

Solar Irrigation for Agriculture Resilience in South Asia (SoLAR-SA) Project Nepal - Country Project Management Committee (C-PMC) | 5th Meeting

Date: 1st July 2022 | Time: 11:00 – 13:00 hrs. | Venue: IWMI, Nepal Office / Virtual

A) C-PMC Members SoLAR-SA Project – Nepal Attendee

SN	Name	Role	Institution	Attendance	Remarks
1	Manohara Khadka, Dr.	Chair	IWMI Country Representative	Yes	In-Person
2	Laxman Prasad Ghimire, Dr	Member	Representative of AEPC	Yes	In-Person
3	Sagar Mani Gnawali	Member	Representative of NEA	Yes	In-Person
4	Pramila Shrestha	Member	Representative of DWRI	No	
5	Santosh Raj Paudel	Member	Representative of DoA	No	
6	Tara Giri (On behalf of Rajendra Prasad Pyakurel)	Member	Representative of NARMIN	Yes	In-Person
7	Kumar Raj Shahi	Member	Representative of NiFUAN	Yes	In-Person
8	Ashok Byanju	Member	MuAN	No	
9	Hari Shrestha	Member	Representative of Private Sector (SunFarmer Nepal)	Yes	In-Person
10	Binaya Raj Shrestha	Member	Representative SDC-Nepal	No	
11	Aditi Mukherji, Dr.	Member	IWMI Nepal - Regional PL, SoLAR	No	
12	Shisher Shrestha	Member Secretary	IWMI – Consultant RE Expert, SoLAR-NP Country Lead	Yes	In-Person
13	Gitta Shrestha	Invitee	IWMI Nepal – National Researcher	No	
14	Labisha Uprety	Invitee	IWMI Nepal – Sr. Research Officer	Yes	In-Person
15	Jeniya Shakya	Invitee	IWMI Nepal- Intern	Yes	In-Person
16	Sunipa DasGupta	Invitee	IWMI New-Delhi	Yes	Virtual
17	Manish Kumar, Dr.	Invitee	IWMI New-Delhi	Yes	Virtual

Abbreviations: AEPC is Alternative Energy Promotion Center; NEA is Nepal Electricity Authority; DWRI is Department of Water Resources and Irrigation; DOA is Department of Agriculture; SDC is Swiss Agency for Development and Cooperation; NFIWAN is National Federation of Irrigation User's Association, Nepal; MuAN is Municipal Association of Nepal; NARMIN is National Association of Rural Municipalities in Nepal; IWMI is International Water Management Institute

B) Agenda, Discussions, and Decisions

Welcome Remark and Purpose of the meeting

Dr. Manohara Khadka, Chair of C-PMC and Country Representative of IWMI-Nepal, started by welcoming all the C-PMC members and guests to the meeting. She presented IWMI's strategy for addressing water challenges for sustainable and resilient development. She spoke about global initiatives and introduced regional integrated initiatives. She briefly discussed regional focus projects. Dr. Khadka's welcome remark was followed by a brief self-introduction session moderated by Mr. Shisher Shrestha, Member Secretary of C-PMC.

Mr. Shishir Shrestha showed the introductory video on Solar Irrigation for Agricultural Resilience (SoLAR). The video is a documentary on the SoLAR project, its primary objective, and the opportunities and challenges of solar irrigation in Nepal.

SoLAR-SA Nepal Y3 updates

Mr. Shisher Shrestha highlighted the SoLAR –SA project activities planned for Nepal and updated the Year three progress of the planned activities. The highlights of Progress in Y3 are as follows:

Activity 1.1.2 Impact evaluation and GESI case study of existing and new SIP programs in Nepal

- A review of a journal article based on a Qualitative study of GESI in SIP and a Policy review on GESI in SIP in Nepal and Bangladesh is currently ongoing.
- Report on Quantitative surveys finalized.
- For desk assessment for country-specific emissions, a consultant has been contracted, and methodology and framework have been formulated.
- AEPC's subsidy was delivered, and the GESI Policy was studied.
- National dialogues or conferences on Gender and Solar Irrigation during World Water Week or other forums were completed.
- A review of Commission WEF policy through the consultant of Pakistan and India from the GESI lens is ongoing.
- IWMI Summary Research Report and orientation with the local government are yet to start.

Activity 2.2.3 Demonstration pilots on grid-connected SIPs in Nepal

- The baseline survey, exposure visit, and procurement of consultant/ vendor to install MG are completed.
- Installation of grid connection in one or two SIP sites and multi-stakeholder dialogues for Net-metering is delayed. Installation of the grid connection is scheduled to be completed by September.
- Regular monitoring of various parameters is on track.
- Multi-stakeholder dialogue for Net-Metering is delayed.

