

VOLUME: 02
ISSUE: 07
MARCH 2021





COVER PAGE

Students with their teacher who were provided with solar lights in Paru village, Muzaffarpur

TABLE OF CONTENTS

4 Solar lights for girl students in Paru, Muzaffarpur

12 Solar water pump for the tribals of MM hills

Solar powered in Tumkur **5**

13 Chapoli village goes completely solar

6 Experience sharing of colleagues of Special Projects team

14 Wireless radio communication in Karkala

Project with Sisters of Mercy of the Holy Cross **8**

15 My experience in Bhutan

9 Excerpts from an article written by our Ex- directors

14 Where there is a will, there is a way
Shihinaz- A true solar champion

Solar powered toilet bus for women in Kalaburgi **10**



EDITORIAL

SELCO completed its 26 years of operations last month. This was possible because of the guiding principles & philosophy of the organisation that firmly believed that expensive technology such as solar can be made affordable to the poor and in turn the poor can not only enhance their livelihood but also maintain it judiciously. DRE solutions can be catalyst to uplift the poor and improve their lives. This is one of the effective ways in which we can also ensure mass awareness is created amongst the rural communities and collective action is taken against climate change. But to achieve this a considerable push at the policy level is required.

Last month, MNRE had issued a revised draft of its policy framework for developing and promoting DRE based livelihood applications in rural areas of India. The driving force behind the policy framework remains the wave of innovators and entrepreneurs who have come up with a variety of DRE livelihood applications, which are not only energy-efficient but also economically viable. Such initiatives will give a huge boost to rural entrepreneurs and ensure scalability without large investments. India is also moving forward in achieving its solar target of 100GW by 2022.

According to a research, India's cumulative solar installations have hit the 40 GW milestone as of February 2021, the country's total installations comprised 34.9 GW of utility-scale solar installations and 5.1 GW of rooftop solar installations.

SELCO's special projects team was formed to execute projects that were offbeat from the usual systems such as home lighting & water heaters. This team drives innovative ideas across the organization and takes up challenging projects in terms of scale, complex designs and larger partnerships. These projects sets the standards for future solutions which can be then taken up by the field team. form a very important part of this team which has executed high impact projects during the pandemic. In this special edition of Sunchalana we will be covering such high impact projects done by SELCO's special projects team. We will also learn from the team's experience as they share with us their journey.

We hope that readers enjoy this edition of Sunchalana

COMMUNICATIONS TEAM, SELCO

SOLAR LIGHTS FOR GIRL STUDENTS IN PARU, MUZAFFARPUR



Paru is one of the most backward villages of Muzaffarpur, Bihar. It's in a very remote area far from the district headquarter and is also flood affected and considered one of the most underserved areas when it comes to public infrastructure. Opportunities for girl children here is very limited and child marriage, child labor and school dropouts are the other social constraints that keep these children away from formal education.

Mr. Pawan Kumar an IITian from Bombay came back to his village during covid lockdown and saw that a lot of the girl students are deprived from getting education. So he started teaching them. Initially he started with 30 students now there are 150+ students who take classes from Pawan Kumar, of which 60+ are girls. While teaching the students he realized that electricity was obstacles for students to study in their homes. As their village

had problems with uneven supply of electricity, the students couldn't study. In such an adverse situation, Pawan who is from the same village took this as a challenge. He donated some money and along with support from SELCO ensured setting up of Solar powered home energy solutions in these houses. Pawan is currently unemployed as he stayed back in the village to teach the children and whatever savings he had, he's been spending on the villagers to provide them solar powered lighting systems. Society will definitely develop when we have more



SOLAR POWERED IN TUMKUR



Sree Siddaganga Matha is a Lingayat Matha with educational institutions. The matha was established by Sri Haradanahalli Gosala Siddeshwara Swamigalu in the 15th century. It is located in the Tumkur district of Karnataka.

Under this, His Holiness Dr. Sree Sree Shivakumara Swamiji had established 130 educational institutions during his span of 105 years, to impart knowledge and thereby provide access to decent livelihood to a large number of students. Sree Siddaganga College of Arts & Commerce for women is a prestigious one among them and it was established in 1982. The institute is affiliated to Tumkur University and approved by UGC & accredited by NAAC.

