



## Annual Report

2022-2023

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**SELCO** Foundation



## Table of Contents

### **1. Executive Summary**

### **2. Flagship Programs**

- a. Energy for Health
- b. Energy for Livelihoods – Theory of Change

### **3. Deep Dive on Programs**

- a. Stage 1 Livelihoods
- b. Stage 2 Livelihoods
- c. SELCAP
- d. Energy for Healthcare
- e. Incubation

### **4. Communication and Advocacy**

- a. Ecosystems Approach
- b. Outreach and Engagement
- c. In the Media
- d. Upcoming Events and Activities

### **5. Key Learnings**

- a. On Livelihoods
- b. On Innovation & Incubation
- c. On Climate

## Executive Summary

In the past year, SELCO has primarily driven the integration of decentralised renewable energy for improved livelihoods and healthcare for underserved populations in the global south. In doing so, it has used systems thinking approaches and contributed to climate action, bottom up.

SELCO Foundation has been on the forefront of developing a systems-based approach for DRE driven livelihood enhancement for the poor. The vision of the foundation has been to incorporate DRE as a key catalyst in improving incomes for vulnerable populations. This phase of SELCO Foundation work comes at a critical point within the development sector as benchmarks (for meeting goals of climate and inclusion in a long term and equitable manner) are being transformed. A critical learning has been the bifurcation of its ecosystem building processes into three stages. These stages work both in a linear and nonlinear fashion, with Stage One helping the organization benchmark its solutions, Stage Two enabling a wider ecosystem for scaling of solutions, and Stage Three for amplification of its outputs and processes from previous stages, as well as creating Decentralized Renewable Energy led Livelihood (DRE-L) promotion programs in other organizations at national and global levels.

Since the inception of the new Theory of Change, SELCO has taken considerable measures to strengthen its operational processes.

In the past year, within Stage One, SELCO has benchmarked 26 replicable DRE-L solutions, which has been carried out by SELCO's Innovation teams spanning across Agriculture and Allied, Microbusinesses and Textile and Crafts sectors.

Within Stage Two, SELCO has deployed 2200+ DRE-L technologies since the program's inception in April 2021 (1250+ in the reporting period) in partnership with financing institutions, governmental departments, NGOs, Co-operative societies and community-based organizations, leveraging more than Euro 3 million in End User Financing (Via on Ground End User Financing and Other Philanthropic sources). The scaling effort of SELCO Foundation spans the North East, East and South of India.

On the other front, SELCO has pioneered the integration of sustainable energy and efficient equipment across ~1300 public health facilities across vulnerable districts in 5 Indian states- Karnataka, Odisha, Meghalaya, Nagaland, Manipur. Through this, over 7 million people are benefiting from timely and better quality access to healthcare services, safer maternal care and deliveries and reduced out-of-pocket expenses.

In addition to its work towards direct implementation, SELCO has taken considerable efforts to share its learnings and resources in an open source manner. This report encompasses further details on all its programmatic activities, communication efforts as well as out its key learnings.



# Flagship Programs

## Energy for Health



The Integration of sustainable energy and efficient equipment across ~1300 public health facilities across vulnerable districts in 5 Indian states- Karnataka, Odisha, Meghalaya, Nagaland, Manipur.

This included training of staff at health facility level and Annual maintenance contracts with local energy enterprises to ensure appropriate usage and maintenance of the energy systems and appliances. Through this, public health facilities across 10 districts in 5 states have been blanketed with sustainable energy solutions for healthcare provision.

Based on initial evaluation studies of a subset of sustainably-powered health facilities, the insights on key health outcomes and benefits for the end-user, the health facility, staff and the environment are articulated below. (These will be developed further as a separate document)

## On Ground Impact

### Health services and impact on patients:

- Through this, over 7 million people are benefiting from timely and better quality access to healthcare services, safer maternal care and deliveries and reduced out-of-pocket expenses.
- For instance, health outcomes have improved from 0% to 100% in PHCs of Ri Bhoi District with increased footfalls and immunizations.

### Health staff and facility level impacts:

- This is also benefiting an estimated 9100+ staff members working across these 1,300 health facilities to undertake their activities, deliver timely and quality health-care and support their wellbeing and safety.
- For instance, 52.38% improvements in Staff wellbeing was reported from East Garo Hills District. The district also reported strengthened energy reliability which improved from 0% to 86.3.% in pre and post installation scenarios. Combined, this has facilitated more health centres to function round the clock improving service delivery.

### Environment and Energy security level impacts:

- Solar energy capacity addition: Across the facilities, over 4130kWp of solar energy capacity has been added contributing to India's energy security and Net Zero targets
- CO2 emissions avoided: On account of this additional solar energy capacity, emissions of nearly 39,110 MT CO2 equivalent have been avoided.

## Ecosystem level impacts:

In addition to the direct impacts on end-users, health facilities and the environment, the first phase of the programme has played a key role in building the evidence and processes to enable larger scale replication.

### Government buy-in and Fund leverage:

Through the efforts, there has been a government buy-in and leverage- this has varied from state to state. In states such as Manipur and Meghalaya, up to 60% of hardware costs have been leveraged. This has come from a mix of State Government's National Health Mission funding, District Innovation funds, District Mineral Foundation funds and Aspirational district funds towards the purchase and implementation of energy efficient equipment and energy systems. These are strong indications of a buy-in for this approach from key stakeholders at the State and district levels. As a result, a total of INR. 39.69 Crores has been unlocked from Government funding sources, of the total amount of INR. 96.56 crores mobilized for

implementation of solar energy systems and efficient appliances across all health facilities covered in the program.

### **Policy linkages:**

The program has brought with it the direct championship of the health-energy approach from at least two Chief Ministers- of Meghalaya and Manipur, and multiple Deputy commissioners at District level. This has enabled institutionalization of certain processes- for example: circulars from the Chief Minister (Directorate of Health services) office on designation of specific individuals for the management and basic maintenance of energy systems in each health facility (Manipur); extension of the Jal Jeevan scheme to Sub Centers that were being solarized to enable a water connection and thereby increase deliveries from the center (Meghalaya); increasing vaccination awareness drives alongside deployment of solar powered portable vaccine carriers enabling last mile health workers to more efficiently vaccinate on the ground (Manipur).

### **Climate resilient built environment interventions (in partnership with Govt of Meghalaya):**

Linking up with the Meghalaya state health plans for establishment of new last mile health facilities and upgradation of existing centres, this program and the implementations so far have paved the way for a partnership with the National Health Mission in Meghalaya to build new Sub centres as climate-resilient health facilities thereby integrating efficient built environments alongside solar energy and efficient equipment from the outset. This comes with a significant resource allocation and buy-in from the state health department and has resulted in participatory design processes to develop the architectural layouts for the health facilities based on the typology, and ensure patient and staff comfort and wellbeing alongside greater energy efficiency.

The program has an overall target of establishing 300 new Sub Centers and Health and Wellness centres Climate-resilient (built environment), solar powered and efficient appliance-equipped facilities

### **Guideline development on solarizing health facilities:**

With efficient equipment to be used as technical support for State agencies implementing the National Health Mission. This is a result of the ongoing partnership with the Ministry of Health and Family Welfare (MoHFW) through which the aim is to replicate and scale the approach across states.

### **Training modules and Capacity building for health staff (at facility level- on utilisation of systems and appliances):**

For health department training (at district and state levels- on importance and processes for integrating sustainable energy solutions). In certain states, these are being integrated into regular health department trainings to ensure they are frequent and repeated regularly for new staff.

**Human resource base for quality installation and servicing:**

Trainings have also been undertaken with more than 40 technicians and staff of clean energy enterprises to ensure good quality installation and servicing. This is particularly relevant as many of these enterprises and individuals will be critical to ensure. In the process, there has been a skill upgradation for the locals involved with clean energy enterprises thereby building a human resource base for future system design, installation and servicing of clean energy systems in the region.





## **Energy for Livelihoods**



## **Theory of Change**

### **Stage 1 –**

In the past 6 months, and based on learnings from the past, SELCO has created dedicated sub-teams and programs that are directed towards highly involved research, testing and benchmarking practices. This has been a change from the previous programming period and has already led to improved results in its solutions package developments and has also improved the depth with which it can approach early-stage innovation.

Within its Stage One ecosystem, SELCO recognizes itself playing the role of an innovator, for whom the primary goal is to solve problems within the DRE-L sector

Its key partners here include –

- Researchers (For example, SELCO hosts an inhouse Fishery sector expert and partners with a rice processing manufacturing company for research in the paddy sector)



- Key Manufacturers – For example SELCO partners with Blue Star Automachines to make many initial modifications for its Food Processing solutions.
- Champion End Users and Experts – Existing across sectors, providing on field as well as theoretical validations to solutions.

