

## Solar Irrigation for Agriculture Resilience in South Asia (SoLAR-SA) Project

### Nepal - Country Project Management Committee (C-PMC) | 3<sup>rd</sup> Meeting

Date: 28<sup>th</sup> May, 2021 | Time: 14:00 – 15:30 hrs. | Venue: Zoom (Virtual)

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

SN	Name	Role	Institution	Attendance
1	Manohara Khadka, Dr.	Chair	IWMI Country Representative	Yes
2	Laxman Prasad Ghimire, Dr	Member	Representative of AEPC	Yes
3	Sagar Mani Gnawali	Member	Representative of NEA	Yes
4	Pramila Shrestha	Member	Representative of DWRI	Yes
5	Prakash Sanjel	Member	Representative of DoA	Yes
6	Rajendra Prasad Pyakurel	Member	Representative of NARMIN	Yes
7	Kumar Raj Shahi	Member	Representative of NiFUAN	Yes
8	Ashok Byanju	Member	MuAN	No
9	Avishek Malla	Member	Representative of Private Sector (SunFarmer Nepal)	Yes
10	Binaya Raj Shrestha	Member	Representative SDC-Nepal	Yes
11	Aditi Mukherji, Dr.	Member	IWMI Nepal - Regional PL, SoLAR	Yes
12	Shisher Shrestha	Member Secretary	IWMI – Consultant RE Expert, SoLAR-NP Country Lead	Yes
13	Kashi Kafle, Dr.	Invitee	IWMI – Economist	Yes
14	Gitta Shrestha	Invitee	IWMI Nepal – National Researcher	Yes
15	Labisha Uprety	Invitee	IWMI Nepal – Sr. Research Officer	Yes

*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 Municipality in Nepal; IWMI is International Water Management Institute*

## B) Agenda, Discussions, and Decisions

### *Welcome Remark and Regional Updates*

Dr. Manohara Khadka, Chair of C-PMC and Country Representative of IWMI-Nepal briefly outlined IWMI Global Strategy 2019-2023 and IWMI Nepal's project and partnerships across Nepal. She also discussed the governance of the project through the C-PMC structure of the SoLAR-SA Nepal project. Finally, Dr. Khadka welcomed all C-PMC members to the 3<sup>rd</sup> C-PMC meeting.

Dr. Khadka's welcome remark was followed by a brief self-introduction session moderated by Mr. Shisher Shrestha, Member Secretary of C-PMC.

Dr. Aditi Mukherji, IWMI Regional Project Leader briefed the C-PMC members about the regional project updates from India, Bangladesh, and Pakistan. Dr. Mukherji also updated on the 2021 Innovation Fund Grant application and 8-week training being planned for government officials and policymakers.

### *SoLAR-SA Nepal Y1 updates*

Mr. Shisher Shrestha highlighted the SoLAR –SA project activities planned for Nepal and updated on the Year one progress on the planned activities. Despite the Covid19 related restriction in 2020, several planned activities were completed in Y1 but few activities carried over to Y2 as the field visits were not possible. The highlights of Progress in Y1 is as follow:

#### Activity 1.1.2

- IE design, sample size, site selection, vendor selection, the survey questionnaire was finalized
- Rapid assessment of AEPC's SIP program completed
- Research methodology design and Literature-based GESI analysis [policies & programs] completed.

#### Activity 2.2.3

- Global literature-based analysis on institutional modality and Site Prioritization Report was completed

#### Activity 3.1.1

- Curricula design, participant's finalization, and Vendor for Training finalized

#### Activity 3.2.1 and 3.2.2

- A concept note prepared for Webinar as an alternative to National Forum

Ms. Labisha Uprety, Research Officer IWMI Nepal and SoLAR-SA project team member presented the major findings from the Rapid Assessment of AEPC's Subsidy delivery mechanism.

### *Year-2 draft work plan and progress*

Ms. Labisha Uprety and Mr. Shisher Shrestha presented the deliverables related to the Y2 work plan and progress made in 2021. Many of the carried-over activities from Y1 was completed. It was highlighted that the Covid19 second wave has disrupted planned field activities but most of the other activities are on track. The detailed updates are provided in the presentation material in **Annex III**.

The highlight of Year 2 progress is listed below:

#### Activity 1.1.2

- Situational Analysis report and a research paper based on AEPC's data ready for internal review.
- Phone surveys for SIP farmers completed.
- Vendor hired for Qualitative data collection for analysis through GESI lens.
- Working paper draft on GESI considerations in solar-related policies ready for internal review.
- GESI continuum being developed to further strengthen the analysis. 6 interviews with development partners were conducted for the GESI perception study.

#### Activity 2.2.3

- MG consultant hiring on the process to conduct field survey at two potential pilot sites.

#### Activity 3.1.1

- 7-day residential training conducted in Itahari, second training in Y2 scheduled on October.

#### Activity 3.2.1 and 3.2.2

- National forum on Appropriate Institutional Modalities for Grid-Connected Solar Irrigation Pumps in Nepal on Feb 4, 2021

### *Innovation Fund Grantee – Gham Power Progress*

Mr. Shisher Shrestha provided brief updates on the activities conducted by the Innovation Fund 2020 Grantee Gham power.

Gham Power has been working across three work packages. The progress made by them are as follows:

- SWP related training was provided to 45 agents in the western districts of Nepal at 3 sites.
- 4 systems are being piloted and 3 agro advisory packages developed.
- Approvals obtained from AEPC for 10 sites for piloting

### *Discussion / Feedback / Closing Remarks*

The discussion session was moderated by Mr. Shisher Shrestha where all the CPMC members participated along with the SoLAR Nepal Team. In the rich discussion session, several queries and suggestions were raised by the CPMC members. The detailed discussion script is given in **Annex I**.

The discussion session was concluded with final thoughts from the CPMC member. The CPMC meeting was concluded- with concluding remarks from Dr. Laxman Prasad Ghimire, where he shared his appreciation for providing updates for the SoLAR project and acknowledged that most of the activities of the project are on track except the microgrid work which requires fieldwork.