The institute had set-up the three computer labs, each lab with 25 computers. However there were many power outages. Thus they approached SELCO to solar power their computer



labs. This would also effectively reduce their electricity bills.

The energy consumption of 25 Computers was about 16 units with 4 hrs of operation, to meet this energy demand a 7.2kWp solar plant with 24KWhr battery bank was set up, so that the computer lab loads will be renewable energy.

EXPERIENCE SHARING

ASHWIN D P

Senior manager, Special projects team



I joined Selco in March' 2014 as Assistant Manager Logistics. Before joining selco i was working with Reid & Taylor as a trainee engineer in the Electronics division for one year. I had a great opportunity to work with Logistic colleague Mr. Mahesh (Late) in the beginning of my career in SELCO and learned a lot of things from him. Later I was joined by another colleague Mr. Babu and he helped me with the Tally software and accounting. Later I was given an opportunity to lead the entire Logistics team consisting of 26 members under the leadership of Mr. Jagadeesh pai. With his help I could carry out logistics activities smoothly for nearly 5 years in selco. We did many challenging projects such as supplying the materials to Rajasthan for the Pali project (10,000 street lights). The team successfully transported the street lights units around 8,000 numbers through rail mode which was cheaper and faster delivery was done. Our team supported all Branches & Projects team with on time delivery of materials. I was recognized and awarded as best supporting staff by SELCO in the year 2016 & 2017. After completing my logistics journey for nearly 6 years and 7 months, I was given an opportunity to join the Projects department from 2020 and now I am learning technical & design aspects from the new team. I am looking forward to this challenge and I am sure this will add to my knowledge about this sector. I have enjoyed my journey in this organisation and will give my best in future.

RAVIKIRAN

Area manager, Special projects team



I have been part of the Projects team since 2004. The team was then led by Mr Thomas Pullenkav, current Director. Through a small team, we worked on PAN India and executed projects in states of Delhi, Gujarat, West Bengal and also executed some projects in Srilanka. During this period a lot of innovative projects were also done. We worked extensively with religious and education institutions. The first grid-tie system by our team in was Rameshwaram and then an office was opened at Madurai. I have seen this team grow by the years and am happy to have contributed to the mission of the organisation.

DATTATRAYA RUDRA BHAT

Area manager, Special projects team



In my career at SELCO, I have learnt a lot during execution of large scale projects. My interest in this sector grew as I gained more knowledge about different solar based applications. In challenging situations the team has also provided me with leadership opportunities and shown faith in me. Successful execution during such times has built immense confidence in me. Some of the projects that I have worked on are the Kalkeri school project, Tibetan colony, Minigrid in Tamil nadu, DB tech & SKIP Lab installations and some of the water pump installations in Assam & Meghalaya. Perseverance and team coordination are integral virtues for success of any endeavour.

PRAVEEN BAGADE

Area manager, Special projects team



I got to know about SELCO through a friend in my college. I joined here as a temporary technician. So my first work was to install a Lightning system to an unelectrified house at Haveri. Later I moved to Dharwad and continued to do the same work. In 2002 I was made permanent. Later when I was transferred to Davanagere I was promoted as sales executive. I was happy to work, I never regretted working in SELCO because each challenge was a learning experience. In 2015 I was promoted as Senior Manager. Currently I am working as Area Manager in the Projects team.

Appreciation for Anirudh Krishna

Anirudh Krishna, a STEM enthusiast and researcher, is a recent graduate of The Shri Ram School Aravali. He enjoys challenging himself and delving deep into concepts of theoretical and applied physics hoping to unravel the mysteries of the universe. Apart from his academic interests, he is a national level tennis player who idolises Roger Federer. In his free time, he's usually seen ardently critiquing films



or playing the piano. Anirudh has written two papers on socio-economic impact of SELCO's work and the EV solar charging station design while briefly interning with SELCO Foundation. The paper seeks to describe the specifications required to set up an EV public charging station, followed by a reasoning how solar plays an important role by reducing the burden on the grid. We wish Anirudh a successful career.



EXCERPTS FROM AN ARTICLE WRITTEN BY OUR EX- DIRECTORS

Christine ribs singer & Richenda van Leeuwen stepped down as Directors of SELCO after more than 10 years. They shared their experience, insights and 10 key lessons for solar enterprises from SELCO's business in an article published on the website of Next Billion.

