

# POWER FOR ALL RESEARCH SUMMARY

## Increasing financiers' awareness of emerging solar livelihood appliances for rural businesses

**POWER  
FOR  
ALL**

The Council on Energy, Environment and Water (CEEW) published a report in September 2019 on solar-powered livelihood appliances that support productivity and income generation<sup>1</sup>. Through surveying rural entrepreneurs, interviewing financiers, and analyzing policy schemes in India, the study provided data and insights for financing and policy-making for solar-powered livelihood appliances.

**39%**

INCOME BOOST FROM  
RETROFITTING MANUAL SEWING  
MACHINES WITH SOLAR

### **SELCO Foundation provided data evidence on solar-powered sewing machines and digital service centers' financing needs for the CEEW report.**

- » Since 2017, SELCO Foundation, a not-for-profit charitable trust in India, has supported 385 tailors and 1,000 digital service centers to power their appliances with solar. (6)
- » The study surveyed 200 tailor entrepreneurs and 100 digital service entrepreneurs. (14)
- » The entrepreneurs supported by SELCO Foundation purchased PV panels and batteries to be retrofitted on their sewing machines or to power groups of digital service solutions such as printers, copy machines, computers and camera at IT kiosks. (13,14)
- » Loans of these purchases are provided by a micro-credit organization that lends primarily through self-help groups. The median loan size for sewing machines is about US\$ 250 and for digital service centers is about US\$ 410. (15,16)

**20+**

SOLAR-POWERED LIVELIHOOD  
APPLIANCES CURRENTLY BEING  
DESIGNED AND/OR  
REPURPOSED

### **Most tailors experienced productivity lift and income growth from retrofitting manual sewing machine with solar. Digital service appliances were able to add new revenue streams to their existing rural businesses.**

- » Traditionally, tailors in rural India use manually-powered sewing machines. After retrofitting their sewing machines with PV-battery systems, these tailors experienced an increase of 39% in their annual income on average. (16)
- » About 5–7% of the tailor entrepreneurs do not see an increase in income. However, even in these cases, the reduction of drudgery was appreciated. (21)
- » In the case of digital services, existing businesses experience income growth of 40% on average through loan support, such as investing in a printing machine for new revenue streams, or adding a new battery for night-time operations of the service centers. (18)
- » The new income to revenue ratio was lower for copying machines, because of high operating costs such as paper and cartridges. (18)

**US\$1,400**

AVERAGE LOAN SIZE FOR  
SOLAR-POWERED LIVELIHOOD  
APPLIANCES

### **While there is a high demand for access to financing for rural entrepreneurs, lack of familiarity and perceived high risks of solar-powered livelihood appliances are the main barriers for rural bankers to sanction loans.**

- » As of 2015–16, rural India is home to more than 32 million non-farm small and medium enterprises (SME). Less than 5% of them have access to formal credit institutions. (1,29)
- » In India there are about 20 livelihood appliances that have been designed or repurposed to run on solar, including milking machines, charkhas, cold storage units, and knapsack sprayers. Only a few of these are deployed at a commercially significant scale.
- » Awareness of solar-powered appliances beyond irrigation and solar home lighting systems is low among financiers. (2,9)
- » Financiers expressed concerns when lending to customers without collateral or former credit histories. This especially impacts women negatively, who rarely have assets registered under their name. (10)
- » Rural bankers do not differentiate loan evaluation between solar-powered appliances and their electric counterparts, and therefore, do not consider the advantages of solar-powered appliances, such as low recurring costs and reliability. (11)

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### By the Numbers:

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AVERAGE LOAN SIZE FOR  
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**Smaller loans, longer repayment period, alignment with rural SMEs' cash flow, regular appliance maintenance and leveraging existing policy support are ways to support rural SMEs' use of solar-powered livelihood appliances and ensure high loan repayment rate.**

- » The average loan size for solar-powered livelihood appliances is about US\$1,400, which is a challenge to banks, who find it hard to extend such small loan amounts. Banks usually prefer loan sizes 10-times as large. (10)
- » Longer repayment period ensures better repayment rate. Small loans for solar-powered livelihood appliances usually have a tenure of less than five years. Even a small increase in tenure leads to high marginal positive impact on repayment. (25)
- » Weekly loan collection that aligns with the cash flow of the entrepreneurs proves to be the most effective. However, loan terms and payment collection strategies vary across different states according to regional culture. (11)
- » Solar appliances require regular maintenance and failing to do so could have a direct impact on end-users' ability to repay loans. Manufacturers and suppliers of appliances should build a reliable after-sale servicing workforce. (10,38)
- » Existing policy that supports rural SMEs could also be leveraged to support solar-powered appliances. For instance, entrepreneurs are often supported by local NGO or clean energy enterprises to access subsidy schemes such as MUDRA. (33)

### Share the Message

- » According to CEEW findings in India, solar-powered sewing machines and digital service solutions can improve rural enterprises' income by about 40%.
- » Access to financing remains one of the biggest challenges for small rural businesses to acquire solar-powered appliances. Creating awareness around solar appliances among financiers is important.

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### Sources:

1. Shaily Jha, Sasmita Patnaik, and Abhishek Jain. "Financing Solar-powered Livelihoods in India: Evidence from Micro Enterprises." CEEW. Sep. 2019.