**Annex I: Discussion Session – detailed script**

Query	Response
<p><b>Topic: Training Manual</b></p> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- AEPC would be happy to receive the local technicians’ training manual so it could be shared with the AEPC irrigation team. This would be useful for them in case similar training were to be designed later.</li> </ul>	<p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- The manual received by IWMI from the local partner is more theoretical in nature so it is currently being edited to make it more technician-oriented.</li> <li>- It will also be translated (in Nepali). IWMI could send the final drafts to CPMC members and the AEPC for comments after which they could be finalized and then translated.</li> <li>- The manual will likely be shared by the third week of June.</li> </ul>
<p><b>Topic: Suggestion on reporting</b></p> <p><b>Binaya Raj Shrestha</b></p> <ul style="list-style-type: none"> <li>- Thank you for the updates. It would be interesting to know the results of the project, not only outputs and activities – how far the project has succeeded in achieving the outcome/goal of the project. Also, how is the project succeeding in helping the government on promoting solar irrigation?</li> <li>- What has the endeavors the project has done for the national solar project/policy? This would be interesting to know.</li> <li>- How much time has elapsed in the project – how much time has elapsed? Is the overall goal still achievable? Especially with COVID currently – the progress will be affected, how do you rate yourself for the achievement of the project?</li> </ul>	<p><b>Aditi Mukherji</b></p> <ul style="list-style-type: none"> <li>- We do have a log frame, and we should go beyond just activities and outcomes. We have been communicated by the AEPC that our last year’s report on the subsidy delivery mechanism has somehow helped the AEPC in fine-tuning its selection criteria.</li> <li>- Last year we kept waiting for the situation to normalize to begin talking to farmers at the field, but finally, we are now surveying farmers over the phone (based on the list provided by AEPC) who received the SIPs (about 450) and the same number who have not received it. We will be able to provide a very detailed report on some of the challenges of the program.</li> <li>- We hope to do a webinar in the next two months – then AEPC can let us know if the reports are useful.</li> <li>- Now with NEA and the AEPC on the micro-grid connection – this would be an early pilot – this has also got a bit delayed but it would show if it’s feasible to connect small pumps to the grid. This has the potential for being a policy outcome.</li> <li>- Our progress is slow – but we still have 2.5 years until Dec 2023 – we are pretty confident of achieving most of our project targets.</li> <li>- Though the financial discussion happens mostly at the PMC level – but our financial spending has also been on the lower side, but now it has picked up because we are using partnerships to get the work done.</li> <li>- Good suggestion to link activities to results, feel we are still too early in the project to be able to do that, but we will do so by the next CPMC meeting.</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- By the next webinar also we may be able to showcase some of our results.</li> </ul>

<ul style="list-style-type: none"> <li>- What is the financial progress? – in terms of time, and finance?</li> </ul>	<ul style="list-style-type: none"> <li>- Could AEPC let us know if the report was indeed helpful and how it has affected criteria selection?</li> </ul> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- The suggestions of the report had been used in the selection of the farmers, and (on understanding) the delivery issues.</li> <li>- There was some policy feedback but that will take time, but we have taken up some administrative advice.</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- We are also doing this to provide periodic feedback to CPMC members and we will look into incorporating Binaya ji's suggestion.</li> </ul>
<p><b>Topic: Micro-grid</b></p> <p><b>Avishek Malla</b></p> <ul style="list-style-type: none"> <li>- What is the guiding objective of the mini-grid activity and what is the alignment with the national mini-grid program that is currently being carried out by the AEPC?</li> </ul>	<p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- Basically, the idea for the mini-grid is that there are many such successful pilots in Bangladesh and Gujarat, India. AEPC is heavily subsidizing SIPs, as there is limited electricity access.</li> <li>- So the idea is to see if the SIP installed through AEPC can be connected to a microgrid with the existing system. And to see if farmers can use this for increasing their incomes, and to increase utilization of the pumps.</li> <li>- SIPs are expensive and our understanding is that that they are not being used to their optimum potential.</li> </ul> <p><b>Avishek Malla</b></p> <ul style="list-style-type: none"> <li>- Are you planning to centralize these systems together or will these be converted into an on-grid system?</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- There are various approaches. Our proposed model is that there is public land available, and we can bring SIPs to one location and build a mini-grid and power them up.</li> <li>- As all existing pumps are DC pumps, we might have to buy some AC pumps with help of the local government.</li> <li>- Building a mini-grid will make it easier to connect to the grid and engage in net metering. Connecting individual pumps to the line is also one option.</li> </ul> <p><b>Sagar Gyawali</b></p> <ul style="list-style-type: none"> <li>- We want to centralize all these panels in one place and do net metering with the NEA system. We will provide a dedicated LT feeder line for the pumps.</li> <li>- We have also done similar projects elsewhere – for instance for solar streetlights in Kathmandu, we have taken all these panels in one place and we have done net metering. I am leading this component in NEA.</li> </ul> <p><b>Avishek Malla</b></p> <ul style="list-style-type: none"> <li>- The government is providing individual SIPs, my question is how does centralizing these pumps help/hinder the current decentralized pump policy, or are we looking to go into a more centralized system than the current decentralized policy? Are</li> </ul>

	<p>we trying to influence the policy – what is the objective for this?</p> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- This is a pilot project (for us) based on our selection, we have selected 2 sites - we will look at utilization and other perspectives. We will see.</li> </ul> <p><b>Aditi Mukherji</b></p> <ul style="list-style-type: none"> <li>- This is a valid question and also raised in the webinar – about if grid connection is the way to go. Grid extension in Nepal will become more and more common but what happens to the pumps?</li> <li>- What happens to the micro-hydro in the hills – so much investment could be said wasted in some way. Nepal government also wants to diversify its energy portfolio so solar has a part to play, and then there is the existing net metering policy.</li> <li>- Given all this, if possible we will try both models. The advice we are getting from the NEA and AEPC is to get these pumps together in a centralized location, where local governments are also interested and forming a mini-grid to connect to the main grid.</li> <li>- The other suggestion is to connect the individual pumps to the grid. We have to see what serves the purpose of the NEA and the AEPC. We are treating it as a pilot and then we will see if the policy needs changing or if we need to tweak our design to suit the policy.</li> </ul> <p><b>Avishek Malla</b></p> <ul style="list-style-type: none"> <li>- I can definitely chip in for feedback on the mini grid work. Currently, the AEPC is promoting DC pumps. For grid connection, farmers may have to replace these pumps (to AC pumps). Some things could be discussed offline.</li> </ul> <p><b>Aditi Mukherji</b></p> <ul style="list-style-type: none"> <li>- We are also commissioning a study for site suitability. We can discuss the parameters for that better. But I think in many places it is a combination of AC and DC pumps as AEPC also gives out DC pumps?</li> </ul> <p><b>Avishek Malla</b></p> <ul style="list-style-type: none"> <li>- There is a new policy - below 7.5 HP, it is all DC pumps.</li> </ul> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- We have made this mandatory that smaller pumps (below 7.5 HP), it should all be DC pumps from this year.</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- The main idea of the pilot would be to check if this is scalable and feasible. We could align it to forthcoming policies coming from the AEPC.</li> </ul>
<p><b>Topic: Challenges on implementing solar projects in the hills</b></p>	<p><b>Laxman Prasad Ghimire</b></p>

