Quality Assurance for Solar Water Pumps

Why quality matters in scaling up solar irrigation
CLASP focuses on appliance & equipment energy performance and quality, to mitigate and adapt to climate change and expand access to clean energy.

- R&D grants
- Market, technology, consumer, and impact research
- Consumer campaign

- Test method and quality standard development
- Laboratory & field testing
- Certification

- Awards competitions
- Results-based financing
Solar Water Pumping: The Opportunity

- The current addressable market in sub-Saharan Africa is estimated at approximately USD 0.5 billion, comprising 700K households.
- In the next decade, the sub-Saharan African addressable market could be 2.8 million households and a value of USD 1.6 billion. Driven primarily by income growth and falling prices.
- Market contraction in India is anticipated when subsidies are removed.
- Despite the market potential, the solar water pump market in Sub-Saharan Africa for smallholder farmers is nascent with low penetration.

Figure 1: Market potential in sub-Saharan Africa
Figure 2: Market potential in India
Solar water pumps transform lives but product quality remains a key challenge

86% of customers felt their quality of life had improved since SWP purchase

34% of customers reported having challenges

<table>
<thead>
<tr>
<th>Most common solar pump challenges</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment breakdown / malfunction</td>
<td>55%</td>
</tr>
<tr>
<td>Low pump speed / pressure</td>
<td>12%</td>
</tr>
<tr>
<td>Battery</td>
<td>7%</td>
</tr>
<tr>
<td>Weak pipes / sprinklers</td>
<td>7%</td>
</tr>
<tr>
<td>Cloudy / night factors</td>
<td>6%</td>
</tr>
<tr>
<td>Rubber on the pump</td>
<td>6%</td>
</tr>
<tr>
<td>Design</td>
<td>6%</td>
</tr>
<tr>
<td>Goes off after a short while</td>
<td>4%</td>
</tr>
</tbody>
</table>

“*The pump cannot use two sprinklers at the same time, I asked the person installing why it is like that and he did not answer me. Also, the system does not store energy so when the sun goes down in the evening, it does not work.*”

“It can hardly take one week before it breaks, I have complained and they normally come and fix it.”
VeraSol is an evolved quality assurance program that builds upon the rich history of Lighting Global Quality Assurance.

With a quality assurance framework...

- Make it possible to identify good-quality products that will meet consumers’ needs
- De-risk investment and purchasing decisions
- Support healthy market growth
- Avoid market spoilage
- Protect consumers
Progress towards a QA framework for SWPs

05
CERTIFICATION
Evaluate and confirm product meet quality standards

04
QUALITY STANDARDS
Determine and set baseline level of product quality

03
TESTING & DATA
Generate product performance and quality data to inform actions

02
TEST LAB CAPACITY
Identify testing partners to provide testing services

01
TEST METHODS
Define how product quality and performance is measured

In Progress

What we have achieved so far

VeraSol Product Database & Field Testing
42 unique SWPs tested and listed on the VeraSol database & Currently testing 100 SWPs in Kenya, Tanzania, Senegal

Testing & Training
Conducting SWP testing and provide technical training to build local testing capacity

Global LEAP SWP Test Method
Defining the testing procedures for measuring pump energy consumption, performance, and quality.
Identify high-quality SWPs

VeraSol Product Database

Global LEAP Awards
2019 Buyers Guide for SWPs
Recent Research

- Solar Water Pump Durability Research Memo
- Tanzania Market Snapshot: Horticulture Value Chains and Potential for Solar Water Pump Technology
- Use and Benefits of Solar Water Pumps
- Solar Water Pumping: Global Market Development Roundtable Workshop Report May 2018
- Solar Water Pump Outlook 2019: Global Trends and Market Opportunities
- The 2019 Global LEAP Awards Solar Water Pump Buyer’s Guide
- Global LEAP Solar Water Pump Test Method
- Solar Water Pump Technology Roadmap

For more publications on solar irrigation and other off-grid technologies, visit the Efficiency for Access Publications.
Thank you!
Any questions?

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