- 1. Find investors who bring more than money:** Social enterprises need to identify and work with equity investors that fully align with the values/principles and mission of the company.
- 2. Find an acceptable financial return and maximise the social return**
- 3. Embed the mission in shareholder agreements:** Having its social mission front and center in the shareholder agreement provided comfort to SELCO's founding CEO, Harish Hande. He was rightly worried about the risk potential for bringing on investors not totally aligned with the mission, who might try to take the company in a different direction over time.
- 4. Put your vision ahead of trends & hype:** SELCO has remained faithful to its vision, refusing to be swayed by sector or investor hype or the latest business model trends. The company had a vision for its business model and how to address customer affordability.
- 5. An inspiring leader is not enough:** Invest in building a team and ensure grassroot colleagues take prominent positions.
- 6. Don't succumb to pressure to scale too quickly:** SELCO recognized that India's diverse array of energy challenges couldn't be addressed through just one social enterprise. So instead of focusing only on maximizing growth, SELCO has grown in part by diversifying.
- 7. Focus on the right metrics of success:** SELCO has never been only about the number of electricity connections it makes. It has always been about helping people and families solve their energy challenges, backed up by reliable after-sales service.
- 8. Invest in your team:** SELCO has always invested in its team, nurturing, coaching and building them up. This approach has also provided a pipeline of new leadership
- 9. Seek out beneficial partnerships:** SELCO's success has relied on a carefully nurtured ecosystem of support, and these strong partnerships have helped enormously. SELCO has developed a deep understanding of customers' needs, and has relied on closely aligned partner organizations to help meet those needs.
- 10. Don't overlook the social impact of job creation:** SELCO has always been a job creator, and providing employment amplifies its social impact. Today more than 800 people work across the SELCO family, as local sales and service staff, and in the SELCO Foundation and SELCO Fund. SELCO's services have also created thousands of additional jobs across Karnataka and in other Indian states.

PROJECT WITH SISTERS OF MERCY OF THE HOLY CROSS

Sisters of Mercy of the Holy Cross is located in Henu main road Kothanur in north east Bangalore, Karnataka. The mission began with the sisters working with the Rural Development Society. Eventually the Vocational Training Centre was started and then it was turn into a hostel for the students and later for the working women. At the moment, they are also constructing a 'Senior Citizen's Home'. There are nine sisters in the community, four postulants, four student candidates and two pre-candidates. The sisters take care of the formation of the aspirants and postulants. Various retreats and other important seminars, and functions of the province are held here. The sisters also

look after the destitute women in Mercy home. At present there are 24 women under their care.

Since the organisation cares a lot for the society, it also wanted to act upon the climate change and lead from the front to make their campus completely green and reduce their carbon footprints. The institute approached SELCO to solar power their campus. A solar system was installed with 6KW Solar Power conditioning Unit. The system can meet 16 units of energy requirement. 4000W electrical load connected to the system. The connected loads to the system are Lights, Fan, Mobile Charging & Mixer, Refrigerator in the Kitchen.

SOLAR POWERED TOILET BUS FOR WOMEN IN KALABURGI



The initiative is a small step to address the urgent problem of poor sanitation system in both rural and urban areas. The whole toilet is powered by solar energy. The cost of converting the scrap NEKRTC bus into a modern toilet is Rs.9 lakh. Identifying the need for mobile public toilets, SELCO has stepped in with a major initiative. While travelling long distances, men choose public spots to relieve themselves; however, women face difficulties to answer nature's call. "We are giving serious thought to the idea of not only providing bus-toilet facilities in urban and rural areas but also ensure a bus-toilet facility at every 50 km on National Highways. This will help women, patients and the elderly people. The project would bring awareness about the importance of empowering women through assistance with facilities for sanitation and hygiene. The specially-designed mobile rest room will be soon pressed into service in Kalaburagi district..

■ **MOHAN B HEGDE**
CEO SELCO India.



