure inclusivity and respect for cultural norms. The survey will specifically focus on 3-4 villages within the Narayanganj Block of Mandla district. Additionally, a key informant survey will be also conducted in each of the sample villages i.e. 3-4 villages. The objective of the survey is to collect information related to the basic village characteristics and information on active women's self-help groups in that village. Each interview (both hhs and key informant) is anticipated to take 75-90 minutes. It's important to note that there will be separate questionnaires for the specific contexts of Rajasthan and Madhya Pradesh.

The household survey is scheduled to commence in the first week of May and is projected to conclude by the end week of June 2024.

The responsibilities and tasks are as follows:

**Translate the survey instrument & obtain authorizations**

Obtain authorizations for data collection and inform authorities: While IWMI will provide a letter introducing the project and obtaining IRB approval, the vendor is responsible for making sure that their organization has secured all permissions and authorizations for collecting data at the local level and sending enumerators into the field. Similarly, representatives from the local government institutions should be informed of the data collection by the vendor.

**Translation and conversion of questionnaires to the CAPI program**

* Translation of both questionnaires into the local language, Hindi, by the vendor, with comments from IWMI incorporated by the vendor.
* Conversion of the questionnaires (both Rajasthan and Madhya Pradesh) into a Computer-Assisted Personal Interviewing (CAPI) program by the vendor, with comments from IWMI incorporated.
* Pretesting of the questionnaires in both locations. The vendor will pretest with 5 households in Madhya Pradesh and 10 households in Rajasthan. They will then provide the data and their feedback to IWMI, along with recommendations on how to modify, add, or remove questions in both questionnaires to increase their effectiveness for the intended purpose.

**Training of enumerators to implement the surveys and field pilot.**

* The provision of experienced enumerators (both male and female) is the responsibility of the vendor. Particular attention should be given to the onboarding of female enumerators as both the surveys contain GESI-themed survey questions which will require a gender-sensitive approach. Prior experience of the enumerators in implementing quantitative surveys in field settings is important. The enumerators should have good knowledge of the rural context and agricultural issues in rural Rajasthan. IWMI holds the need for cultural sensitivity and respect for local customs and traditions important, ensuring that questions and interactions are conducted in a manner that is culturally appropriate and respectful.
* The training of the enumerators will be undertaken before the survey begins. The training should include a classroom part to define the questions and then a practical part (in the field) to train the enumerators to conduct the ‘household survey’. All enumerators will be trained and sensitized to ensure the GESI components of the surveys are collected in a gender-sensitive manner. Training enumerators might take 2 days including the classroom and piloting the CAPI in the field. The vendor will be responsible for providing all the logistics regarding training.

**Provide electronic devices and design the data entry template for the survey**

Provide and manage all the logistics of the data collection: The vendor will be responsible for the organization and all costs related to the survey administration, oversight, and quality control. This should include the provision of electronic devices, the printing of materials (maps, sample lists, code lists, etc.), staff travel and accommodation costs, staff costs, data compilation, and quality checking.

**Data entry, checking, and post-survey verification.**

* The vendor will be responsible for data entry and checking data after collection. In cases of problem or inconsistency detected either by the vendor or by IWMI, the vendor will be responsible for contacting the respondents again and clarifying/correcting the data for transmittal to IWMI. This applies equally to each of the survey instruments.
* Data need to be submitted every week for the IWMI team for consistency check. One data researcher should be identified by the vendor to communicate the data-related matter with IWMI researchers.
* Throughout the process, the vendor and all staff will treat all survey subjects with courtesy and respect and take all steps to respect their privacy (such as in the choice of settings to collect personal or household data and obtaining consent before interviewing) and to protect the confidentiality of information that has been collected. Utmost importance must be given to gender sensitivity in conducting interviews with women, ensuring that enumerators are respectful, non-judgmental, and create a safe and comfortable environment for women participants to express themselves.