<p><b>Pramila Shrestha</b></p> <ul style="list-style-type: none"> <li>- We have started a solar project last year; we have had 2 successful projects with good results.</li> <li>- I just want to know from AEPC – what are opportunities and challenges in implementing projects in the hills of Nepal? If there is a specific challenge to implementing the projects?</li> </ul>	<ul style="list-style-type: none"> <li>- We do not have a proper study as such, but every year we call applications for the SIP demand – but the demand is very high (13000 last year).</li> <li>- Very difficult to select applicants based on this. There is also the problem of the theft of pumps. We provide after-sales service after two years of installation. We have a 60% subsidy, and the rest of the money needs to be managed by the farmer themselves which could be difficult for marginal farmers. We have limitations of policy as well - like we cannot go beyond NRs. 20 lakh for single pumps, even at the community level.</li> </ul> <p><b>Pramila Shrestha</b></p> <ul style="list-style-type: none"> <li>- What is the source of water for the pumps?</li> </ul> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- Most pumps are in Tarai so groundwater is the main source. For hill – it is rivers.</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- Dinesh Rajouria had stated that DWRI is working on large-scale solar lift systems in mid-hills.</li> <li>- Maybe you would be interested in the mini grid work that we are doing – if the data from the pilot show that net metering is a good option as water requirement may not be the same for the whole year for farmers, then farmers may sell electricity for the grid which could be of interest.</li> <li>- One of the major things is after-sales service – you have to plan for the long-term operation of the project. For instance - we need to build a tank in a way that it does not succumb to the floods every year.</li> </ul>
<p><b>Topic: Solar pump theft:</b></p> <p><b>Kashi Kafle:</b></p> <ul style="list-style-type: none"> <li>- On the theft problem - What exactly is being stolen? Is it the panel? Or even pumps? Who are these people? Are they selling it on the secondary market?</li> </ul>	<p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- Every year we receive complaints of pump stealing, not the panel. I am not sure if it's being done/used by farmers or being sold in secondary markets.</li> </ul> <p><b>Kashi Kafle</b></p> <ul style="list-style-type: none"> <li>- Any plan to try and stop this? An alarm system – anti-theft devices to address this?</li> </ul> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- No such plan yet but real-time monitoring is being looked into.</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- ICIMOD had employed. anti-theft nuts and bolts. Many times, panels would also have stones thrown on and panels are broken.</li> <li>- Many farmers would uninstall and reinstall surface pumps when it was not being used.</li> </ul> <p><b>Sagar Gyawali</b></p> <ul style="list-style-type: none"> <li>- I don't think there is a secondary market as such. There is no use (to take it out).</li> </ul> <p><b>Aditi Mukharji</b></p> <ul style="list-style-type: none"> <li>- What is the point of converting to DC pumps? They are more efficient but also more difficult to repair?</li> </ul>

	<p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- An expert team had suggested this - especially for quality issues. Some parameters seemed better in DC pumps comparatively. The decision was made based on this feedback.</li> </ul> <p><b>Sagar Gyawali</b></p> <ul style="list-style-type: none"> <li>- Previously I heard that only DC pumps can be used for solar, as solar produces DC power. AC pumps came later I think.</li> </ul> <p><b>Laxman Prasad Ghimire</b></p> <ul style="list-style-type: none"> <li>- Even with our policy, customs is free for DC pumps. We also saw that there were low-grade AC pumps installed which had repair and maintenance problems.</li> </ul> <p><b>Sagar Gyawali</b></p> <ul style="list-style-type: none"> <li>- AC pumps can be repaired locally but unsure about DC pumps</li> </ul> <p><b>Avishek Malla</b></p> <ul style="list-style-type: none"> <li>- There are pumps that can use AC and DC – but these are more expensive. It depends on system reliability and service that farmers get, and de-risking the farmer.</li> <li>- I don't think there is much difference between the pumps – but in our tax policy, only DC pumps are tax exempt.</li> </ul> <p><b>Aditi Mukherji</b></p> <ul style="list-style-type: none"> <li>- It would probably be interesting to check between farmers who got AC vs DC pumps next year – in terms of cost, user experience. We could think of doing a short study.</li> </ul>
<p><b>Final Thoughts</b></p>	<p><b>Prakash Kumar Sanjel</b></p> <ul style="list-style-type: none"> <li>- We are eagerly awaiting the study that this project is working on. Nepal government has allocated funds to the local government to spend on solar irrigation projects. For the coming year, it is a small number of allocations – 20,25 units.</li> <li>- But based on the policy implementation experience and your report, we will decide on if work on projects with the local government.</li> </ul> <p><b>Shisher Shrestha</b></p> <ul style="list-style-type: none"> <li>- The webinar that we are trying to host in July will summarize a lot of our early findings. So we will keep you updated and other relevant agencies.</li> </ul> <p><b>Manohara Khadka</b></p> <ul style="list-style-type: none"> <li>- We will definitely share our results in the webinar and request feedback.</li> </ul> <p><b>Aditi Mukherji</b></p> <ul style="list-style-type: none"> <li>- Valid questions were raised on how the micro-grid work gels with national policies of giving out individual small pumps, and also we need to think about the local government's ambition.</li> <li>- Perhaps they will appreciate this grid integration, and the micro-grid installation from then on the local government could also take up this responsibility to become water service providers?</li> <li>- As part of later policy guidance, we could bring together all CPMC members and stakeholders for feedback.</li> </ul>