## **Stage 2 –**

Drawing from the above two changes, it has also in turn greatly strengthened its ecosystem engagement practices. With SELCO's regional teams as the primary ecosystem development leads, it has developed key programs which activate the ecosystem across states. Stakeholders have been prioritized based on the ecosystem needs and priorities identified in each of the states.

Within its Stage 2 network, SELCO perceives itself to be an ecosystem driving and partnership building partner for DRE. It plays the role of a program designer and ecosystem builder with stakeholders like government departments, financing institutions, NGOs, Cooperative Societies, Technology and Energy Service Providers.

## **Stage 3 –**

SELCO has improved upon the operational processes which need to be undertaken to create effective institutionalization of its approaches with key sectoral stakeholders. As depth of institutionalization is a key criterion for success of this program, these improved practices can greatly enable the planning of appropriate activities which lead to partner institutionalization.

For its Stage 3 activities, SELCO recognizes itself a DRE portfolio development partner, technical advisor and strategic thinker. In these roles, its priorities transfer of innovation and ecosystem building processes for DRE-L solutions with selected stakeholders including NGOs and Governmental Bodies.

## **Key Programs**

### **Solar Powered Post Harvest Processing**

SELCO recognized the need for mechanization in processing, and energy needs there in as one of the primary areas of focus for the foundation since the inception of its work in Livelihoods. Today, SELCO has developed replicable solutions for a number of primary and secondary processing needs spanning commodities like rice, millets, pulses, oil, spices, among others. These solutions have been adopted by end users operating at various scales of operations and carrying out their business in various states of India. Moreover, a number of deployments have now been carried out via state departments utilizing governmental

financial resources, which SELCO believes will be a major channel of scaling the said solutions across end users in India.

### **Deployments with People with Disabilities in Karnataka**

Inclusive design and access to DRE-L remains a key priority for SELCO. SELCO realized early in this program period the potential to impact People with Disabilities (PWD), considering that one major impediment for such communities to have access to a sustainable livelihood. Moreover, most livelihoods are highly drudgery prone and manual activities which further sets PWDs behind. SELCO's solutions on mechanization, enable such communities to take up new livelihoods, which had been a distant reality to most. After initial pilots with such communities in partnership with strong NGOs with sectoral expertise, SELCO began large scale deployment efforts within this domain. It has now reached to 800+ PWDs who own and run DRE-L solutions in the State of Karnataka. It has in this process, utilized a village level financial support program for PWDs called the 15th Finance Commission as well as leveraged financial institutional support. It is now creating programs to take these solutions to even greater scale, across its states of activity.



# Deep Dive on Programs

## Stage 1 Livelihoods



SELCO has identified 34 sectors and commodities thus far which are a priority for the Ministry of Rural Development and key departments working towards livelihoods and inclusion. For each of these the aim is to design replicable solutions that can transform that value chain or sector. Out of these, 16 commodities/sectors have been worked on till date.

- 6 of these have solutions already benchmarked (Millets, Dairy, Digital Services, Refrigeration, Pottery & Blacksmith), with no further iterative design activities planned.
- 4 of the value chains, have some solutions benchmarked, with more activities in the value chains currently under iterative development. (Poultry, Rice, Food Processing & Horticulture)
- 3 additional value chains (Fishery, Silk and Apples) have iterative design stages ongoing.
- 3 additional value chains (Piggery, Cotton & Non-Timber Forest Produce) have preliminary scoping and research being carried out

## **Stage One – Steps of Innovation**

### **In Step 0 –**

SELCO conducted preliminary scoping/ baselining/ assessments of value chains, sectors, end user segments, and so on, to identify broad problem and solution priorities.

For example, in the Fishery Value Chain, based on high level scoping exercise conducted in Year 1 of the program, a deep dive research was conducted on fish farming communities in Jharkhand and Odisha in Year 2. Four types of inland fish farming techniques were identified, like Bio flocs, Recirculating Aquaculture Systems, Pond based fish farming and Cage Fishing and corresponding potential and available solutions for each of these.

### **In Step 1 –**

In line with a broad problem, user and market research was conducted to ascertain user typologies, available solutions and the pathway of design and solution development.

For example, in the case of paddy/rice farming until the end of Year 1, SELCO had primarily worked on rice processing as an area of solution deployment. While the rice processing solution in itself was benchmarked in Year 2, SELCO also expanded on its work in the rice value chain at large in Year 2. After an initial scoping of rice on farm practices in Year 1, SELCO conducted user and market research across 4 different paddy farming states in Year 2. It learnt in this period, the baseline processes that are carried out by farmers for each on farm activity carried out. To exemplify further, in the case of rice nursery management and transplanting, techniques of farming varying across states in India, so do the technological demands and environmental considerations. Upon carrying out market research in learnt that only a specific technique of transplantation was currently being catered to using available technologies.

### **In Step 2 –**

technical testing of solutions was carried out to identify merits and demerits from a performance perspective.

For example, in the case of brooders for poultry, in Year 1, SELCO identified that currently available brooders were not providing ideal growth conditions for young chicks, leading to overfeeding and premature mortality. This has led to the development of a refined solution in Year 2 in partnership with an existing manufacturer of brooders and poultry egg incubating machines which will be further tested and evaluated.

### **In Step 3 –**



categorization of the economic model of solutions on hand was carried out as well as their deployments across different operational and ownership models to measure end user acceptance and utilization.

For example, in the case of agricultural on farm machinery, like micro irrigators, de-weeders, mini tractors and so on, SELCO had completed Step 1 activities in Year 1 and has conducted Step 2 activities in Year 2. A critical learning was that this equipment would be used by farmers only for a short period of time in a given year, it thus is now implementing the solutions in tandem with each other, as part of rental service provided by a farmer producer organization.

#### **In Step 4 –**

Upon completion of its iterative design and development steps, SELCO benchmarked solutions which can be replicated. The primary differentiator in SELCO's approach to benchmarking is the prioritization of end user needs in this process. Solutions were benchmarked according to user typologies earlier identified, showcasing the base ecosystem considerations/ context of different end user profiles, applicable technical solutions for these typologies and the corresponding business/economic models.

For example, SELCO completed a number of implementations on Millet Processing solutions in Year 1 and Year 2 which has led to the creation of a benchmarked solution of Solar Powered Millet Processing. Solutions presented cater to Millet Processors working with different types of millets, at different scales of operation and having different ownership models. Case studies of available implementations corresponding to each type are also included. This benchmarking document will further be built out in training modules catering to – End Users, Technology Providers and Financiers.



## **Stage 2 Livelihoods**



In Stage 2, SELCO worked with stakeholders across states to further the outreach of its benchmarked solutions. The three primary roles undertaken by a partner are those of joint program design, end user lead generation, financial linkage or resource provision and complimentary end user capacity building and or market linkages.

### **Stage Two – Steps in Scale**

- A field validation of benchmarked solutions and verification of successes after a minimum period of six months
- Initial programmatic pilots were conducted with limited partnerships showcasing uptake at scale (Approximately 20 – 100 units depending on the solution) which led to creation of approaches with larger partners for program designs.
- Demonstrations of replicable solutions was carried out across regions and studies for demand estimation each region leading to evidence creation for user acceptance of the solution in the region.
- Training and capacity building programs with key stakeholders was conducted to raise stakeholder acceptance and knowledge and solutions

- Outreach to all key stakeholders was prioritized to build awareness and generate leads. Programs conducted were sectoral (e.g., dairy), stakeholders specific (e.g., financing institute) or even product specific (e.g., solar digital centers). Awareness creation collateral like pamphlets, videos etc. have been created.
- Based on scaled implementations carried out across solution models, an exit is planned from stage 2 activities (approximately 2000-10000 units will be further deployed depending on the solution and the demand).

## Key Partners for Stage Two

### State Rural Livelihood Missions (SRLMs)

SELCO is currently working with State Rural Livelihood Missions across nearly all its states in focus. In most cases, SELCO has developed formal relationships and joint agendas with the mission. SELCO recognizes the critical role of SRLM's in India, as the primary state mission to create and sustain Rural Women's Self-Help Groups in India. There are current 8 million registered SHGs in India, each of whom receive capacity building and financial resources (via grants and loans) from the mission every year. SELCO has not only deployed relevant demonstrations of its solutions with each SRLM, and in most cases it has also been able to scale and unlock available financing from the mission to the SHGs. Additionally, in some states, it has also identified and deployed solutions with existing successful entrepreneurs promoted within the mission who can champion the usage of DRE-L solutions, and inspire other SHGs. SELCO is now developing replicable processes for working within the SRLMs structure to unlock financing for DRE-L scalable solutions.