Activity 3.1.1 Training of local technicians in Nepal

- The review of the translation of the training module into the Nepali language is in the final stage.
- 2-3 days of training/ workshop not yet started.

Activity 3.1.2 National Forum in Nepal

- The national forum (with 20-30 participants, mostly policymakers) has not yet started.

Research Highlights

Ms. Labisha Uprety summarized the finding from the review of Water, Energy, and Food policies in South Asia through a Gender Equality and Social Inclusion lens, Nepal and Bangladesh. She briefly discussed the importance of research, research questions, and methodology for the GESI review policy. She compared GESI in WEF policies between Nepal and Bangladesh using the Gender continuum scale. She also compared energy and agriculture policies using the Gender continuum scale. She further discussed the SIP financing mechanism, gaps, and way forward.

Mr. Shisher Shrestha shared the findings from the quantitative survey.

- **Finding 1:** ~20% of 9100 farmers who applied for SIPs received subsidized SIPs from AEPC
- **Finding 2:** Those who did not apply for SIPs were the smallest and marginal farmers from disadvantaged communities
- **Finding 3:** SIPs reduce diesel use

He further discussed the progress of the Grid Connection Pilot, preliminary findings from the baseline survey, and key monitoring parameter

The progress of the Grid Connection Pilot

- On-boarding local government
- Feasibility Study

- Four-party LOI Signed
- Gujrat Exposure Visit
- Contract signed by EPC contractor
- NEA approved support of worth NPR 21 lacs
- Pole erection work started
- User Community Formation

Preliminary findings from the baseline survey.

- Agriculture isn't the primary source of income for many surveyed HHs.
- Most farmers buy water for irrigation from a farmer with a diesel pump.
- The majority of farmers own less than three bigha land.
- Male farmers dominate land ownerships.
- Around 40% of farmers reported SIP breakdown.

Furthermore, Shisher Shrestha discussed Key Monitoring Parameter to answer policy questions and measure the success of the pilot project. The frequency of monitoring could be daily, weekly, monthly, or yearly. Most of the technical parameters would be measured by the MG inverter and can access through an RMU.

Finally, he ended the session with a roadmap to Grid connection Pilot.

June: The EPC contract has been signed and NEA has approved equipment support.

July: Procurement of NEA pole erection will be completed

August: installation of poles and user-group will be formed

September: System commissioning

October: Generate Technical report and start the application for Net-metering

Nov-Dec: Monitoring at least for a year will begin

Discussion / Feedback / Closing Remarks

The discussion session was moderated by Mr. Shisher Shrestha where all the CPMC members participated to discuss two topics:

1) Orientation with/for local governments on best practices of how to better target and reach

smallholders, the marginalized, and women farmers (on information and technology dissemination).

2) National forum (with 20-30 participants, mostly policymakers).

The detailed discussion script is given in **Annex I**.

The meeting was concluded- with concluding remarks from Dr. Laxman Prasad Ghimire, where he thanked everyone for the fruitful discussion. He provided an update on two things:

1) IWMI's findings and rapid assessment have been incorporated into the policy delivery mechanism and even applied in the administrative selection procedure. For example, there was 13,000 application this year, out of 3 applicant 1 female applicant will be selected.

2) Dr. Ghimire agrees that community-scale projects should be prioritized so AEPC has tried around 25 community-scale projects incorporating 5 to 10 households. For example, in Sunakothi, there is a group of females, AEPC has given them a 5 KW SIP system. Next year, AEPC is not going for the individual pump. The budget allocated for the pump will go to a community-scale project and they intended to capture marginalized farmers.

Dr. Ghimire also updated that AEPC is working on the delivery mechanism, and he advised IWMI that it is the right time to provide the recommendation, to be incorporated into the delivery mechanism. Dr. Ghimire agreed to share the draft delivery mechanism with IWMI. Furthermore, he suggested telecasting the introductory video of SoLAR on national television. Moreover, AEPC is also thinking of increasing the warranty of the solar pump from 2 years to 5 years, but this will increase the cost of a pump. Dr. Ghimire highlighted the problem of theft and issues with operation and maintenance, and he is looking forward to suggestions from all the CPMC members to solve these issues.