**5. DELIVERABLES TO BE SUBMITTED**

1. Preparation of the Computer-Assisted Personal Interviewing (CAPI) module for both questionnaires.
2. Training of enumerators and the team involved in data collection.
3. Provision of a dataset for pilot farmers, along with a brief report containing recommendations for changes to be incorporated.
4. Delivery of the household survey dataset in Excel or STATA format. The datasets provided by the vendor should be clean and ready for analysis by IWMI scientists.
5. Compilation of a final report of the survey, incorporating feedback and suggestions from IWMI researchers.

**5. EVALUATION OF THE VENDOR PROPOSAL**

To assist IWMI in justifying the selection of the most suitable vendor for this project, the vendor should provide the following information as part of your proposal:

**5.1.Essential Qualification**

1. Registration: The vendor must be a registered organization authorized to undertake such activities in accordance with the Government of India guidelines.
2. Experience: The vendor should have prior experience in conducting household surveys within agricultural settings particularly with women farmers in rural India. This experience is crucial for ensuring the successful implementation of the survey and the accurate collection of data.

**5.2.Preferred Qualification**

To ensure the vendor's suitability for this project, they should meet the following qualifications and criteria. Also, please briefly highlight these qualifications in your proposal.

1. Demonstrated experience in conducting rapid household/farmer-level surveys in agricultural contexts.
2. Demonstrated experience in conducting surveys related to women farmers and farmers associated with renewable energy.
3. Demonstrated experience in conducting surveys related to integrated farming system interventions.
4. Previous track record of collecting data on irrigation-related technologies, input usage, cost of cultivation, etc.
5. Proven experience in data collection within impact assessment designs.
6. Ability to hire enumerators locally for both states, ensuring familiarity with the cultural and regional context.

**5.3. Documents in support of essential and preferred qualifications**

* Registration certificate.
* Brief description in terms of the name of the project/studies that you have undertaken in the last 3 years related to the above.
* Details of software your organisation followed for conducting CAPI-based surveys.
* Financial proposal in the below format.
* Please provide the proposed budget in the prescribed format :

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rajasthan | Madhya Pradesh | Total Budget (INR) |
| Particulars/Description | Budget (INR) | Budget (INR) |
| Personnel  |   |  |  |
| Survey operation (travel, accommodation, logistics) |   |  |  |
| Other cost (coding, translation, equipment’s etc.) |   |  |  |
| Miscellaneous/Indirect cost |   |  |  |
| Goods and Service Tax (GST) |   |  |  |
| Total cost including GST  |   |  |  |

**5.4.Selection**

The vendor selection process will consider both technical and financial proposals, with greater emphasis placed on meeting the technical requirements.

**6. TIMELINE**

The deadline for submitting both technical and financial proposals is April 23rd, 2024, by 12.00 Midnight (SL Time). Any queries or clarifications must be submitted by April 17, 2024, before 12.00 Midnight (SL Time). Please note that there will be no extensions granted for proposal submission beyond the specified date and time.

*Annexure 1 : Task agreed to, their deadlines and payment release dates*

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| --- | --- | --- | --- |
| Activities | Tasks | Deadlines | Payment disbursement |
| A | Contract signing | 10th  May 2024 | 10 % |
| B | 1. Design the questionnaire into CAPI program2. Pretest the questionnaires 3. Training of enumerators to implement the surveys 4. Provide electronic devices and design the data entry template for the survey |  20th May 2024 | 30 % |
| C | Completion of half of the total sample in each state (100 hhs in Madhya Pradesh and 400 hhs in Rajasthan village). Plus completing the key informant survey in respective villages.Data submission, consistency checking, and post-survey verification  | 15th June 2024 | 40% |
| D | Completion of the remaining sample in each state (100 hhs in Madhya Pradesh and 400 hhs in Rajasthan). Plus completing the key informant survey in respective villages. Data submission, consistency checking, and post-survey verification along with the final status report | 30th June 2024 | 20 % |

The final timeline will be agreed upon between the vendor and IWMI provided that the completion of all the tasks and the delivery of all the outputs will occur by 30th June 2024. The vendor shall design a timeline to implement the tasks and deliver the outputs consistent with these indicative deadlines.