Mission Shakti Department/ Odisha Livelihood Mission: The department of Mission Shakti works to empower women through livelihood activities by supporting credit and market linkage. Under this aegis the State Livelihood Missions (SLM) of Odisha i.e. Odisha Livelihoods Mission (OLM) has been promoting SHGs particularly women groups and providing them financial support for livelihoods. Being the primary government livelihoods institution having a group based approach, it was a prerogative to work with this government stakeholder. To date, over 65 interventions have been successfully executed in collaboration with OLM/Mission Shakti in Odisha. These interventions span a range of sectors including agriculture, micro-business, and animal husbandry, and encompass initiatives such as puffed rice units, paper plate units, kiosk centers, pottery, cage culture, and lighting for livelihoods. The total project cost for these interventions exceeds INR 1.35 crore, with leverages of over INR 74.8 lakhs across Odisha.

SELCO has showcased significant innovation by successfully empowering women-led self-help groups (SHGs), which can now be expanded to include 75,000 SHGs under the OLM and Mission Shakti initiatives. With the support of the Mission, SELCO has secured 55% of the total project funding, enabling the implementation of its initiatives. In order to further expand its reach, SELCO has identified the integration of solutions into the Mission's Comprehensive District Annual Action Plan (CDAP) and Gram Panchayat Development Plan (GPDP) as the optimal approach. This strategic decision allows SELCO to align its strategies and activities with the broader development plans of the Mission.

## **National Bank for Agriculture and Rural Development NABARD**

NABARD has emerged as a critical development and financing partner for SELCO Foundation. It engages with NABARD across three fronts – For furthering programs on rural micro entrepreneurship creation, mechanization in agricultural value chains, and financial ecosystem development. NABARD is a versatile partner to SELCO, who on one hand provides leads to champion end users it is already working with, participates in joint regional program designing activities for deployment at scale, as well as in its financial regulatory role is helping SELCO develop new and sustained banking linkages.



For example, in Giridih, Jharkhand with the support of the District Development Manager of NABARD, SELCO Foundation was able to unlock 46% of funding through Public Banks (35%) and End User Contributions across 16 implementations. Furthermore, NABARD has connected SELCO Foundation with state-level financing institutions like Jharkhand Rajya Gramin bank (JRGB) and SBI through the Department of Refinancing (DOR). NABARD has signed a Memorandum of Understanding (MoU) with these institutions to sanction loans for innovative projects. Discussions are currently underway to formalize these partnerships and establish a mutual understanding to enhance access to financial support for SDG7-driven initiatives.

In Odisha, SELCO Foundation has collaborated with NABARD to organize a workshop that aims to facilitate lending to DRE-based solutions. In addition to this, SELCO Foundation has successfully supported in leveraging INR 73,220 from UCO Bank for the establishment of a pottery wheel unit in Sambalpur, Odisha. The total project cost amounted to INR 94,720, with a ticket size of Rs 75,000, an interest rate of 8.9%, and a loan tenure of 5 years. In Jharkhand, it has successfully collaborated with eight financial institutions, unlocking over INR 90,00,000 in funds for SDG7 Livelihood Solutions.

## **Sectoral Development Government Department**

SELCO partners with governmental departments concerned with sectoral themes like agriculture, horticulture and animal husbandry to aid leveraging of state schemes available for DRE-L deployments. For example, in Odisha, SELCO has partnered with the Agriculture Department to make use of Agricultural Production Cluster scheme where a number of agro-processing solutions are deployed in targeted clusters. In another case, SELCO has partnered with the same department in Karnataka to leverage its Watershed Development scheme through which it aims to scale its Sustainably Designed Poultry Coops for indigenous birds, a solution within its productive workspaces' portfolio.

## **Financing Institutions**

While SELCO has taken considerable measures to unlock financing via banks. SELCO's primary method of partnership with these institutions had been on increasing the demand of asset-based loans, and enabling access to them for targeted end users. Based on its regions of operations, its prioritized banking branches and helped in allocation of loans. A critical enabler in this process have been grassroot NGOs, SF trains and supports grassroot partners who help not only build end user awareness and confidence to approach banks, but also helped in collection and processing of loan documents and paperwork. For example, in

Assam, SELCO partnered with Sanjog a grassroots NGO and North East Small Finance Bank to create a new channel of financial access for Eri Silk Spinners in the region.

Another key emerging area of programming is to partner with banks at a higher level to improve fund allocation and creating a targeted loan portfolio for DRE-L within the bank. SELCO has gained initial success with the Karnataka Vikas Grameen Bank in parts of Karnataka and has initiated more such partnerships and programs in the coming year.

## **District Governments**

SELCO had early on recognized the district regional boundary, and its corresponding governing and administrative bodies as an important enabler of integration and penetration of DRE-L at scale. SELCO's aim within this stakeholder type, is to use the district authority as a channel for converging state led developmental schemes for DRE-L solutions by integrating them into the said programs on one hand, and conducting district level priority setting exercises to target solutions that are most relevant to the development and climate needs of the district.

Within this effort, SELCO has made progress across both these fronts. It has conducted scoping, value chain mapping and climate risk assessment studies across 5 selected districts in India. These studies were presented to district level authorities which initial buy in for potential solutions to the problems identified receiving strong interest from authorities. SELCO is currently streamlining this research to be able to make them actionable for program designing. On the other front, SELCO has initiated deployment of solutions in close consultation with district authorities, leveraging state resources. For example, in the district of Raichur in Karnataka, it works closely with District Collectors office and the Zilla Parishad (District Government) office to reach out to appropriate end users unlock funds for DRE-L solutions using multiple state schemes and networks. In Raichur, SELCO has reached out to 240+ end users in Year 2 of the program period and 340+ overall in the district thus far.

## **Co-operative Societies**

An emerging stakeholder have been co-operative societies which not only provide access to a large pool of targeted end users part of the co-operative but also already channel a considerable amount of financial resources to these users. In one example, SELCO has already reached out to thousands of poultry farmers using its benchmarked solar powered poultry lighting solution in with poultry co-operatives and federations in the states of Jharkhand and Madhya Pradesh. It is now utilizing the same network to scale its solutions for cool poultry shed roof, a solution within its productive workspaces' portfolio.

## **Energy for Health**



Since 2016, SELCO Foundation has worked with multiple NGO and government partners on the ground- who run and operate primary health facilities to innovate on processes that allow for health infrastructure improvement through the lens of sustainable energy. This resulted in development of processes around assessment, program design, procurement, budgeting, servicing and training. These processes were proven on the field with core sectoral experts and health institutions across the states in the country and were identified as the foundation for any health-energy programme. With COVID-19 laying open the gaps in the country's primary health infrastructure, there was pressure on the ground to upgrade and boost the service provision at the public health facilities.

The broader intended outcome has been to increase the reliability and sustainability of health service delivery through solutions that are climate resilient, energy efficient and clean energy-driven. The project sought to achieve this by collaborating with key stakeholders across energy and health sectors and building champions to identify gaps, design and implement programs. This would be supplemented with capacity building for designing and holistic and integrated health-energy programmes, and working closely with ground-level stakeholders such as clean energy enterprises, technology vendors and health facility staff to enhance their understanding of energy systems and their ability to use and maintain them. This would enable and feed into evidence generation by prompting the necessary research

and evaluation, and developing knowledge products and disseminating the same to institutionalise the approach.

India has more than 200,000 public health facilities with more than 157,000 of these being Sub Centers (last mile facilities which function as the first point of care for rural communities). Through the process of this program, a phase-wise process has been developed for the universalization of the health-energy nexus, including program design and implementation.

Over the last 2 years, as a first phase, SELCO Foundation has worked with 5 states across South, East and North East India with a focus on specific vulnerable districts. While the partnerships and champions were being built and developed at the State level, in 2021, SELCO Foundation was also able to raise funds from Crypto Relief Fund for blanketing 10 districts.

The districts were chosen on the basis of:

- Availability of Champions within District administration and State Health departments,
- Climate and Geographic vulnerability:- districts affected by heat stress, excessive rainfalls, remote
- Socio-economic indicators- Aspirational districts and those in areas catering largely to marginalised populations including tribal communities.

In order to break away from siloes and enable a more nuanced approach, stakeholders from both energy and healthcare sectors have been engaged in Program design. This has enabled better planning, design and implementation of energy-health nexus solutions.