<b>Concluding Remark</b>	<b>Laxman Prasad Ghimire</b> <ul style="list-style-type: none"><li>- Thank you for the updates. AEPC has also been affected by the pandemic. But activities for the project seem to be on track – except for microgrid work which requires fieldwork.</li></ul>
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## Annex II: Session Program

<b>Time</b>	<b>Activity</b>	<b>Responsible Person</b>
14:00 – 14:05	Welcome remarks & Purpose of the meeting	Dr. Manohara Khadka
14:05 – 14:15	Introduction – New C-PMC Members	Self
14:15 – 14:25	SoLAR-SA project – Overall Updates	Dr. Aditi Mukherji
14:25 – 14:40	Progress updates <ul style="list-style-type: none"> <li>• Year 1 Achievements and Year 2 Progress</li> <li>• Year 2 Draft Work Plan</li> </ul>	Mr. Shisher Shrestha
14:40 – 15:10	Discuss / Feedback	All C-PMC Members
15:10 – 15:20	Respond to queries and feedback	Mr. Shisher Shrestha Dr. Manohara Khadka Dr. Aditi Mukherji
15:20 – 15:30	Closing Remarks	Dr. Manohara Khadka

**Annex III: Presentation**

# 3<sup>RD</sup> C-PMC Meeting

SoLAR-SA Project [2019.12 – 2023.11]

28<sup>TH</sup> MAY, 2021 | *Virtual - Zoom*

# C-PMC Meeting - Program

- 14:00 – 14:05: Welcome & Purpose of the meeting [Dr. Manohara Khadka, Chair, C-PMC; Country Representative, IWMI-Nepal]
- 14:05 – 14:15: Participant's Introduction
- 14:15 – 14:25: About the SoLAR-SA project [Dr. Aditi Mukherji, Regional PL]
- 14:25 – 14:40: Year-1 achievements, Y2 work plan and progress [SoLAR Nepal Team]
- 14:40 – 15:10: Discussion/Feedback [All C-PMC Members]
- 15:10 – 15:20: Respond to queries and feedback [SoLAR Nepal Team]
- 15:20 – 15:30: Closing [Dr. Laxman Prasad Ghimire, C-PMC Member]

# IWMI Nepal's roadmap: 2019-2023

Improved water security for prosperity and inclusive growth

## IWMI Global Strategy, 2019-2023

### WATER CHALLENGES



#### Food

- Improve Food Security
- Conserve Ecosystems & Water Resources

#### Climate

- Adapt to & Mitigate Climate Change
- Build Resilience to Societal Disruption

#### Growth

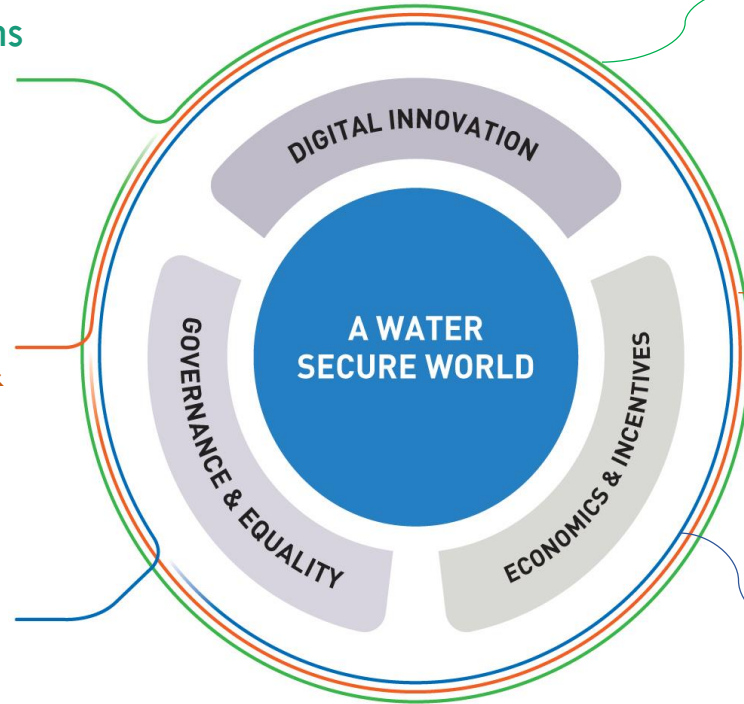
- Promote Sustainable Growth
- Achieve Gender Equality & Inclusive Societies