The North Eastern Karnataka Road Transport Corporation (NEKRTC) in partnership with SELCO Solar Light Private Limited has executed a very innovative project to build a solar power mobile toilet bus in Gulbarga. While the bus was getting refurbished and fabricated to convert the bus into a toilet, the SELCO team proposed to solar power the complete bus. It is fitted with tube lights, wall mounted fans and exhaust fans at various places inside the bus. The bus is fitted with western as well indian style toilets and a baby feeding room. This complete project



was executed under the guidance of Shri Kurma Rao IAS, Managing Director of NEKRTC.

The project is to showcase a model which is in line with the sustainable development goals which were adopted by the member states at the UN in 2015. The solar system produces 2000 KWh

of solar power every year. Consequently the reduction in carbon footprint due to the use of renewable energy is to the tune of 1.6 CO2 per year. This is also equivalent to planting of 75 fully grown trees. The project was specifically done during the month of March to celebrate womanhood and highlight the importance of empowering women and facilitating access to key infrastructure in public space. This project is unique and can be scaled across various districts in Karnataka. Old & discarded buses can be put to good use in this manner.



SOLAR WATER PUMP FOR THE TRIBALS OF MM HILLS



Male Mahadeshwara Betta is a pilgrim town located in the Hanur taluk of Chamarajanagar district of southern Karnataka. It is situated at about 150 km from Mysore and about 210 km from Bengaluru. Doddane, is a remote village near to Male Mahadeshwara temple. Since the village has no proper access for transportation, we need to walk about 9 km from the nearest town Marathahalli. The walk takes about 50-70 mins because of the steep and loose rocky pathway to the village. This is the general routine for the local villagers to reach the nearest main road or town for their daily activities, the majority of the people in the village are farmers and some of them

are daily wage labourers. The villagers are of soligans community (Tribal people) by ancestry who worshipped the lord Male Mahadeshwara in ancient times.

Water sources are very minimal at the hilltop, where the village is situated. The students of the primary school in the village had to walk 700 metres daily to a nearby pond to fetch water. To relieve the students from this daily physical stress, a solar powered pump in association with SELCO was implemented. The submersible pump pumps water from a depth of about 450 metres and is able to fill a 2000 Litres tank daily. The water is good enough for the school and nearby households as well.

CHAPOLI VILLAGE GOES COMPLETELY SOLAR

Residents of Chapoli village in Khanapura do not have to worry about power cuts anymore. The entire village now uses solar energy for all their electricity needs. This village was infamously known for animal attacks, and is again in the news for being completely solar powered. It's a dream come true moment for 140 families.

Most of the people of this village have a mass paddy field and youngsters go to nearby state of Goa for work. The village does not have basic infrastructure facilities, in fact during the rainy season, it rains continuously for 4 months and disrupts the power supply considerably.

About five years ago, SELCO identified



the villages and gave them information about solar power and solar based livelihood solutions. But the villagers couldn't afford solar light, therefore SELCO alongwith Rotary club Belgaum and KVGB bank installed a solar powered lighting system for the first 45 houses.

Villages nearby saw this transformation, and got inspired to adopt solar. Till date, both organizations have established a sustainable model by installing two street lamps, a solar-powered sewing machine and a solar-powered mini rice mill.

Chapoli, which used to sleep early due to darkness, is now lit like any other urban town. Now children of Chapoli can study freely without worrying about snakes and lizards. The villages are now thankful for SELCO, KVGB and Rotary Club Belgaum.



WIRELESS RADIO COMMUNICATION IN KARKALA



District Forest Officer KN Murthy decided to install Wireless Radio communication in few forest areas which come under him, hence he approached SELCO and the system was supposed to be installed in the deep hilly forest's. The towers were 75 feet and the solar was at 45 feet with batteries at 20 feet battery. The challenge was to save the battery from conflagration and solar panels from heavy wind, so for this we planned a safety cover. This was really a difficult task but I am happy that it was done for the

first time in Karnataka under the guidance of K N Murthy, DFO, This project taught us something beyond solar. We had to learn about wildlife, the importance of rivers and why the conservation of them is important. If not this project, then maybe we would miss this chance. This project was executed in 8 different areas in 2004 in the villages of Purple Gudde - Karkala, Kodachadri - Kollur, Hadrinabara- Agumbe, Gangadikar-Kudremukh, Jamalabad fort- Belthangady, Kigga- Sringeri, Valikunja- Andaru, Methrikhan betta- Basarikatte



