



SmartPowerIndia

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smartpower CONNECT

A magazine for the Mini-Grid Sector from the Smart Power for Rural Development India Foundation



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SMART POWER

A New Value Proposition for Village Communities

Kanika Verma, Priyali Bhardwaj, and Ayesha Bhatnagar, Tara Urja



Energy is an accelerator for economic growth. Access to electricity can have a dramatic impact on the well-being of rural communities, as demonstrated by the Smart Power for Rural Development (SPRD) program. As an organization committed to the development of resilient communities, TARA (an SPRD partner) has shaped this approach over the last two and a half decades. Our work revolves around the recognition of the dual roles played by people in village communities, that of producers and consumers. TARA uses electricity to put money “into people’s pockets” as against just seeking payments for the light they use. This is cash that can be used to pay for improved nutrition, education, entertainment, healthcare, and other needs.

For example, Siyaram Pandey runs a carpentry enterprise called the Shree Vishwakarma Saw Mill for the past nine years in the village of Bheldi in Bihar. Siyaram’s business had been growing steadily, but extremely slowly. That changed when he got into a discussion with TARA’s enterprise development team about installing a combi-planar machine, something he could plan for because reliable and affordable electricity was available from Tara Urja’s solar powered micro-grid. This machine performs multiple functions like drilling, grinding, and shaping wood and consumes 2.5 units of electricity in an hour. He is now able to complete an average of five orders in a day as compared to two in the past. With the addition of this equipment, and two workers he could hire, the revenue of his enterprise increased by 22% in a span of three months, while his profits increased by 20%.

Even with the Government’s emphasis on rural electrification, thousands of farmers and local entrepreneurs in states, such as Uttar Pradesh and Bihar are forced to rely on diesel-powered generators to irrigate fields and run small businesses. Unfortunately, these generators run at a cost that is over three times that of grid electricity. Virtually all electrification programs have been geared towards household electrification. There has been little emphasis on supply to productive loads or on the adoption of innovative local level manufacturing models by communities. More importantly, what is missing is the development support required for an economy to use electricity to spark and accelerate growth at the local level. In this context, the realization of the consequent economic benefits can take its own course and in many cases become cross-generational.

The decentralized renewable energy based model by TARA aims to drive social wellbeing and enable local businesses to grow. It has already started to bring about a transformation in the village economy, creating new jobs in the community, enhancing incomes to the tune of 15% to 20% concurrently, and increasing the accessibility of basic products with local manufacturing. Early signs of this change are visible in many villages.

Catalyzing Entrepreneurship

Electricity is helping unleash the true potential of entrepreneurship in building a resilient economic system. At the SPRD sites in Uttar Pradesh and Bihar, new manufacturing enterprises such as biomass pellets, paper plate, and incense stick making units are being set up with investments of less than INR 5 lakh (US\$ 8,000). Existing businesses, including computer centers, barbers, and carpenters are looking forward to the next phase in their growth cycle, and critical local institutions, such as banks are able to provide better services. Through these entities, communities have access to better choices and opportunities at their doorstep, including clean cooking fuel and devices, safe drinking water, and faster connectivity.

Ultimately, the approach envisions each home in the village having access to innovative appliances in their household with the availability of affordable and reliable electricity. To cite examples, LED lights are replacing old kerosene-based lanterns, traditional chulha and dung-cakes are replaced by bio-mass fuel pellets, and potable water is available as opposed to untreated hand-pump or ground sourced water.

TARA’s Approach to Value Creation at SPRD Sites

The CELAMeD (Community Engagement, Load Acquisition, and Micro-enterprise Development) approach adopted by TARA vies to fulfil the multiple objectives of mobilizing communities around the plant location and helping ESCOs such as TARA urja, OMC, DESI Power, Husk Power

Systems and FreeSpanz to tap latent demand and set up new enterprises that run on electricity supplied by the company, thus making mini-grids more financially viable. The CELAMeD approach enables new technology-based enterprises and expands existing businesses, making local business owners and entrepreneurs more productive, competitive, and capable of serving many more customers in the village community.