Annex I: Discussion Session - detailed script

Query	Response
<p>1) Topic: Quantitative survey and grid connection</p> <p>1.1 Kumar Raj Shahi: We only talked about the diesel pump, why are we not discussing the electric pump?</p>	<p>Shisher Shrestha: The main question is which pump needs to be replaced by a solar pump. If the region has a stable grid connection, an electric pump is better.</p> <p>Kumar Raj Shahi: There is electricity everywhere these days.</p> <p>Shisher Shrestha: There is no load shedding these days but there is still an issue of a power cut-off every day for 3-4 hours.</p> <p>Sagar Mani Gnawali: Electricity has not yet reached the water pumping area, though it has reached nearby the agricultural area. NEA is planning to invest a huge amount in agriculture/irrigation. They are planning to bring a feeder line into the field of a farmer.</p> <p>Shisher Shrestha: One of the criteria of AEPC subsidy is to distribute the SIP subsidy in the area with no electricity. If the farm is 300m away from the distribution line, then the farmer is eligible for the subsidy.</p> <p>Sagar Mani Gnawali: One can easily get a service line at a distance of 300m.</p> <p>Laxman Prasad Ghimire: Though one can have a service line at a distance of 300m, there must have been a study that is why AEPC has criteria of distributing subsidy to the farm which is 300 m away from the distribution line.</p> <p>Shisher Shrestha: When we compare solar, electric and diesel pumps, when you have</p>

	<p>access to an electric pump and the grid is also stable, an electric pump is much more suitable for the farmers and it's cheap as well. But if there is no grid and farmers have the option of solar or diesel pumps, a solar pump is cheap and better for farmers.</p> <p>Sagar Mani Gnawali: One of the issues with the electric pump is the lack of voltage and short circuit problem every 6 months of its operation. So, some farmers prefer solar to an electric pump.</p>
<p>1.2 Kumar Raj Shahi: Is there a subsidy on an electric pump?</p>	<p>Sagar Mani Gnawali: You can buy an electric pump within the budget of NRs 3000-4000.</p> <p>Shisher Shrestha: Electric pump is inexpensive, and the tariff is also cheap.</p> <p>Sagar Mani Gnawali: Irrigation pumps can operate with as low as 90 volts and they do not cause a short circuit. People do not know about it. People must select an irrigation pump to use low voltage without causing a short circuit.</p>
<p>1.3 Sagar Mani Gnawali: Who are you handing over the project to?</p>	<p>Shisher Shrestha: We are handing over the project to the user's group, and we will capacitate them but in long run, it will be self-running.</p>

<p>2) Topic: Orientation for local government</p> <p>2.1 Shisher Shrestha: We need your advice on how to organize orientation for local government.</p> <p>We plan to organize in person this time. I am thinking to collaborate with other organizations such as GIZ which is working on solar irrigation. We can also form a small group discussion.</p> <p>Regarding orientation for local government, it is not worth, it just to go to one rural municipality as the impact will only be limited to one municipality. So, we need a bigger group for big-scale impact. They have this training for elected people. We can be part of the training and talk about their possible role in the AEPC subsidy process and how can they contribute</p>	<p>Sagar Mani Gnawali: I think MuAN can play a big role in giving a message to all villages. Usually, in most villages, any projects don't run long term so there is lots of wastage of money. So, if the municipality association can come forward and speak about the problems and the possible solution, this can help run the project long term. This implies to all rural municipalities because the socio-economic condition of rural municipalities in Nepal is similar to each other. There needs to be a knowledge hub.</p> <p>Tara Giri: Talking about our practice in this case, if you want to be more focused, it is better to go to a rural municipality but for orientation of local government, usually provincial level events are organized. For example, recently Rural Municipality Association made an initiation to collaborate with the orientation program of another organization. There were two days of orientation for every electoral representative. However, the organization we collaborated with, agreed to increase one more day of orientation, and on the third day, under my leadership, we had orientation on WASH from Rural Municipality Association's side. So, we can look for opportunities like these so that we can get included in a big group and flow information on a large scale.</p>
<p>2.2 Shisher to Tara Giri: Currently, do you have any plans like these?</p>	<p>Tara Giri: We just finished orientation in 7 provinces. But sometimes, the provincial government invites themselves. So, we need</p>

	to be in contact with them.
<p>2.3 Labisha: Who comes in the provincial level program?</p>	<p>Tara Giri: Participation of people depends on our demand. We have invited Mayor, Deputy Mayor, and CAO to our orientation. Then they flow the information at a local level by organizing programs at the municipality level.</p> <p>Shisher Shrestha: We can also collaborate with a program like this and present an hour of the session, it will be effective. It is not possible to go around each municipality individually. If we describe our objective, subsidy, and application process to Mayor or Deputy Mayor, they can mobilize their JTA or other local bodies to further implement SIP in their locality. If you can help us, get connected to any such programs where we could showcase our presentation, especially in provinces 1 and 2, it will be great.</p> <p>Labisha Uprety: In the orientation, we can take the opportunity to talk about their existing policy or rules/regulations in this regard.</p> <p>Tara Giri: Municipality Association has recently made a law formulation manual and we wanted to circulate it in all 460 RM. We have developed our package in some provinces while we are also seeking support from development agencies to collaborate on our orientation in some provinces</p>

Topic: National Forum

Shisher: We need the input of Laxman sir for organizing the National Forum. We are thinking of having multiple stakeholders on one platform to talk about SIP.

