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Title: Does involvement of local community ensure sustained energy access? A critical review of a solar PV technology intervention in rural India

The solar photovoltaic (PV) technologies offer a sustainable solution to energy poor communities. Adoption and sustained use of solar PV merit participation of local communities in planning and implementation. There is a gap in scientific literature that explores community inclusive initiatives to foster sustained uptake of solar PV technologies. Funded by the Government and a corporate company, we studied multi-phased intervention in rural poor setting in Dungarpur district of Rajasthan state in India. This action-research intervention aims to create a solar ecosystem at the local level by empowering local women’s self-help group (SHG) federations to provide clean energy access in the community. The first phase (May-October 2016) involved training of 111 semi-literate women to assemble-distribute solar study lamps to school students, as an alternative to kerosene wick lamps. A total of approximately 40,000 lamps were sold, covering 60% of enrolled school students, at an affordable price of around $3/lamp. In second phase (October 2016 onwards), technical-managerial skills were imparted to 25 women to provide after-sales service and to start their own solar shops. A total of 4 retail-cum-service shops opened to sell solar products like solar home systems and solar lanterns. In the third phase, the SHG federations started their own solar panel manufacturing factory, investing the profits earned in first phase. We adopted mixed methods approach to collect and analyse the quantitative data from beneficiary households, qualitative data from SHG members, and secondary records about field operations. Our findings demonstrate the utility of localized intervention, and the significance and challenges of engaging local communities. The consumers used these solar lamps for multiple activities and prefer solar over grid electricity for basic lighting. Local services enabled continued functioning of lamps, thereby increasing consumer confidence. Through manufacturing company they now undertake other solar activities in the community. The intervention built capacity of and created continued livelihood opportunities for local women in these communities, resulting in their economic and social growth. In the context of energy poor communities of the Global South, our research provides key determinants impacting development of community-centred renewable energy interventions, crucial for the realization of Sustainable Development Goal-7.