Through this project, SELCO Foundation and its partners have developed a holistic program design process towards universalizing the health-energy approach. This covers the following stages:

## **Stage 1: Planning and Pre-implementation**

### **Stakeholder engagement, Champion identification and Approvals:**

Coordinating with key stakeholders at state or district level to build awareness and relevance of the health-energy nexus; Building champions at district and state level who see a complementarity between energy integration and improvement of health outcomes; Through this process of sensitization and awareness building, permissions and approvals are sought to initiate assessments for broader health-energy assessment for a subset of facilities, followed by in-depth site surveys.



**Energy-Health assessment:**

Clear understanding of the energy needs in the facility given the specific health situation, disease burden, health service requirements, current energy scenario and human resource capacity.

**Technical system design and costing:**

Developing customised DRE system designs, including efficient medical and electrical appliances, based on the assessments conducted and templating these designs for different levels of healthcare and service provision.

**In-depth site surveys and baselines:**

Undertaking in-depth baselines and site surveys for a final list of health facilities chosen through discussions with the Government health department (at state or district level); These are chosen based on criteria such as functional centres, with human resources available and infrastructure status. Based on this, cost estimations, bill of materials are developed to initiate the tendering process.

**Stage 2: Implementation****Fund allocation and leverage:**

Determining fund allocation and sources of funding- which would be a mix of philanthropic resources, CSR funds and Government funds including from National Health Mission allocations, District innovation funds etc. This is based on the budget and the final number of health facilities to be solar powered with efficient equipment.

**Tendering process and procurement:**

Developing tenders with the bill of materials and technical specifications for the final set of health facilities provided by the Government; These are put out with procurement guidelines that incentivize quality and timely after-sales service, and strengthen local entrepreneurship

**Vendor training and Installation:**

Finalising vendors based on procurement guidelines and results of the tender; This is followed by a training of vendors to ensure quality installation leading to the process of installing sustainable energy systems with efficient equipment based on energy system design.

## Stage 3: Post Implementation (Monitoring and Training)

### Operations and maintenance:

Establishing mechanisms for maintenance and proper utilisation of the energy system in partnership with the relevant health authorities (at district or state level); This includes Annual maintenance contracts with local energy enterprises to allow for preventive maintenance and any faults.

- Where possible, agreements between Rogi Kalyan Samiti- RKS (health facility management committee) and the Energy enterprise are established to enable usage of untied funds of the RKS for energy system maintenance.
- Systems are being developed to include remote data monitoring in all facilities for more predictive maintenance and regular interface on system functioning

### Asset transfer, Training for usage and ownership:

Ensuring processes and documentation to enable asset transfer to the health facility/ government department; This is accompanied by training of health facility staff to equip them to manage and utilise the energy system, including optimal usage of various medical appliances. They are also trained to troubleshoot for basic maintenance, and sensitised on the processes for escalation of maintenance issues.

### Monitoring and evaluation:

Regular monitoring systems have been put in place and are being improved. Currently, this includes monthly calls to the facility through a Customer Relationship Management (CRM) system to check on system functioning, any challenges faced, responses from energy enterprises in managing the issues if any. These calls will be complemented with data from remote monitoring systems (going forward). Evaluations are underway with a sample set of institutions across focus districts to build greater evidence of the impact, and determine the supplementary conditions to ensure achievement of health outcomes.

## Way Forward

### Flagship initiative for solarizing 22,000 public health facilities (with efficient equipment):

Phase 1 of the program has resulted in the developed of a Flagship initiative on 22,000 facilities across 8 states, in partnership with the Ministry of Health and Family Welfare

(MoHFW) and National Health Mission (NHM). This will include leveraging funds from Philanthropies such as IKEA foundation as well as State NHM funds and smaller District specific funds where available including District Innovation Fund and MLA-LAD funds

### **Mobilisation of state health department heads:**

In order to achieve the target established in the flagship initiative, the focus will be on building relevant national and state level partnerships aimed to strengthen champions at the state level and enable replication of successful processes.

### **Strategic and operational support in incorporating distributed stand-alone solar energy systems as part of health systems in the country:**

Building on the ongoing engagement with institutions such as NCDC and NHSRC, and the existing partnerships at state level (across 8 focus states), this phase will seek to provide relevant resources and strengthen the capacity of State NHM representatives, State Nodal Officers on Climate Change (SNOCCs), District health departments and district administrations. This will involve co-design programs for implementation and solarization of primary health facilities; including planning for assessments, system design and costing, identifying fund leverage and allocations, tendering and procurement and post-installation processes for maintenance.

## **Knowledge and Documentation**

### **Guidelines to NHSRC for NHMs**

Technical design of a DRE system for Public Health depends on various factors. Currently there is a gap in terms of understanding of system designs across different levels of public health infrastructure and the associated costing and models (including technology, installation, O&M) of the programs. Preparation of a Technical Guidelines for Solar Energy System Design was undertaken in partnership with NHSRC determining the factors and assumptions in system design, technical models, the cost implications, and a guide for state NHMs on Solar Powering and Energy Efficiency for Public Health Centers. The objective was to create a guidance document that provides the state NHMs with a blueprint for Universalisation of Sustainable Energy across the Public Health Infrastructure.

### **Report on Health facility solar electrification programs (inputs into Energising health Publication by WHO, IRENA, WB and SEforAll**

Most Primary healthcare systems, especially in developing countries, lack necessary resources to facilitate adequate, accessible, and quality healthcare- one such resource being energy. Energy, especially clean energy can play a catalysing role in achievement of Universal Health Coverage as well as the SDG3. Considering the above, learnings from the global implementations of the Health Facility Solar Electrification (HFSE) programs, a report summarising learnings on how sustainable energy can be leveraged as a catalyst to improve access to and delivery of healthcare services in low resource settings was prepared. Inputs of this Health-Energy Paper were used in the preparation of Energising health: accelerating electricity access in health-care facilities report jointly undertaken by WHO, The World Bank, IRENA and SEforAll. Sections from the former paper are featured across Chapters 3, 4, 6, 7; in addition, representatives from SELCO Foundation were also involved in overall review of the entire document. The latter report provides insights and recommendations on ways in which health facility electrification can be accelerated while supporting transition to sustainable energy systems.

### **Impact assessments of Health-energy nexus**

Through the course of the last year, 2 sets of impact assessments were undertaken. One of them sought to compare the relevance of sustainable energy as a catalyst to improve health outcomes by comparing the implementation and outcomes across 3 districts (2 in Meghalaya and 1 in Karnataka). The other focused on the scale program within Meghalaya- looking at 100 Sub Centers that were solar powered with efficient equipment- across districts. Given below are more details on each of them.





## **SELCAP**



Climate change is more than an environmental challenge- it is a phenomena that is significantly impacting social and economic sustainability. A few decades back, humanity had the option to look at the impacts of climate change, and environmental challenges in silo. At that point of time, one could argue, environmental degradation could be narrowed down to a few specific activities and industries. But today, the challenges leading to climate change are heavily distributed and inter-connected because of which we need a distributed way of problem solving as well.

**SELCO Foundation started its journey on exploring the narrative of Climate Change in 2021. Early on, through its publication of Sustainable Energy led Climate Action Program (SELCAP), it recognised that there were three evident gaps:**

### **Missing solutions:**

Understanding the scale of the problem, stakeholders and narratives geared towards climate action were primarily focussed towards high level changes, which often was not able to translate itself on the ground

### **Top down versus Bottom up:**

The climate solutions were often driven by the top, and therefore were implemented in a siloed manner; and often not prioritising the need of the people. Therefore, climate was often interpreted as a separate project/program/deliverable amongst ecosystem stakeholders

#### **Missing evidence on approach for Integration:**

While the need for a holistic approach was understood at a high level, evidence on how integration of these practices could play out in reality was often a gap.

#### **Develop evidence on solutions and package it for scale- targeting specific thematic narratives. In 2022, SELCO Foundation re-articulated its Theory of Change to bring out its unique position in:**

- Benchmarking solutions in a manner that optimises the technology (features, energy consumption) as per the need and context of those vulnerable to climate change.
- Map actors in the larger ecosystem, understand their roles and working models, in order to impact their service delivery in a manner that it ensures integration of the climate lens. In this case, SELCO is using the implementation on the ground to also create evidence on opportunities of integrating climate action through sustainable energy across different solutions deployed on the ground, as well as programs being designed by various stakeholders
- SELCO's incubation program is also driven by the above agenda, where while its focussed towards enterprises, it has a strong vision to consciously create channels for enterprises who represent communities which hold the emerging climate change driven problem statements and envision businesses which respond to local needs of communities facing climate stresses.

The approach of strengthening the articulation, while working on the implementation of solutions would result in stronger documentation of approaches itself which can then be disseminated across other practitioners. Thus, this links to the next objective.