Laxman Prasad Ghimire: There is a program, they are organizing a workshop, IWMI can have a slot to share their experience along with the findings and other presentations.

In this kind of National Forum, not just AEPC and stakeholder but the Irrigation department and provincial offices who has worked on the solar project, the Ministry of Energy, NEA, and different development partner should be included in the guest list. We also need to focus on the people of the Ministry such as the Ministry of Agriculture. In the presentation, IWMI should present the finding, distribution of SIP, feasibility study, and policy.

Meanwhile, you can make a few things clear such as expected output, relevant participant, or potential audience, and what message we want to give and take. Then we can discuss potential stakeholders.

Shisher Shrestha: We have a regional forum that will be held either in Bangladesh or Nepal around September-November. If we get funds from USAID, it will be held in Nepal. So, if we organize both regional and national forums, it doesn't look so good. So, a national forum should be planned differently from a regional one. That is why I brought the topic of the national forum today to this meeting.

Sagar Mani Gnawali: AEPC delivery policy has become old and it needs to be updated. There is no subsidy for an AC pump, it has to be a DC pump for subsidy. NEA has distributed electricity to lots

of places, the scenario has changed a lot in the past decade. What I think is we need to identify 20-30 core places and think of ways to develop solar irrigation projects. Rather than giving AEPC subsidies to the individual farmer, we can think of a way to give one pump to a group of farmers so that solar is utilized 100%. Currently, only 30% of solar is being used.

IWMI need to prepare success stories from the Gujarat visit, the impact of the microgrid, or other success happening in Nepal. For example, in Chitwan where we connected the existing pump with a solar inverter and to the grid. The pump is operated from solar, there is no more voltage fluctuation problem and they have been sharing water with their neighbor as well. These kinds of stories can be shared along with the policy that has driven these success stories. Solutions for the problems and issues can be discussed further.

There are still some problems with Solar pump usage such as in Terai, farmers have not used solar pumps even though they have them.

IWMI has to find the entry and exit point and present it in form of a document so that policymakers can adapt it.

Laxman Prasad Ghimire: IWMI can make a concept note, and share research findings with facts and figures, and AEPC can co-operate those things while making policy.

Tara Giri: I agree we should work at the community level rather than the individual level.

This will make it easy while registering the user group and the project can also be sustainable after being handed over the project. Also, after registering the user group in a municipality, they can sign an MOU with a municipality for maintenance and operation so that the user group can contact the municipality for repair and keep using the system for a longer period. In the MOU, there should be conditions such as if the system repair is above a certain amount, then the municipality will repair it. Most of the research has shown that people stop using the services or any system when they cannot afford to repair it by themselves.

Also, in addition, if solar pump users can sell the water using a solar pump, the strength of the SIP project will be next level.

Labisha Uprety: There are projects related to WASH where we hand over the project to a community level, but they do not become as sustainable as expected so I think we need to think of a possible conflict that might come after and develop a mechanism.

Sagar Mani Gnawali: This kind of conflict is related to the culture of our society so we cannot change. But RM with help of local leadership can develop plans such as a “water distribution plan”. If RM is directly involved, it is possible to change people’s attitudes and make it sustainable.

Annex II: Session Program

Time	Activity	Responsible Person
11:00 AM– 11:30 AM	Welcome tea/coffee	
11:30 AM– 11:35 AM	Welcome remarks & Purpose of the meeting	Dr. Manohara Khadka
11:35 AM– 11:45 AM	Introduction – C-PMC Members and guests	All C_PMC Members and Guests
11:45 AM – 11:55 AM	Y3-Progress	Mr. Shisher Shrestha
11:55 AM– 12:05 PM	Research Highlight	Ms. Labisha Uprety
12:05 PM – 12:15 PM	Grid Connection Pilot and Baseline survey	Mr. Shisher Shrestha
12:15 PM– 12:50 PM	Discuss/ Feedback	All C_PMC Members and Guests
12:50 PM– 1:00 PM	Closing Remarks	Dr. Laxman Prasad Ghimire
1:00 PM-2:00 PM	Lunch	Om Acharya