SoLAR IF Update

Scaling Solar Irrigation Systems Using Digital Platform and Personalized Agri-Advisory
About Gham Power

- Established in **2010**
- Started operation urban rooftop solar for households and commercial clients
- Rural operation since **2015** -- started with solar mini grid for rural electrification, first of its kind in Eastern Nepal
- Learned that tying solar or other appliances with income directly is vital -- therefore ventured into solar for agricultural sector
- Started building solar powered agro processing solutions like Solar water pump for irrigation, solar grinding mills, refrigeration and cold storage etc.
- Deployed over **250** of such off grid solar powered AP solutions
Increase Farmer Yield, Income *

Innovation: Yield Improvement in a Box!

Solar Water Pumps

On-the-Spot Direct Financing

Data-Driven Crop Planning

Enabled by our proprietary digital platform built for project development, monitoring, and automating agro-advisory services for precision farming

* In 3 years or less
SoLAR IF Implementation Plan

**Activities**

<table>
<thead>
<tr>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCT</td>
<td>MAY</td>
<td>MAY</td>
</tr>
<tr>
<td>NOV</td>
<td>JUN</td>
<td>DEC</td>
</tr>
<tr>
<td>DEC</td>
<td>JUL</td>
<td>FEB</td>
</tr>
<tr>
<td>JAN</td>
<td>AUG</td>
<td>MAY</td>
</tr>
<tr>
<td>FEB</td>
<td>SEP</td>
<td>MAR</td>
</tr>
<tr>
<td>MAR</td>
<td>OCT</td>
<td>APR</td>
</tr>
<tr>
<td>APR</td>
<td>NOV</td>
<td>JAN</td>
</tr>
<tr>
<td>MAY</td>
<td>JUN</td>
<td>FEB</td>
</tr>
<tr>
<td>JUN</td>
<td>JUL</td>
<td>MAR</td>
</tr>
<tr>
<td>JUL</td>
<td>AUG</td>
<td>APR</td>
</tr>
<tr>
<td>AUG</td>
<td>SEP</td>
<td>MAY</td>
</tr>
<tr>
<td>SEP</td>
<td>OCT</td>
<td>JAN</td>
</tr>
<tr>
<td>OCT</td>
<td>NOV</td>
<td>FEB</td>
</tr>
<tr>
<td>NOV</td>
<td>DEC</td>
<td>MAR</td>
</tr>
<tr>
<td>DEC</td>
<td>JAN</td>
<td>FEB</td>
</tr>
<tr>
<td>JAN</td>
<td>FEB</td>
<td>MAR</td>
</tr>
<tr>
<td>FEB</td>
<td>MAR</td>
<td>APR</td>
</tr>
<tr>
<td>MAR</td>
<td>APR</td>
<td>MAY</td>
</tr>
</tbody>
</table>

**WP 1:** Stakeholder Training / Onboarding

**WP 2:** Enhancement of Personalized Agri-Advisory

**WP 3:** Impact Measurement and Validation

**WP 4:** Market Activation and Development

Total Project Duration = 20 months
Work Package 1: Stakeholder Training & Onboarding

Includes training and onboarding of partners - from Micro Finance Institutions and Government Agencies

Past 3 Months: Review of Standard Operating Procedure with MFI partners → Pilot of Improved SOP

Activities on this Work Package [Ongoing and Implemented]

- Field Trips - 3 Branches
- Field Staff and Agent Trainings - 12 events, 30+ staffs
- Development of Materials for marketing, education and awareness - 6+ audio/visual items
- Development of revised android and web-application to support the improved Standard Operating Procedure
Sales Training Workshops for MFI staffs and agents
Work Package 2:
Enhancing Personalized Agri-Advisory

Includes - testing and refinement of hardware, optimization of software algorithm and advisory database, and integration of improved hardware and software

Activities on this Work Package [Ongoing and Implemented]

- Test and calibration of new sensors
  - Water Level Sensor
  - Water Flow/Discharge Sensor
  - Dissolved Oxygen Sensor

- Develop and expansion of crop and advisory database
  - On-site piloting of Smart Agri Meter to refine crop database for
    - Tomato, Strawberry, Broad Leaf Mustard, Mushroom

- Integration of the sensors into the digital platform and optimization of algorithm
Testing and Validation of Gham Power Krishi Meter
Work Package 3:
Impact Measurement & Validation

Involves partnering with the Alternative Energy Promotion Center APEC and other government agencies to test and validate the impact of Yield Improvement Solution among existing farmers.

Activities on this Work Package [Ongoing and Implemented]

- Partnership with AEPC
- Obtain list of 10 potential sites to pilot and test the Yield Improvement Solution
- Deploy Gham Power’s Yield Improvement Solution at the pilot Sites
- Finalize Key Performance Indicators for Partners (MFI, AEPC, other)
- Develop Continuous Impact Measurement (CIM) Platform (app) for the Farmers
Work Package 4: Market Activation

Includes display of the technology, services and the benefits for the end users through live demonstrations and user testing.

Activities on this Work Package [Ongoing and Implemented]

- Field Demonstration of the SWP systems and Agri Sensors - 3 sites planned in March
- User testing and demonstration of Off Grid Bazaar digital platform for AEPC
- Monitoring, Evaluation and Knowledge Sharing
Mobile App to register farmers through MFI Agents
Web application for lead follow up management
COVID - still an issue, MFI partners are focused on recovering the pending payments

COVID - Supply chain will still take some time to return to optimal operation

Partnership development with government institutions is a time intensive process

Farmers could use immediate help -- perhaps through synergies with other institutions and businesses (seed bank, marketplace of agri inputs like fertilizers, pay as you grow - innovative financing instruments)
SoLAR IF

Next Steps

Next 6 months

- Implementing and Replicating -- Improved Standard Operating Procedure -- 3 branch to 10+ branches

- Deploy and gather preliminary data from 10 pilot sites with AEPC

- Complete testing and integration of 3 new agri-sensors in the digital platform

- Complete field demonstration, training and agri-workshops for minimum 50 staffs and 200 farmers
Thank You

www.ghampower.com
bishwaraj@ghampower.com