CASE STUDY

Standalone Solar Mini Grid at Khaira Begi Village-Chatra, Jharkhand.

AYANA RENEWABLE POWER PRIVATE LIMITED

SUPPORTED BY CDC Investment works

Sologix Energizing Naturally

1 INTRODUCTION

The reliable power supply is one of the critical accelerators of economic growth for any region and country worldwide. In India, access to reliable electricity in rural areas is still a chronic problem and severely impacting economic growth in villages across the country.

To address this persistent problem, India needs to go beyond expanding the national grid. Standalone and grid-connected hybrid solar mini-grid is a viable option to electrify rural households. It can support the government in achieving its 'Power for All' vision and play a vital role in boosting the rural economy.

Ensuring a reliable power supply through the deployment of decentralized solar energy mini-grids will accelerate the growth of rural economies and improve the lives and livelihoods of poor and marginalized families and communities. With access to energy, individuals, households, and communities can generate economic opportunities and enhance their quality of life.

2 PROJECT BACKGROUND

Although, Jharkhand is having healthy deposits of iron and coal within its territory but it is still an electricity starved state. Supply situation in rural part of the state is callous which is further pushing the state's rural economy at bay. Reliable and affordable power supply in villages can propel the economic growth of rural area of state.

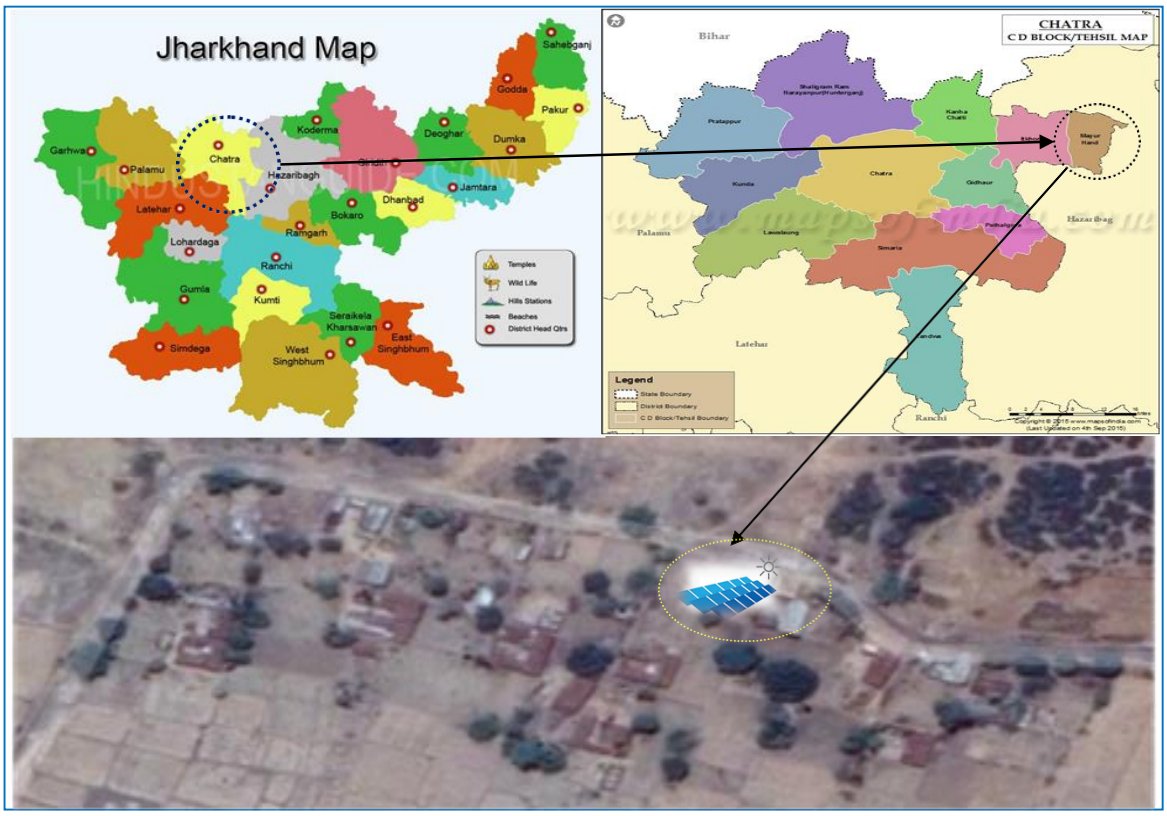
Observing the poor power supply scenario in many rural parts of Jharkhand, Ayana Power, Clean Energy Access Network (CLEAN), Panasonic India, USIAD and Sologix Energy jointly install a standalone solar mini grid in a tribal village of state with the objective to provide clean and reliable electricity to villagers, to test the robustness of Li-based storage technology and to develop the micro/mini enterprises in this village

which can generate livelihood opportunities and improve the economic condition of villagers.

Ayana power and USAID provide the funding support for the project and Sologix Energy has executed the EPC work. The project comprises installation of a 6 kWp standalone solar micro grid in Khaira Begi village (Gram Panchayat-Belkhori; Block- Mayurhand; District-Chatra, Jharkhand) coupled with 20kWh Panasonic make Lithium-ion battery system. Mini grid has been installed in August-2018 and supplying clean electricity to all 25 households for Lighting, Fan and Mobile charging through localized distribution line.

3 PROJECT LOCATION

Project is located in Khaira Begi village,Gram Panchayat-Belkhori; Block- Mayurhand; District-Chatra, Jharkhand(GPS Co-ordinate -24.301; 85.289)



4 IMPACTS

Although seeing tangible impacts/outcomes of such intervention on the villagers' lives will take time. Still, the initial findings show that villagers experienced a drastic reduction in fossil fuel consumption and growth in per capita income after deploying this project. Due to improved energy access, women are feeling safer and more mobile after dark.

4.1 Access to Energy:

Before the installation of mini-grid, 25 households of this village were dependent on kerosene for lighting. On average, each household uses approximately 2 liters of kerosene (costing INR-100) per month, which they received from the Public Distribution System (PDS). Along with this, all the households were also were spending around 1000-1500 Rs. /Year on diesel for irrigation purposes.

After installing the mini-grid, all 25 households of this village are getting uninterrupted power supply from 5.30 AM to 9.30 PM. This has reduced the consumption of kerosene to zero. During the daytime, surplus power is being utilized to run a solar water pump for irrigation purposes which has helped farmers to reduce their irrigation cost drastically.

4.2 Increased Agricultural Activities:

After installation of the mini-grid, Villagers have connected a 2 HP solar water pump to it. This solar pump operates during the daytime when the load on the grid remains very low. The solar pump has made the irrigation activity very economical and increased the irrigation outreach. Approx. 2-3 acres of additional land are getting irrigated after installing the mini-grid, helping farmers take two different crops on this land. To use the water judiciously, farmers have adopted drift irrigation methodology, helping in water conservation and extending irrigation outreach.