### IWMI'S STRATEGIC PROGRAMS

Water, Food & Ecosystems

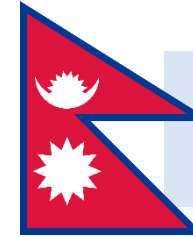
Water, Climate Change & Resilience

Water, Growth & Inclusion

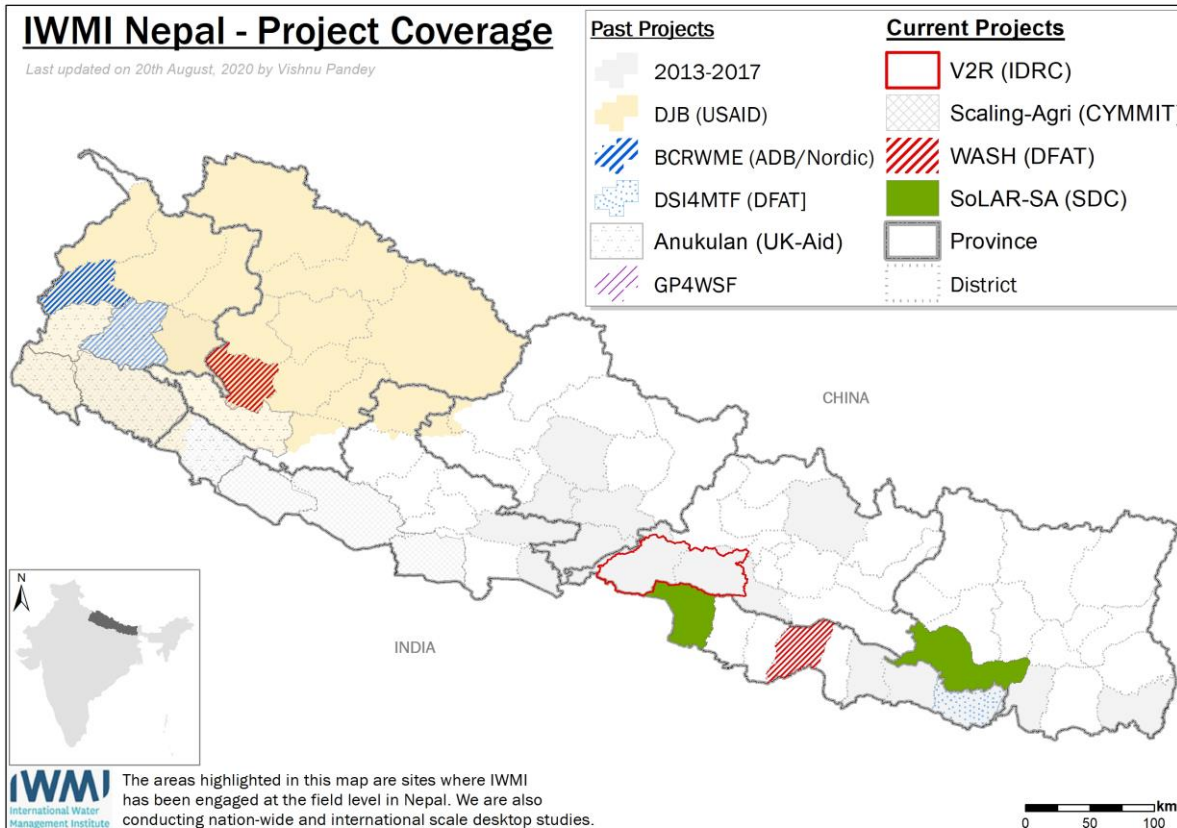


IWMI NEPAL's on-going research interventions

- ❑ Farmer-led irrigation development in Nepal & Covid-19 resilience
- ❑ Institutionalizing multiple-use water systems (MUS)
- ❑ Water induced disaster
- ❑ Resilience of watersheds
- ❑ Hydrological assessment
- ❑ Gender & WASH
- ❑ Governance, policy & GESI
- ❑ Migration, youth, gender, & agriculture
- ❑ Water access and collective leaderships of women & DAGs