Prioritizing local needs, TARA enables and supports entrepreneurship through three modes:

Local Economic Development: Includes a broad spectrum of businesses in light of new opportunities emerging from the ground, such as tech-enabled models (more than 1 KW load) and nano production and service-based enterprises that are an integral part of the village economy (less than 1 KW load).

Gender Inclusive and Basic Need Fulfilling Enterprises: Those set up with an aim to empower rural women to be able to define and make choices for themselves and their children.

Enhancing Productivity and Extension Services: These demonstrate increases in agricultural productivity and highlight local value addition opportunities.

The Process of Change – Moving up the energy and economy ladder

In order to create a chain of successive benefits, a significant amount of effort is put into understanding the usage of energy (e.g. electrical energy for lighting, appliances, pumps and motors, thermal energy for cooking) and the nature of demand presented by various users. Human-centered design features prominently, ranging from anthropometric aspects of locating lights in a house and cook stove design, to the ergonomic suitability of equipment recommended for new microenterprises.

In our experience, the benefits of reliable energy access,



even if it is at a relatively high price, are seen immediately in the form of higher earnings for well-lit shops, more study hours, ease of work, and greater safety for women. These improvements act as catalysts for quick conversions of existing businesses and local institutions from diesel to clean energy, and for the expansion of existing enterprises by the addition of new energy appliances that can create new jobs and improve productivity.

Consumers are assured reliable electricity with hassle-free services such as the rectification of any fault within 6 to 12 hours of registering a complaint. Customers are also rewarded with extended hours of supply during festive seasons. Consistent power supply with no voltage drops is a great support to the businesses since they can run their business at their preferred time of the day.

Furthermore, the wave of new businesses that couldn't be run without electricity (RO water filter, biomass pellet, computer centers etc.) further underlines the financial stability offered by the model and the improved access offered to basic needs, as these are manufacturing and available at the local level. While the ESCO assures good quality power supply, TARA guides the entrepreneur on how to use their electricity in

the most productive manner. Support services offered incorporate hard and soft components, such as technology selection, forward market linkages, broadcasting, and promotion. Women form one of the primary target groups for TARA, where special focus is laid on setting up and supporting women-run enterprises. These are provided stronger handholding services too.

This is where we foresee the process will reach the point of inflexion where women, children, and their families start experiencing socio-economic well-being and the program creates a force multiplier for local transformation.



TARA wants to combine the potential of technology with institutional processes to create a service delivery mechanism that brings clean, green energy to people's doorsteps.

TARA has seen interesting examples of mutual benefit where, to increase acceptability, the tariff packages were customized to suit both the ESCO and the customer. Monthly tariff packages were revised and bundled with the cost of the equipment provided to them. This led to 30 existing businesses being expanded across all sites in just a span of two months. This consumer financing model not only helps the customer pay back in instalments and helps mitigate his risks but the ESCO gets return on its investment in about 5-6 months, making it a win-win for both parties.

Policy Support for Scale

In the renewable energy space, greater policy recognition and supportive regulation of the kind that the Government of Uttar Pradesh has introduced in 2016 would legitimize the operations of microgrid operators (ESCOs) and create conditions in which they could complement the mainstream grid for last-mile service delivery and productive use.

In TARA's view, the energy sector, and rural electrification in particular, continue to undervalue the role women can play in change processes. Their status continues to be predominantly that of beneficiaries— a view reflected in promotional campaigns run by Government agencies and many civil society partners. This needs to change. Greater

authority and autonomy need to be given to women, particularly when acting in groups. The strength they have in solidarity can be used in synergy with greater access to energy to address hitherto unattended development challenges.

We also need to attract more resources into social ventures. It is imperative that the investment community ascribes greater value to social and environmental outcomes. This will facilitate a transition from grant-based, charity-driven approaches to more self-sustaining and scalable models.