#### **Develop evidence on the need of a distributed approach to Climate Action- The first year of this program, led to SELCO consciously engaging in Climate narratives (via workshops, conferences, webinars). There was an early learning which demonstrated how there were 2 different types of disconnects:**

- Often the climate narrative was understood as a homogenous narrative across stakeholders. For example, the need to have farmers articulate and prioritize climate impact in a similar manner to a policy maker. Therefore, SELCO has started to orient some of its studies to make this gap visible by planning some studies and dissemination activities which aims to connect narratives (and thus stakeholders) at varying levels of impact (for example, from farmer to enterprise, policy maker and philanthropy).

- Mitigation and adaptation are often 2 different narratives. And often, stakeholders holding the adaptation narratives do not want to engage with the burden of mitigation. This is a common developing country narrative, where it is felt that mitigation should be a conversation for the more developed countries where emissions are high. This leads to an efficient dialogue on “doing less bad” and often pushes back the opportunity to work on adaptation in a manner that it questions consumption and mitigation as well- ie a “doing more good” approach to solutioning. SELCO is also gearing towards narrative building for stakeholders which brings this out more strongly, in order to have more solution strategies which combine adaptation and mitigation impact.

SELCO stands at a unique position- where it has access to three levels of stakeholders: Communities vulnerable to and impacted by climate change, ecosystem stakeholders serving and innovating on solutions for those impacts, as well as global stakeholders whose policies, commitments and services impact the working model of ecosystem stakeholders.

**It also recognises, that using the medium of sustainable energy, it is able to deliver a solution narrative at all of the above described levels- ie solves challenges at the field level, improves the feasibility of impact at the implementation level, and responds to a global narrative.**



## **Incubation**



### **SELCO saw large outreach and application entries for its technology incubation program of 2022-23:**

Over 400 applications were received across three states out of which around 12.7% were shortlisted for jury presentation and FPC participation was integral to it. For instance, 25% of the applications received from the state of Odisha were from Farmer Producing Companies.

#### **Establishment of Partnerships:**

SELCO Foundation partnered with various types of organizations (NGOs, incubation centres, technical institutes) to cultivate and actively advance design thinking and the process of innovation. Strong collaborations with state/govt entities were formed for attainment of the same like with startup Odisha within the government of Odisha was formed. Additionally, SELCO Foundation also partnered with Comedkares, an organization that activates interaction between the community, industry experts and academic stakeholders for sharing knowledge and co-defining and co-creating solutions through various programs. The nature



of collaboration highlighted dissemination of problem statements through an extensive existing network with various tech institutes from tier II and tier III cities.

### **Improved approach, processes and strategies within tech incubation:**

Under the different phases of incubation, the phase of pre-incubation is of utmost importance and this critical phase was successfully streamlined to develop customized support in several spheres like User and market research, Design and Process, Business model development etc. Additionally, learnings from its work across geographies, SELCO Foundation have also supported streamlining and condensing process around prototyping and field-testing protocols for many technology enterprises in order to deliver customized support and to improve individual performances.

### **CEE Incubation with FPCs**

Onboarding of two new FPCs over last six months from Jharkhand (Murhu Nari Shakti Kisan Producer Company Ltd. and Churchu Nari Urja Farmer Producer Company Ltd.) and subsequent focused incubation effort to strengthen governance, internal ecosystem and processes of all FPCs (both new and old) and its members to solidify understanding towards solar business and support business diversification.

Through the application of a set of assessment tools used to appraise the organizational capacity and business operations of the CEEs (Clean Energy Enterprises) major gaps were identified in internal processes and strategic planning of the enterprises. Using them as learnings, SELCO Foundation designed three types of activities to capacitate FPCs new and old to undertake solar business. The three types of activities being-governance training, conducting planning exercises and organizing technical trainings, both on soft and hard skills (vendor engagement and supply chain linkages; quality installations and after sales service provisions).

Strengthening internal processes and external capacity of FPCs can help in building enterprises that are able to capitalize on business diversification opportunity both independently through the context of FPC promotion effort undertaken by the govt. of India under its flagship scheme- "Formation and Promotion of 10,000 new Farmer Producer Organizations (FPOs)" or through existing SELCO Foundation ecosystem. As SELCO Foundation moves ahead with its larger aim of solarization of health facilities, govt and public institutions, vulnerable community institutions and livelihoods under its District Blanketing approach, servicing capacity becomes quintessential, especially the expansion of its health scale program. These entities (FPCs) can subsequently become part of the ecosystem while looking at scale level programs by becoming servicing partners/support systems while generating captive business.

### **Technology Incubation**



A total of 38 enterprises are currently being incubated at SELCO Foundation. These enterprises come from over 5 states of India and span across agriculture, food processing, small scale manufacturing sectors.

## Linkages to Climate Action

Climate change has the potential to significantly impact livelihoods across various sectors and regions. SELCO incubation efforts have primarily been directed towards enterprises solving these needs and problems. This emphasis is driven by the potential impact of climate change on these sectors, including its consequences on livelihood practices and broader food security issues. For example:

- [Transfarm Technologies](#) that facilitates last mile millet processing services and promotes cultivation and consumption of millets which are one of the most climate resilient crops.
- [Bhaskar Machinery and Engineering Works](#) that promote sustainable use of natural resources and support local livelihoods through utilization of non-timber forest products (NTFPs).

## Incubation process, support and reach

Incubatee selection involved undergoing a multi-stage process (details attached [here](#)) that was tested, validated and standardized through the screening and onboarding procedures.

The kinds of mentorship extended under the incubation program can be broadly categorized in four sections- Sustainable Supply Chain and Stakeholder Linkages, Integration Of Solar Energy, Product Development, Business Development Support, and Scaling and Access to Funding, Finances, and Government Subsidy. A brief mapping of support areas is provided [here](#). Some examples include:

- Provision of Product Development Support - Product design support was facilitated to [Aicheng innovation](#) for the development of Paddy Thresher and Winnowers.
- Provision of Basic Business Development Support - Essential business development support was extended to [Maa Mangala Machinery](#) that innovated a puffed rice machine.

## Communication and Advocacy



### **Ecosystems Approach**

Since an internal analysis of the Ecosystems approach at SELCO in 2020, SELCO has taken a number of measures to better understand and articulate its own ecosystems approach. As a next step to these activities, it prioritized improving its own internal capacity to better account for the ecosystems approach across all its implementation activities.

A specific radical shift within the planning processes for its teams has been the prioritization of planning for systemic programs rather than technology centric projects. With the developments made to articulate the organization's Theory of Change and Stages of Livelihoods + Energy work, it created processes to develop programs starkly differentiated between its stage 1,2, or 3 goals. Programs were thus designed around sectors (in Stage 1 and 2) or around ecosystem influencing and engagement activities (Stage 2 and 3). Teams were oriented and capacitated to plan in this differentiated manner, keeping long term systemic change as the primary long term end goal for each program.

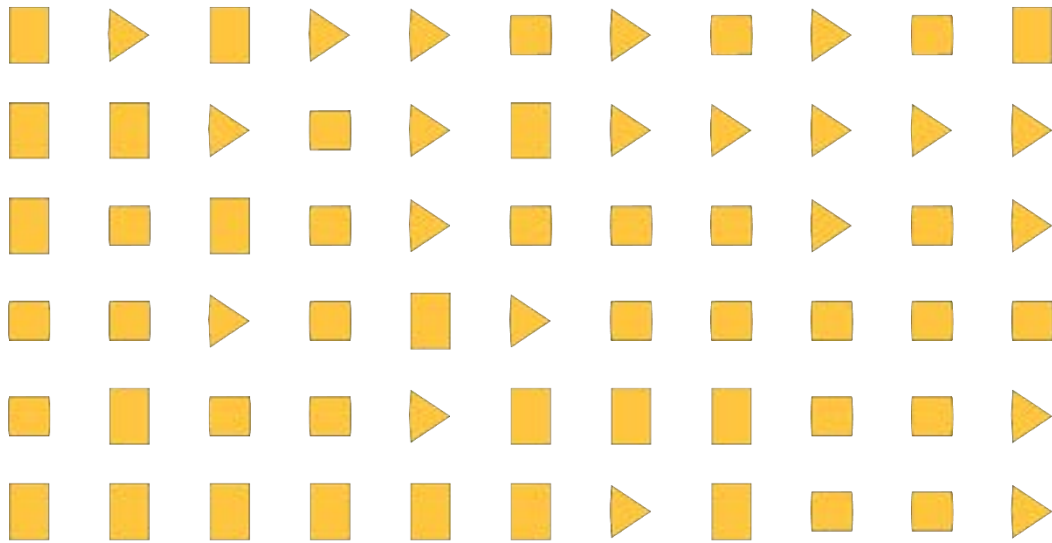
SELCO has pioneered ecosystems level action in many ways and has taken active efforts over time to make its approaches more applicable and practically usable for both internal and external stakeholders of SELCO.