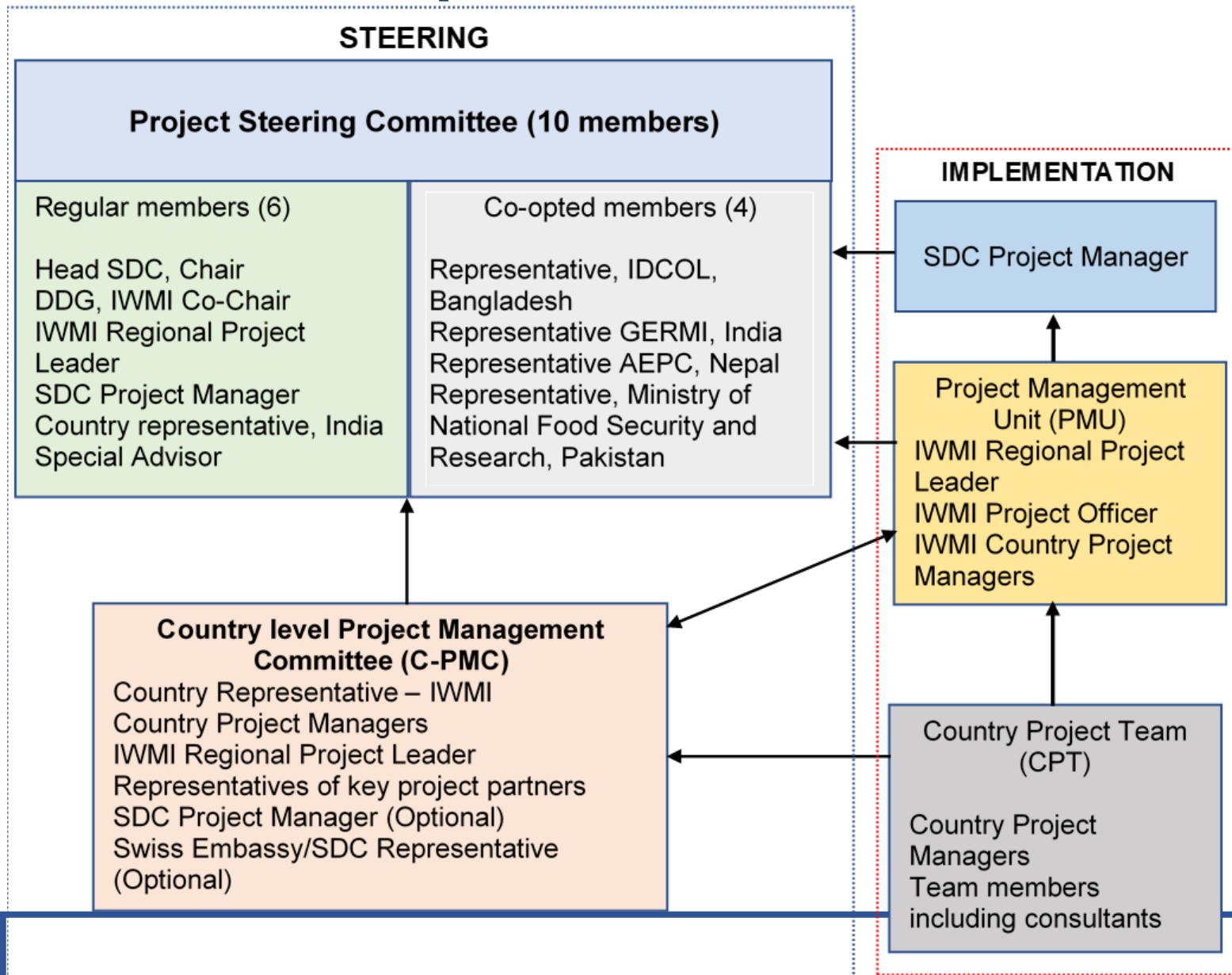
# Project areas and partnership



## Partnership



# SoLAR-SA Project Governance Structure



**Project Partners in Nepal:**

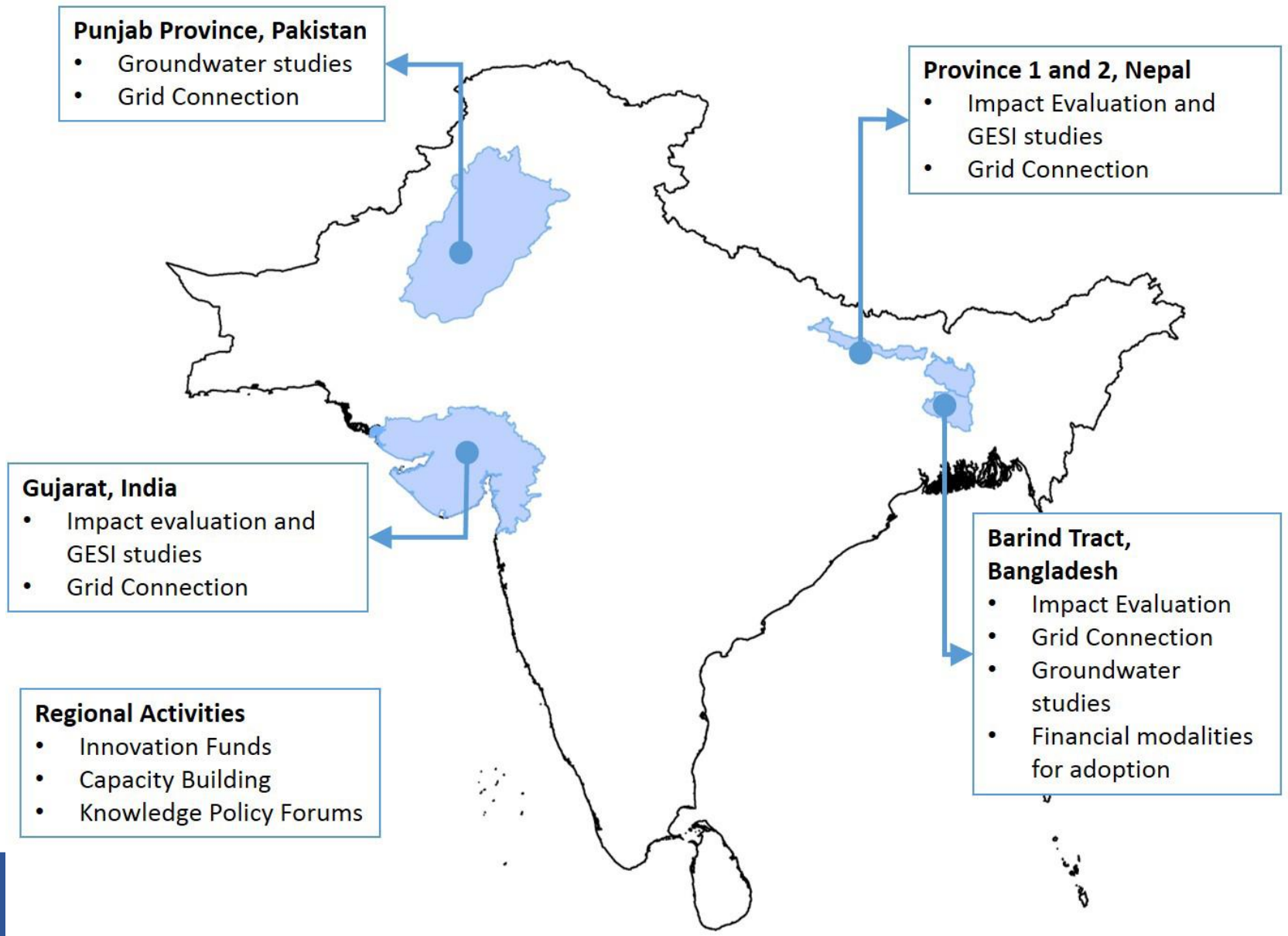
**AEPC**  
**NEA**



# Formation of C-PMC in Nepal

- Chair: Dr. Manohara Khadka, IWMI Country Representative
- Member: Dr. Laxman Prasad Ghimire, Representative of AEPC
- Member: Mr. Sagar Mani Gyawali, Representative of NEA
- Member: **Ms. Pramila Shrestha**, Representative of DWRI (replacing **Mr. Dinesh Rajouria**)
- Member: Mr. Prakash Kumar Sanjel, Representative of DOA
- Member: Mr. Binaya Raj Shrestha, Representative of SDC
- Member: Mr. Kumar Raj Shahi, Representative of NFIWUAN
- Member: Mr. Ashok Byanju, Representative of MUAN
- Member: **Mr. Rajendra Prasad Pyakurel**, Representative of NARMIN (replacing **Mr. Bimal Pokhrel**)
- Member: Mr. Avishek Malla (CEO of SUN FARMER), Representative of Private Sector
- Member: Dr. Aditi Mukherji, IWMI Regional Project Leader
- Member Secretary: **Mr. Shisher Shrestha**, Country Project Manager (Nepal)

# SoLAR-SA Project – Regional Updates



# SoLAR-SA Project: Activities for Nepal

Outputs	Activity
O1.1: Impact of <b>solar irrigation</b> adoption on <b>livelihoods</b> (women & men farmers), <b>agriculture, &amp; climate-resilience</b> documented	A1.1.2 <b>Impact evaluation</b> and <b>GESI case studies</b> of existing and new SIP programs in Nepal
O2.2: Technical & institutional modalities for <b>grid connection of SIPs</b> in different water-energy regimes demonstrated and documented	A2.2.3 <b>Demonstration pilots</b> on grid connected SIPs in Nepal
O3.1: A cadre of women & men <b>technicians</b> trained; and water-energy-agriculture experts in the region sensitized about cross-sectoral interlinkages	A3.1.1 <b>Training</b> of local technicians in Nepal
O3.2: <b>Multi-stakeholder forums</b> for global and regional exchange of knowledge on best practices in GESI-responsive & GW-aware solar irrigation practices and policies	A3.2.1 <b>Regional</b> knowledge and policy forums A3.2.2 <b>National</b> policy forums