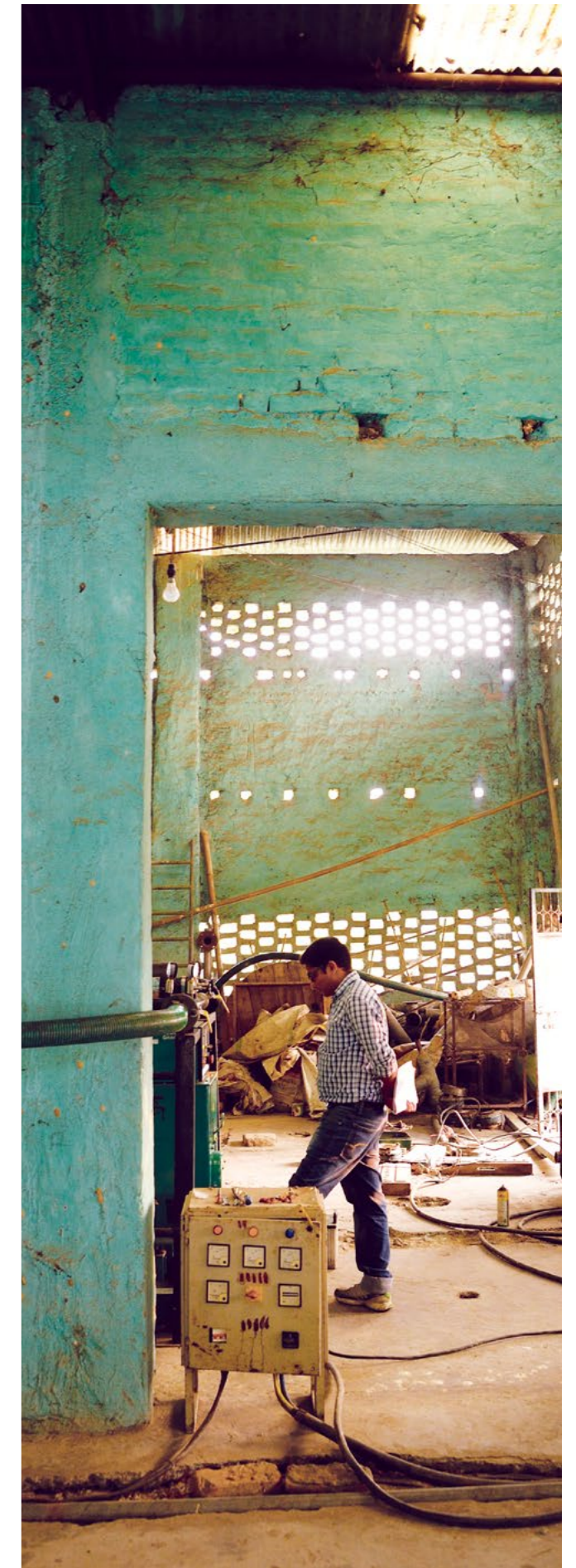
The Way Forward

With support from the Smart Power for Rural Development (SPRD) program, TARA has been able to successfully validate enterprise packages for local businesses as well as tariff packages for the ESCO. Today, there are over 8,000 (and counting) customers across more than 80 villages in Uttar Pradesh and Bihar, that are benefitting from reliable access to utility grade electricity under the SPRD program.

In addition to thousands of homes being lit up through smart power, TARA's current focus on local economic development, social inclusion, basic need fulfilment, and agro-resource centers has led to greater incomes, creation of new jobs, new enterprises run by women, and greater access to clean drinking water. When the supply of electricity through thousands of such mini-grids is coupled with demand creation by load development partners such as TARA, it will have a transformative effect on the rural economy. TARA plans to scale the proposed model by a factor of at least ten, expanding to 300 villages and 100,000 households. It plans to do so, through the unique mechanism of blending CSR funds with private investment and social capital existing within village communities.