By aiding systemic change within the organizations own process, SELCO is also demonstrating how organizational systems and processes can be tweaked to better contribute to systems change.

The ecosystems approach is only a means to achieve the dual goals of improved climate action and the faster and more long-term alleviation of poverty. In fact, the organization strongly believes that it is only with this type of approach that can we truly meet our developmental goals. While many individuals in the development sector, including internally

at SELCO, resonate with the ecosystems approach, there is often a visible disconnect of the values from their actualization. There is thus a strong need to create improved tools, planning mechanisms, operational strategies and capacity building mechanisms to achieve this.

By setting up these new processes internally, SELCO hopes to be its own test case for improved systems thinking in its implementation processes and create a body of evidence of its impact.



## **Outreach and Engagements**



## **National Level/Global Engagements**

- SELCO Foundation is working closely as a member in the Inclusion and Sustainability Task Force formulated under Startup20 Engagement Group under India's G20 Presidency to forward the global narrative for supporting start-ups and enabling synergies between start-ups, corporations, investors, innovation agencies and other key ecosystem stakeholders. The opportunity will be used to advocate for climate smart innovations and encourage collaboration to accelerate startup ecosystems that can address critical SDG gaps and represent inclusivity in program thinking, approach, and other processes.
- Organized an exposure visit for a group of 5 MFIs from Tanzania for knowledge sharing on planning to develop long term asset based financing for the end-users in Africa.
- Attended Consultative workshop - Decentralised Renewable Energy - for net zero transition with maximum social impact in Greater Noida organized by the Ministry of New and Renewable Energy and GIZ India. Two of SELCO Foundation end users - Ms. Pinki from Odisha and Mr. Lakhpath from Jharkhand, explained the DRE interventions and convergence of Govt. Schemes and programs.

## **State Level Engagements**



- Workshop with FI's & MFIs organized in collaboration with Sustain+, CINI & GIZ in September 2022. SELCO Foundation shared key insights on SDG7 driven solutions. Insights were also shared by SKDRDP on the process of collaboration with SELCO Foundation and its utilization to leverage and unlock finance for last mile end-users.
- Conducted Orientation and Training Program on "Financing Decentralized Renewable Energy Solutions" wherein the first batch of bank managers and asset managers from different districts and blocks of Assam were trained.
- AIC-SELCO Foundation organized "TechnoVation 2022" in collaboration with Manipur science and technology Council, Manipur on September 22 and 23, 2022, with the goal of transforming the innovation pathway into business connections and sustainability. The inauguration ceremony was attended by Shri Th. Basanta Kumar Singh, Hon'ble Minister (Education), Manipur; Prof. N. Rajmuhon Singh, VC- Dhanamanjuri University; Shri M. Yaikul Meitei, IAS, Commissioner (S&T), GoM (Member Secretary, MASTEC) amongst others.
- Participated in the workshop organized by MNRE and presented initiatives required for Women in Sustainability. Two of our partners spoke about their success stories. Few way forwards were discussed like formation of Committee/web portal in MNRE to focus on women in Renewable Energy, planning of Gender sensitive program, planning, Training women technicians on service and maintenance for last mile service, Convergence of MNRE with other ministries (MOEF, Tribal development department



etc.), Synergising the efforts of key stakeholders like SELCO, CLEAN, CEEW, UNEP, barefoot College etc.

- Conducting Banker's Training and Orientation Program for financing for DRE. Second batch of bank managers and asset managers from NESFB were trained. The program was attended and addressed by the Associate Vice President of the North-East Small Finance Bank, Mr. Gunajit Bayan.
- In collaboration with SustainPlus, organized a Learnings workshop on Sustainable agri cooling in Maharashtra. This helped bring in perspectives from Technology enterprises on their Implementations in the region, key challenges faced around utilization. Local NGOs such as BAIF, CInI deliberated on the cooling needs and profile of farmers and groups in different districts. Alongside, discussions were initiated by FPCs/farmers on their challenges in the absence of cooling, key commodities in their region and overall experiences with DRE cold storage.
- In Nov 2022, AIC- SELCO Foundation, organized a 2-day Induction Training Program organized for a batch of Tech Incubatees from Assam, Meghalaya and Manipur.

## Grassroot Engagements



- Governance and Management Workshop organized in September 2022 for the Board members of FPCs incubated under CEE Incubation Program. The objective of the workshop was to bring awareness towards roles and responsibilities and train members with the know-how of running FPCs especially in the Solar Business space. The participation list included three women led FPCs.
- Participated at the Annual General Meeting of Jharkhand Women Self-Supporting Poultry Coop. Federation. Ltd and conducted an interactive workshop to bring climate change awareness, the impact of the same on livestock productivity and mortality.

Various solutions were showcased and initiated dialogue on possible adaptive measures and future mitigation strategies.

- Participated in 4th Annual General Body Meeting of M-Tomato, APMAS, Madanapalli, Annamayya district, Andhra Pradesh. Interacted and discussed with the farmers, FPO members on the way ahead to scale DRE implementations locally. Technological vendors for centralized solar sprayers, solar insect traps, and Integrated Disease management, pest management & nutrition management also attended the event and showcased their solutions.
- Participated in an all women meeting organized by Churchu FPC (onboarded under incubation program) to discuss expansion in Solar Business in Hazaribagh, Jharkhand. During the meeting different Solar Business models were discussed.
- As a part of the Awareness Program on DRE based interventions across Agri, AH and RMB, SELCO Foundation showcased a knowledge stall at one of the villages in Gadag as a part of FPO's Mini Krishi Mela. It was the participation by women groups, farmers, line departments, NGO's, MFIs and community based organizations.
- Conducted Two day Business Planning Workshop for FPC working as CEE in Jharkhand.
- Livelihoods awareness program was organized with Brindavana FPO farmers and was attended by Canara Bank AGM Mr.Thippeswamy and MD of the FPO.
- Participated in the DRE livelihood awareness program organized for people with disabilities like hemophilia, thalassemia, locomotor disabilities, etc. It was organized in collaboration with Karnataka Hemophilia society, Disability department and DNA Disability NGO and was attended by 200 people.
- Conducted training program supported by NABARD on 27th December 2022 for 30 women associated with Adarsh Vikas Seva Samidhi of Bokaro district in Jharkhand. The awareness building training aimed to motivate and support existing and new farmers from the district in creating sustainable livelihoods in dairy, poultry, and goatry. Additionally, post-training support on various energy efficient technologies based on DRE for women farmers of the district was also conceptualized.

## In the Media



- SELCO conducted a livelihoods Trade Fair, showcasing DRE Solutions to end users and ecosystem stakeholders in the region. The event has been covered in the article here - <https://www.eastmojo.com/mizoram/2023/03/17/selco-foundation-makes-a-mark-in-mizoram-with-trade-fair/>
- SELCO Foundation has partnered with Urmul, an NGO based in Rajasthan, India to demonstrate and create replicate solutions for the Camel Milk Value Chain. The work conducted by the two organizations is highlighted here - <https://www.saurenergy.com/solar-energy-news/solar-powered-milk-chillers-with-storage-come-to-the-rescue-of-camel-herders-in-rajasthan>
- SELCO Foundation's implementation in Tamil Nadu with Transgender Communities were highlighted in an article by The Hindu - <https://www.thehindu.com/news/cities/Tiruchirapalli/transpersons-make-a-fresh-start-with-solar-powered-stalls-in-tiruchi/article65886537.ece>
- SELCO Foundation's work with tailors in Jharkhand has been highlighted by a local news agency in the state - <https://www.rtvonline.com/english/international/9602/Solar-power-saves-the-day-for-women-entrepreneurs-of-Ramgarh-coal-belt>
- SELCO Foundation has been featured on the Indian Development Review's podcast series 'On the Contrary'. These include a podcast on the status of jobs and livelihoods amidst the climate crisis - <https://idronline.org/podcasts/on-the-contrary-podcast-social-impact/sustainable-businesses-and-the-climate-crisis/>

## **Upcoming Events**



### **Solutions Portal Launch –**

SELCO is currently close to completing the development of its solutions portal, which includes details on a number of solution it currently works on, and a mapping of vendors providing these solutions to end users. This portal will be launched in the current year.

### **National Roundtable Agri Cooling –**

SELCO has deployed over 70 solar powered cold storages for agriculture thus far, and has documented learnings across 400+ implementations carried out by the sector in India. In addition, it is also conducted regional scoping exercises to further the scaling of solutions. These learnings generated will culminate in a large-scale event at the national event in India, with an aim to garner policy support for scaling the solution.