MY EXPERIENCE IN BHUTAN

PRAVEEN Y

**Area manager,
Special projects team**

This project is a matter of pride to me. In 2003-04 I was one among to be selected for installing solar light for 151 houses and a 10KWp system for PHC in Bhutan. This was in partnership RSPN, is an organization which studies birds and its activities. They also conduct bird surveys. And in north Bhutan with the help of SELF, Washington they provide interest free loans for the villagers to buy solar lighting systems. In this way they provided electricity to the needy. Most interesting part is that I did not know english and it was the first time I went out of the country, yet spoke to BBC channel when they covered our project. And this project was inaugurated by the then President of Bhutan. Overall this project is one of the biggest milestones in my life.



WHERE THERE IS A WILL, THERE IS A WAY

SHIHINAZ- A TRUE SOLAR CHAMPION



Shihinaz Aneef Manikere, lives with her husband in a small village of Dharwad. A month before lockdown her husband lost his job and they had a lot of debts to pay back. During lockdown her son also lost his job. Hence Shihinaz started selling rotis. Aneef Manikere came to know about SELCO's solar powered roti rolling machine but to buy that they did not have money and commercial banks were not ready to give loans. Finally KVGB agreed to give loan and the couple bought the solar powered roti rolling machine.

Shihinaz would prepare rotis and her husband would market it. During lockdown the demand for their rotis increased as

the govt.officials, Paying Guests and apartment dwellers were buying it. The couple was earning a decent income.

The demand slowly started increasing and Shihinaz was finding it difficult to fulfill the demand. This time around Shihinaz recruited a lady who had lost her job. Today, Shihinaz has a team of 6 ladies working in two batches with 1 solar powered roti rolling machine. Per day they supply min. Of 1500 rotis.

Shihinaz says that she's thankful to the solar powered roti rolling machine which not only made her survive the covid pandemic lockdown but also 6 other ladies who got employment because of this solar intervention.



COMMUNITY SOLAR PUMPS FOR IRRIGATION ASSIST TRIBAL FARMERS IN JAMUI & BANKA

Agriculture is the primary source of livelihood for about 58% of India's population. There are two main ways that farmers use water to cultivate crops: Rain-fed farming & Irrigation. South Bihar region is known for rain-fed agriculture. Even though it receives 1100 mm average rainfall, the area lacks substantial irrigation infrastructures, or robust watershed practices. Farmers do not have predictable irrigation especially after monsoon. Access to irrigation is particularly poor for small landholding poorer farmers like in the case of tribal dominated Blocks of Binjha and Sherwari village in the district of Chakai, Barmasiya and Poorna Bandha village in the district of Banka. At the same time Banka and Chakai blocks contain an enormous



amount of sub-surface water that is mostly untapped. PRADAN, a grassroots NGO has been working in this area for many years. A Solar based lift irrigation system was in partnership with PRADAN. This is a Community based system that will bring farmers together and develop a sense of responsibility for usage of



water. As this is a community Pump and not an individual one, water is used in an equitable manner.

In this project 4 Solar based lift irrigation systems have been installed which irrigates 60 Acres of land. For each system a Water User Groups (WUG) has been formed. 10 to 13 farmers are the members of each WUGs. There are around 18 independent women farmers in the 2 Solar Lift Irrigation User groups covering around 10-12 acres of land. After installing the unit, farmers are growing summer season high value crops like Watermelon, Bitter-gourd, Bottle-gourd, Sponge-gourd, Chilly, Tomato, Pumpkin etc. The expected increase in the cropping intensity is double of the current situation. With a total of 4 pumps, about 50 farmers' families will be positively benefited.

Currently PRADAN has been working in 2 blocks of the districts- Katoria and Banka. They are engaged in 270 villages of 25 Panchayats of the 2 blocks. There are 20,270 families in 1576 SHGs promoted by PRADAN. They have a 4 years partnership with Jeevika, Bihar,



to promote self-reliant CLFs in Katoira and Banka Blocks. Moreover, PRADAN is supporting Jeevika in farm based livelihood promotion in all 539 blocks of Bihar. The solution comprises a 5hp submersible pump, (4.8 kWp).