# Y1 Project plan vs. Achievements (1/2)

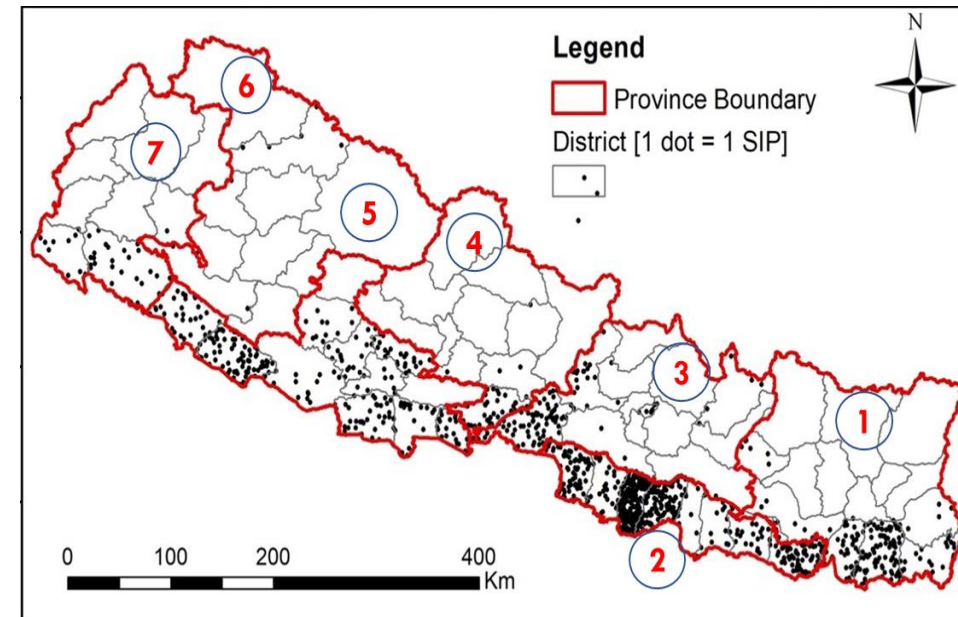
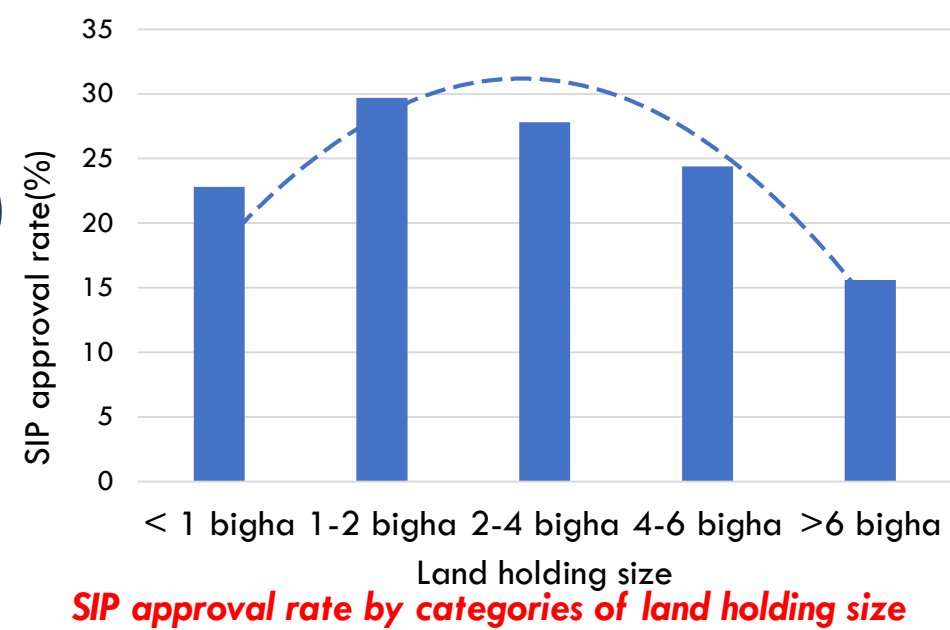
Activities planned	What we did in Y1
<p><b>A1.1.2 Impact evaluation (IE) of SIP:</b></p> <ol style="list-style-type: none"><li>1. What are the impacts of SIP on crop production, irrigation hours, and livelihood outcomes?</li><li>2. Who receives government subsidy for SIP? Is subsidy delivery equitable?</li></ol>	<ol style="list-style-type: none"><li>A. IE design, sample size, site selection, vendor selection, survey questionnaire</li><li>B. Rapid assessment of AEPC's SIP program</li></ol>
<p><b>A1.1.2 Qualitative Gender and Social Inclusion (GESI) study</b></p> <ol style="list-style-type: none"><li>1. How GESI responsive are solar energy related policies and programs in Nepal and Bangladesh?</li><li>2. Is SIP beneficial for women and marginal farmers?</li></ol>	<ol style="list-style-type: none"><li>A. Research methodology design</li><li>B. Literature based GESI analysis [policies &amp; programs]</li></ol>

# Y1 Project plan vs. Achievements (2/2)

Activities planned	What we did in Y1
<b>A2.2.3 A Demonstration Pilot</b> Is Micro-grid connection a solution to full utilization of SIP?	A. Global literature based analysis on institutional modality B. Site Prioritization Report
<b>A3.1.1 Training</b> Capacity development of local technicians on SIP & knowledge forums	A. Curricula design and participants finalization B. Finalized Vendor for Training
<b>A3.2.1 Regional Forums</b> Knowledge and policy forums <b>A3.2.2 National forums</b> Policy forums	A. Webinar as an alternative to National Forum B. Concept note prepared

# Highlights of Rapid Assessment (2020)

- 1,384 SIPs installed with AEPC's subsidy; 1 800 total
- Rate of approval of SIP subsidy is **31%**, slightly higher in provinces 2 and 5
  - 75% of applications from and 85% of the subsidized SIPs in Province 1, 2 and 5
- From the pool of applicants
  - AEPC prioritized those with relatively smaller holdings (with farm size of less than 3 bigha), but most beneficiaries were relatively well-off farmers.
  - 19% female-headed and 81% male-headed households, but 22% of SIPs went to female-headed households.
- Small holders and tenant farmers were discouraged from applying for SIPs, locally.
  - More than 80% of applications were received through vendors, thereby marginal farmers with poor social network were unaware of the call.
  - Local governments could only allocate small number of SIPs