Moving forward, TARA wants to combine the potential of technology with institutional processes to create a service delivery mechanism that brings clean, green energy to people's doorsteps. In doing so, TARA intends to put control of a twenty-first century resource, renewable energy, in the hands of village communities, making them strong and self-reliant. They, in turn, will realize new, environmentally benign, economic opportunities and radically transform the quality of life in Indian villages.

TARA envisages a sustainable, commercial "multiplication" phase, in which the model will be adopted by ESCOs and NGOs to reach out to thousands of villages. As mentioned before, a reshaped national and global energy agenda will create breakthrough opportunities for transforming development policy and practice in the area of energy management.



EXPANDING BUSINESS OPPORTUNITIES



JAGRAM

Ram Mishtan Bhandar

Shivpura, Uttar Pradesh

One of the first rural entrepreneurs to use electricity to 'expand' his business is Jagram, an ambitious middle-aged man in his 30s, who successfully runs the Ram Mishtan Dhaba in the village of Shivpura in Uttar Pradesh. Despite being surrounded by 20 to 25 similar small restaurants, Ram Mishtan is a preferred choice of the community, serving over 200 customers a day.

Encouraged by the potential of solar-powered electricity, he installed a deep freezer. After realising the worth it added to his business, he installed a juicer-mixer. As against his previous profit and revenue of INR 10,000 and INR 18,000 in a month, he now earns INR 13,000 and INR 25,000 respectively. He has also hired an employee to help him at the shop. Jagram is already thinking ahead and constantly asking TARA's Micro-enterprise Development team for new ideas to expand his business further. Jagram says, "I am constantly in search of innovative ideas to expand my business and am thinking of using more appliances, like a coffee machine, improved cook stoves and pellets, and a television to keep my customers engaged and loyal".

PROMOTING NEW ENTERPRISES



BACCHA IMAM

Teacher & entrepreneur

Nabiganj, Bihar

Baccha Imam, a teacher at a local school in Nabiganj Bihar, was finding it difficult to make ends meet on a meagre income of INR 12,000 a month. He sensed an opportunity, and with TARA's support, launched an RO Filtration enterprise in his village. Within a span of 40 days, he reached a customer base of 75 clients, 35 of them being households. Apart from this, he also takes orders from events like marriages and school functions. For the month of October, he secured an approximate profit of INR 27,000.

EMPOWERING THROUGH ENERGY ACCESS



MIRA KASODHAN

Tailoring trainee

Bhardolia, Uttar Pradesh

Mira Kasodhan, one of the 15 girls enrolled at the Krashak Bandhu Laghu Madhyamik Vidhyalyay in Bhardolia, Uttar Pradesh, feels relieved as she is no more perceived as a 'burden' by her family. Though she has little formal education, she is currently receiving vocational training at the school. Her training in tailoring is expected to help her earn a living despite few educational qualifications to fall back on. This training center serves as a central hub for capacity-building and skilling of young girls, entirely changing the socio-environmental scenario in Bhardolia. While this is just the beginning, Mira feels optimistic for her future and plans to open her own tailoring shop.



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Smart Power India (SPI) was established by The Rockefeller Foundation to implement the Smart Power for Rural Development program in India. It promotes sustainable business models that deliver renewable electricity and spur economic development among underserved rural population in India. SPI aims to improve electricity access to rural India through distributed renewable energy mini-grids. It seeks to create an ecosystem that enables the productive use of electricity beyond household lighting. For this, SPI works as a key partner to private sector energy service companies (ESCOs), investors, NGOs and government bodies to catalyze and scale up mini-grids. We aim to impact over a million lives by electrifying more than 1000 villages.

Smart Power India

706, Time Tower, MG Road

Gurgaon 122002 Haryana

e contact@smartpowerindia.org

p +91 124 469 2000

www.smartpowerindia.org