### **Financing Events –**

SELCO recently concluded a state level financing meet in the state of Odisha which has created immense interest from institutions for financing of DRE linked livelihood solutions in the state. Taking a cue from this success, similar events will be conducted in the State of Karnataka and Assam to further financial institution participation in the states.

### **Millet National Level Dialogue –**

2023 has been designated as the International Year of Millets with strong participation from the Government of India. SELCO has worked extensively within the millet processing sector. The solutions, learnings and impacts will be shared at the national event by the end of the year, to garner policy support for scaling.

# Key Learnings

## On Livelihoods

- Benchmarking process and the importance of user typologies- Every livelihood is practiced by a diverse set of users. The first step of innovation is to deeply understand the diversity and the relationships between these differentiating factors between users. This focus ensures that the priority is given to the problem statement faced by the user in their context, and not jump to a solution- which can lead to a technology specific program design.  
The benchmarking process is not for a technical solution but more of specific use cases of solution. For example, in the case of a food processing machine, benchmarks would be different for end users producing different quantities of food products everyday. Thus, each technical solution is customized to three to four scalable and standardized typologies. Within the 26 benchmarking solutions are solutions specifically catering to 80 user typologies overall. Replication of each solution model will proceed only with users that fall into the respective typology to ensure the appropriateness of the solution during scale
- While SELCO has made considerable efforts to improve financial institute activity for DRE-L deployments, a large amount of its programming has been focused on improving this linkage from the demand side. This has proven to have limited results thus far, with insufficient institutional commitments at scale from the supply side. SELCO has thus resolved to improve and strengthen its programmatic efforts on the supply side of financing. It is seeking to develop new program designs in partnership with financing institutions and relevant government bodies for resource allocation at a large scale via aggregation of demand.
- As SELCO continues to streamline its operational activities within the structure of its new theory of change, it has recognized the need for appropriate checks to ensure information documented and passed on at the end of each stage is relevant and accessible for stakeholders in the next stage. It has created specific committees for each stage that will review outputs critical in the stage before accepting the movement of a solution in the next stage. This will not only help keep checks, but also aid internal collaboration with members from a diverse range of teams participating in the committees.
- Within its work in Stage Two, SELCO recognizes that a number of common pathways of partnership development are being utilized in each of its regions. The organization in the coming period will be laying specific focus to standardize these pathways to maximize outputs and efficiency. Furthermore, ways of working with specific types of stakeholders will be further analyzed and stipulated.
- Honing down on SELCO's role as an Ecosystem Builder – SELCO has resolved that to aid program sustainability it needs to pivot from its role as socio-technical advisor



and enabler (which utilizes an ecosystem's approach) to one that actively brings stakeholders together and pushes for building of ecosystems where necessary. For example, in its work on integrated solar energy and technology solutions in the millets value chains it realizes that building effective partnerships with agro-ecology oriented organizations is necessary to further its own goals of solution innovation and deployment. Similarly, recognizing the role of civil society and governments in scaling new solutions and providing end user training it is now designing programs which bring such stakeholders together, for example in Assam, it is now working along with a collaborative of civil society organizations that are collectively seeking to build an ecosystem for rural women entrepreneurs, in a manner that solutions developed by the collaborative are advocated for with key governmental institutions in the state.



## **On Innovation and Incubation**

- **Impact of Catalyze Tech Challenges on Incubation and other Collaborations**  
The Catalyze Tech challenges play a vital role not only in fostering innovation driven by specific needs but also serve as a key platform for identifying potential incubatees for the SELCO Foundation incubation program. Additionally, these challenges facilitate the identification and segregation of mature innovators who may not be suitable for the incubation program but possess valuable potential to collaborate directly with our program teams. In such instances, the challenges provide a medium through which we can connect these mature innovations with real-world applications and deployments, enabling them to scale effectively. Example, Koel Fresh who provided capacity building in the Post Harvest Loss management Sector was directly connected to implementing teams at the Foundation.

Another critical way in which the challenges have helped SELCO Foundation's programming efforts, is by offering itself as an entry point intervention in new regions or with new sets of partners. The Catalyse Tech concept enables the recognition of local talent which aids the motivation of local partners. Awards provided being direct and tangible, boost confidence in the implementation focussed nature of SELCO Foundation and build greater participation. For example, SELCO Foundation first conducted such a challenge in Mizoram, the impact of which generated a lot of stakeholder support in the region and ultimately led to full scale operation of SELCO Foundation and a new office in Mizoram.

- **Opportunity to provide innovations with a platform to scale**  
Even though the innovation ecosystem in India churns out a number of innovations both in the healthcare and livelihood sectors, most are limited to labs or small scale deployments. SELCO's approaches on solution benchmarking coupled with its ability to interact with a wider ecosystem and initiate large scale deployment programs has provided a vital opportunity to a number of technology providers already. In many cases, SELCO's initial push for a technology uptake has helped the technology provider reach larger markets and networks. For example, SELCO Foundation's incubation support to Blackfrog for its portable vaccine carrier propelled it to raise many additional rounds of funding and gain practical evidence before securing necessary certifications with the WHO. Similarly, SELCO's work to pilot decentralized cold storage units in India have helped bring awareness regarding the solution to a large number of stakeholders. SELCO recognises that it has an opportunity to advance on this role as an enabler of taking new and risky innovations to a stage that markets or public bodies find greater acceptance for them.
- **Lack of confluence with the mainstream innovation sector and emerging successes**  
While SELCO has been heavily engaged with a hardware oriented and low-to-medium tech sector, it has faltered in making the same headway with both, high tech oriented

innovators or incubators, as well as software oriented innovators. SELCO finds that the reasons for the divergence largely remains with the fact that the end user centric problems that it aims to solve do not need many high tech or software oriented solutions at this stage, as well as the fact that innovators working on such types of solutions don't relate to problems SELCO aims to work on. While this scenario has been the general experience with regards to its livelihoods work, in the health care sector, where problems faced are more wide-ranging, it has now been able to build better partnerships with innovators and incubators to collaborate. For example, SELCO's work with C-CAMP, has helped the foundation gain access to more high-tech health care solutions, like those for detecting neonatal sepsis, which it is helping gain credible field tests and experience in public health care settings, before potentially achieving scale.

- **Categorization of CEE Enterprises:** With regards to its clean energy enterprise development portfolio with Farmer Producer Companies (FPCs), SELCO Foundation closely engaged with incubated enterprises to assess the most relevant and contextual involvement that said FPC can have given its maturity and business planning. Owing to which currently, there is an attempt to actively categorize FPCs in three broad divisions (which is given below), largely based on parameters like a) reach and networking in rural & remote areas b) Understanding of financial products c) level of ongoing business activity and the ability of the FPC to adopt clean energy business.
- **Finding appropriate mentors and partnerships from Tech Enterprise Incubation:** Learnings from AIC -SELCO Foundation's work has laid the premise to partner more with Science and Technology institutions as the required support on technology expertise may not be in SELCO Foundation pool. Therefore, it necessitates strengthening partnerships not just with other incubators that could provide a pipeline of early-stage innovations but also Science and Technology institutions especially those that are supported and facilitated by either state or central govt. which boast of strong technology experts who could act as potential mentors. Also, generally, continue building expertise on mentorship aspects in specific sectors like new value chains (example: tea drying in the NE, regenerative and climate smart agriculture) to capacitate SELCO Foundation with a better understanding of the type of technology/ innovation/appliances required to facilitate more climate smart solutions.

## **On Climate**

- Importance of the integration of Climate lens under all SELCO Foundation activities and programs: Climate thinking has been integral to the overall thought process of SELCO Foundation since a few years but in the light of exacerbating climate phenomenon and its ongoing effort towards developing futuristic solutions, cognizance of considering climate lens in every stage of program planning and designing was realized especially in the thought process guiding tech innovation and incubation. Attempts will be made to align Foundation's efforts into such climate integration across all programs and thinking.
- Technology Innovation and Climate Action  
After mapping SELCO's technology innovations to climate linkages, SELCO identified a number of areas which could inform its future strategy for research as well as outreach. The following are a list of takeaways and internal recommendations based on the mapping exercise.
  - a. Direct emission reduction impacts of technologies should be showcased with (potential) scaled deployments/overall demand.
  - b. For certain innovations, scaling is only possible with sustained behavioral change (Soil testing, hydroponics, bio digesters), or may only currently function at small scale in scattered pockets (rope, pottery, eri silk, natural farming), it is important to devise a clear strategy to mitigate these limitations, via directed partnerships with specialized stakeholders.
  - c. Understanding harmful technologies currently in use is a potentially avenue to identify new areas of innovation, as in, to identify alternatives for them.
  - d. There is a need to better articulate the impact of decentralized systems from a socio-economic perspective, when implemented at scale as well as from an emission reduction perspective.
  - e. There is a need to identify a greater number of nodal points from the lens of improved pro climate practices (farming, commodities, natural products, waste management) via research from sectoral perspective to explore areas of other new complementary innovations (With prototypes on the field).
- Breaking Homogeneity and Building Organic Connections in Climate Narratives  
Through our engagements, we have recognized a prevailing focus on stakeholders communicating primarily the gaps and what is lacking in the climate space. Moreover, there has been a tendency to create climate awareness as a homogeneous narrative across all levels.