# Year-2 Work Plan and Progress (1/5)

Activity 1.1.2 [IE & GESI studies in Nepal]		
Deliverable	Due Date	Status
Draft journal article based on the report submitted to AEPC in May 2020, and a Situation Analysis Report on solar irrigation in Nepal	30-06-2021	<ul style="list-style-type: none"><li>• Situational Analysis report draft completed.</li><li>• The first draft of the research paper based on AEPC's data ready for internal review</li></ul>
Phone surveys with AEPC grantees	31-06-2021	<ul style="list-style-type: none"><li>• Phone survey of 933 SIP farmers completed.</li><li>• Matching sample for non-SIP farmers generated.</li><li>• Phone survey for non-SIP farmers 62% complete.</li></ul>
Qualitative data collection (by vendor) from GESI lens and data analysis	30-09-2021	<ul style="list-style-type: none"><li>• Vendor hired</li><li>• The team has decided to postpone the fieldwork until the second wave of Covid19 subsides.</li><li>• A Journal article is planned for this study.</li></ul>

# Year-2 Work Plan and Progress (2/5)

## Activity 1.1.2 [IE & GESI studies in Nepal]

Deliverable	Due Date	Status
Develop a journal article from quantitative aspects of IE study and phone survey	31-12-2021	<ul style="list-style-type: none"><li>• About 62% of the surveys were completed.</li><li>• Fieldwork delayed indefinitely due to COVID-19 restrictions.</li><li>• Phone surveys to be completed in mid-June</li></ul>
Working paper on GESI considerations in solar-related policies in Nepal and Bangladesh	31-08-2021	<ul style="list-style-type: none"><li>• Working paper draft to be further finalized after internal review.</li><li>• GESI continuum being developed to further strengthen analysis.</li></ul>
GESI perception study with stakeholders (to further strengthen GESI component in different activities)	31-12-2021	<ul style="list-style-type: none"><li>• Online interviews conducted, mostly with development partners implementing SIP/solar irrigation projects (6 completed so far).</li></ul>



# Year-2 Work Plan and Progress (3/5)

Activity 2.2.3 [Grid Connected SIP Pilot in Nepal]		
Deliverable	Due Date	Status
Baseline surveys (including GESI studies) in selected grid connection and control sites	31-07-2021	<ul style="list-style-type: none"> <li>Not Started</li> </ul>
Procure a consultant/vendor to install MG	31-05-2021	<ul style="list-style-type: none"> <li>Field visit to the two potential pilot sites to onboard the local government.</li> <li>MG consultant candidates identified</li> </ul>
Installation of grid connection in one or two SIP site	30-08-2021	<ul style="list-style-type: none"> <li>Not started</li> </ul>
Develop a framework, including indicators/parameters to monitor, monitoring frequency, etc. for evaluating the effectiveness of the MG system	30-05-2021	<ul style="list-style-type: none"> <li>Preliminary desk research</li> </ul>
Regular monitoring of various parameters related to the micro-grid system, crop production, and change in behavior of farmers, etc.	31-12-2021	<ul style="list-style-type: none"> <li>Not started</li> </ul>

# Year-2 Work Plan and Progress (4/5)

## Activity 3.1.1 [Training for Local Technicians in Nepal]

Deliverable	Due Date	Status
Training - 1	31-07-2021	<ul style="list-style-type: none"><li>• 7-day residential training concluded in Itahari</li><li>• Final training manuals (in English and Nepali) will undergo further editing.</li></ul>
Training - 2	31-12-2021	<ul style="list-style-type: none"><li>• Scheduled in October/November 2021</li></ul>

# Year-2 Work Plan and Progress (5/5)

## Activity 3.2.2 [National Forum in Nepal]

Deliverable	Due Date	Status
National forum (20-30 participants – mostly policy makers) or else, a webinar	31-12-2021	<ul style="list-style-type: none"><li>• The NPL national forum on Appropriate Institutional Modalities for Grid-Connected Solar Irrigation Pumps in Nepal on Feb 4, 2021</li><li>• The NPL team presented Year 1 updates and learnings on Feb 23, 2021, to the regional forum members.</li></ul>
At least 1 policy brief outlining main findings & policy implications - (based on learnings from the national forum)	31-12-2021	<ul style="list-style-type: none"><li>• Not started</li></ul>

# Key activities since last C-PMC meeting

Date	Key Event/Activity
Feb 1-5	<ul style="list-style-type: none"><li>• Series of <b>six webinars</b> to generate knowledge to sustainably manage water-energy and climate interlinkages</li><li>• Session on - Appropriate Institutional Modalities for Grid-Connected Solar Irrigation Pumps in Nepal</li></ul>
Feb 23-24	<ul style="list-style-type: none"><li>• Regional Forum</li></ul>
Feb 24	<ul style="list-style-type: none"><li>• SoLAR PSC Meeting</li></ul>
Feb 28 - March 6	<ul style="list-style-type: none"><li>• 7-days Residential <b>Training on Solar Irrigation</b></li><li>• Field visit for training Monitoring</li></ul>
April 7-9	<ul style="list-style-type: none"><li>• Field visit to proposed pilot site at Parsa and Udaypur</li><li>• Re-establish communication and <b>on-board local government</b> for MG pilot</li></ul>

# SoLAR Innovation Fund Grantee – Gham Power Progress

Work Package	Updates
Work Package 1 - Field Activities for Social Mobilization	<ul style="list-style-type: none"><li>• 3 events / Sites - SWP related training was provided to 45 agents in the western districts of Nepal [Target: 10 Sites]</li><li>• 2 videos created [Target: 2]</li></ul>
Work Package 2 - Enhancement of Personalized Agri-Advisory	<ul style="list-style-type: none"><li>• 4 sensors (Soil NPK and Aqua Sensor) under piloting for calibration purpose [Target: 10 sensor / hardware]</li><li>• 3 advisory packages for Cereal farmers, Vegetable Farmers and Fish Farmers; Advisory packages and algorithms for 3 more crops</li><li>• Aqua Sensors (Dissolved Oxygen), Soil Sensors (7 in 1 Soil Sensors) along with other essential sensors for SWPS</li></ul>
Work Package 3 - Impact Measurement and Validation	<ul style="list-style-type: none"><li>• Approvals obtained from AEPC for 10+ farmers and far sites for pilot identified [Target: Trial with 10 farms]</li></ul>



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Thank you !

*Look forward your active participation in Discussion*

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