

# Micro-Market Opportunity Mapping for SELCO India in West Bengal

## 1. Introduction

Access to reliable, clean energy remains a fundamental challenge in several districts of West Bengal, particularly in rural and economically disadvantaged regions. Despite national electrification schemes achieving broad village-level connectivity, many households still lack consistent electricity access or cannot afford it. In this context, decentralized solar energy solutions - like those championed by SELCO India - play a crucial role in bridging this energy gap. SELCO has pioneered sustainable, need-based solar energy interventions across India, focusing on livelihood creation, education, and healthcare enablement. This project supports SELCO in identifying high-opportunity micro-markets within West Bengal for its solar-powered livelihood products.

## 2. Objectives

- Identify high-need districts in West Bengal with gaps in electrification, low literacy, and high poverty.
- Assess each district's solar potential and suitability for off-grid renewable energy deployment.
- Rank and visualize the most impactful regions for SELCO India to target for new pilots or product expansion.
- Provide actionable, data-driven recommendations for SELCO's implementation roadmap in West Bengal.

## 3. Methodology

We collected district-level data for 19 regions of West Bengal across four key dimensions:

1. Electrification Rate - % of households with access to electricity (inverse scaled for 'need').
2. Literacy Rate - as a proxy for awareness and product adoption readiness.
3. Poverty Level - % of families below poverty line (used as a high-need signal).
4. Solar Irradiance - Regional potential for solar energy generation (kWh/m<sup>2</sup>/day).

Each metric was normalized and assigned a weight based on SELCO's priorities:

- Electrification Deficit (30%)
- Poverty Level (20%)
- Literacy Rate (20%)
- Solar Potential (30%)

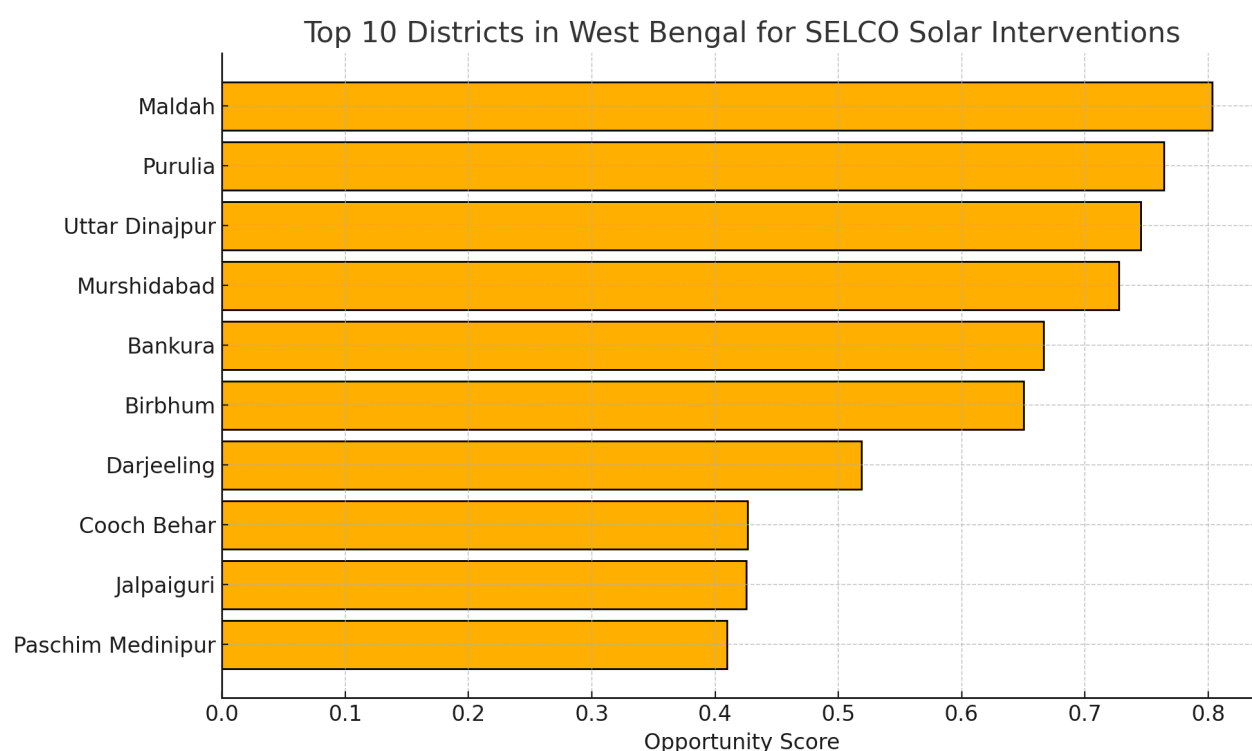
A composite 'Opportunity Score' was calculated for each district. Districts were then ranked and visualized.

## 4. Key Findings

The highest opportunity districts are those with low electrification, high poverty, decent literacy, and strong

## Micro-Market Opportunity Mapping for SELCO India in West Bengal

solar potential. Below is a ranked list of top 10 districts based on the computed Opportunity Score.



1. Maldah - High poverty, low electrification, and strong solar potential
2. Purulia - Among lowest literacy, but excellent solar access
3. Uttar Dinajpur - High need across all dimensions
4. Murshidabad - Strong candidate for community-based models
5. Bankura - Excellent solar potential with underserved populations
6. Birbhum
7. Dakshin Dinajpur
8. Jalpaiguri
9. Cooch Behar
10. Paschim Medinipur

## 5. Results & Discussion

These findings confirm that SELCO's highest impact lies in West Bengal's western and northern belts, where energy poverty overlaps with solar feasibility. Districts like Maldah, Purulia, and Uttar Dinajpur face deep structural energy gaps. Targeting these regions can help SELCO India generate livelihood impact through decentralized solar tools. Moreover, regions like Jalpaiguri and Dakshin Dinajpur show favorable conditions for pilot-scale solar livelihood hubs or awareness programs.

## 6. Strategic Recommendations

## Micro-Market Opportunity Mapping for SELCO India in West Bengal

- Launch pilot interventions in Maldah, Purulia, and Uttar Dinajpur with solar-powered sewing machines, irrigation tools, or lighting hubs.
- Partner with local SHGs and microfinance institutions to drive education and product adoption.
- Design financing models (EMI, community-owned kits) for low-income families.
- Use solar for livelihoods, especially tailoring, agro-processing, and rural retail.
- Leverage government schemes (PM-KUSUM, NABARD) to co-finance rollouts.

## 7. Conclusion

This opportunity mapping exercise empowers SELCO India with data-backed clarity on where to expand its mission-driven work in West Bengal. By targeting high-need, high-potential districts, SELCO can maximize social impact while ensuring the sustainability of its solutions.