SELCO recognised that communication to different stakeholders involved (the end users, immediate support ecosystems and macro level stakeholders) was fairly similar in nature which does not create actionable impact. It is crucial to understand the specific challenges faced by different stakeholders, especially for those who are

at the ground level such as farmers, and how these challenges contribute to climate conversations at broader levels, including state-level discussions, civil society forums, and policy-making arenas.

Furthermore, SELCO believes that narratives should shift to solution oriented stories which are currently scarce in the sector.

- a. For an end user on the ground, problems being faced by them might not relate to the need for climate action but call for a more direct solution. For example at the lowest level, for the health seeker, the need to have to travel for a long distance in the absence of a health facility in their own vicinity would pose a problem.
- b. This same problem however, can be articulated for different audiences, with the macro climate action oriented narrative being drawn from it. In the same example, at a higher level, a health staff worker may on the basis of the same problem allude to the lack of basic facilities, electricity and safety and a lower health official may speak of staff absenteeism and high operational costs.
- c. This challenge can ultimately be articulated at the highest level as a challenge of the lack of adequate infrastructure for healthcare and a need to improve quality of health services. Health service delivery may be particularly hampered during climate emergencies and healthcare delivery also contributes heavily to climate emissions.

In this manner, climate narratives can be tied in strongly to on ground narratives.

- Current climate narrative with philanthropies  
As a lead up to the landscape study, SELCO Foundation analyzes the portfolios and narrative of some of the climate philanthropies. Early analysis showed that the portfolios were designed to be unidimensional, focussing heavily on the macro level stakeholders for critical policy change, capacity building or climate financing innovations. Moreover, programs designed were primarily for evidence creation or policy changes. SELCO's hypothesis currently states that much of the philanthropic monies is going into designing large scale climate programs- but very little in implementation of those programs on the ground. For the above transition to happen, SELCO Foundation is taking up studies to:
  - a. Make this gap in funding and implementation more visible
  - b. Develop a ladder of indicators which help connect the macro level climate targets to grassroot implementations and capacities



**Thank you! For more information please reach out to us at:**

[info@selcofoundation.org](mailto:info@selcofoundation.org)

[www.selcofoundation.org](http://www.selcofoundation.org)



## **Annual Report**

2022-2023

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**SELCO** Foundation



# **RAMESH ASHWIN & KARANTH**

**CHARTERED ACCOUNTANTS**

**F. R. No. 010680S**

## **INDEPENDENT AUDITOR'S REPORT**

**To the Members of SELCO Foundation**

### **Opinion**

We have audited the Financial Statements of SELCO Foundation, which comprises the Balance Sheet as at 31<sup>st</sup> March 2023, and the Statement of Income and Expenditure and Receipts and Payments accounts for the year then ended, and notes to the financial statements, including a summary of significant accounting policies. In our opinion, the accompanying financial statements give a true and fair view of the financial position of the entity as at March 31, 2023, and of its financial performance/Cash flows for the year then ended in accordance with the Accounting Standards issued by the Institute of Chartered Accountants of India (ICAI).

### **Basis for Opinion**

We conducted our audit in accordance with the Standards on Auditing (SAs) issued by ICAI. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the entity in accordance with the Code of Ethics issued by ICAI and we have fulfilled our other ethical responsibilities in accordance with the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### **Responsibilities of Management and Those Charged with Governance for the Financial Statements**

Management is responsible for the preparation of these financial statements that give a true and fair view of the state of affairs, results of operations and cash flows of the entity in accordance with the accounting principles generally accepted in India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the entity's financial reporting process.





# **RAMESH ASHWIN & KARANTH**

**CHARTERED ACCOUNTANTS**

**F. R. No. 010680S**

## **Auditor's Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

For M/s Ramesh Ashwin & Karanth  
Chartered Accountants  
F.R No. 010680S



**Prashanth Karanth**

Partner

M No. 214235

UDIN: 23214235BGUXJK1292

Place: Bangalore

Date: 28-08-2023

**SELCO Foundation**  
**# 690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078**  
**BALANCE SHEET AS AT 31st MARCH 2023**

	PARTICULARS	Schedule No.	As at 31st March 2023	As at 31st March 2022
I	<b>Sources of Funds</b>			
1	<b>NPO Funds</b>			
(a)	Non Corpus Fund	1	331,64,27,542	114,73,17,567
			<b>331,64,27,542</b>	<b>114,73,17,567</b>
2	<b>Current liabilities</b>			
(a)	Other current liabilities	2	2,15,94,599	8,25,57,521
(b)	Short-term provisions	3	80,10,426	1,18,51,682
			<b>2,96,05,025</b>	<b>9,44,09,203</b>
	<b>Total</b>		<b>334,60,32,567</b>	<b>124,17,26,770</b>
II	<b>Application of Funds</b>			
1	<b>Non-current assets</b>			
(a)	Property, Plant & Equipment	4	1,81,48,488	1,49,11,829
2	<b>Current assets</b>			
(a)	Receivables	5	-	7,67,000
(b)	Cash and bank balances	6	304,34,50,360	114,32,67,244
(c)	Short Term Loans and Advances	7	11,66,53,636	7,24,76,054
(d)	Other current assets	8	16,77,80,083	1,03,04,643
			<b>332,78,84,079</b>	<b>122,68,14,941</b>
	<b>Total</b>		<b>334,60,32,567</b>	<b>124,17,26,770</b>

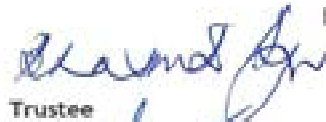
See accompanying notes to the financial statements  
As per our report of even date

For SELCO FOUNDATION

  
Trustee

  
Chief Executive Officer



  
Trustee

  
Chief Financial Officer

For M/s Ramesh Ashwin & Karanth  
Chartered Accountants,  
F.R No. 0106805



Place : Bangalore  
Date : 28/08/2023

Prashanth Karanth  
Partner  
M No. 214235

SELCO Foundation # 690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078 INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 2023						
(Amount in Rs.)						
	Particulars	Note	For the year ended 31st March 2021		For the year ended 31st March 2022	
			Unrestricted funds	Restricted funds	Unrestricted funds	Restricted funds
I	Income					
(a)	Grant Received - Foreign	9	40,25,80,130	286,84,96,855	125,09,89,026	125,09,89,026
(b)	Grant Received - Local	10	50,000	15,69,74,963	4,79,650	16,13,43,705
II	Other Income					
a)	Interest received - From Banks		7,63,75,462	7,63,75,462	3,35,78,903	3,35,78,903
b)	Interest received - From Other Sources		2,45,605	2,45,605	4,28,480	4,28,480
c)	Professional Income		13,63,415	13,63,415	34,25,850	34,25,850
III	Total Income (I+II)		48,06,14,612	262,28,41,688	3,79,12,882	141,18,53,081
IV	Expenses:					
(a)	Project Cost	11	0	85,03,45,821	0	76,19,97,015
(b)	Administration Costs	12	0	7,98,81,439	0	7,25,21,949
(c)	Depreciation and amortization expense	4	41,19,065	41,19,065	29,54,472	29,54,472
	Total expenses		41,19,065	93,02,27,261	29,54,472	83,45,18,964
V	Excess of Income over Expenditure for the year before exceptional and extraordinary items (III- IV)		47,64,95,547	169,26,14,428	3,49,58,410	61,22,92,527
VI	Exceptional items (Taxes, Fines and penalties, (Refund of taxes fines and penalties)		0	0	0	0
VII	Excess of Income over Expenditure for the year before extraordinary items (V-VI)		47,64,95,547	169,26,14,428	3,49,58,410	61,22,92,527
VIII	Extraordinary items (Specify nature & provide note/delete if none)		0	0	0	0
IX	Excess of Income over Expenditure for the year (VII-VIII)		47,64,95,547	169,26,14,428	3,49,58,410	61,22,92,527
	The accompanying notes are an integral part of the financial statements	15				

See accompanying notes to the financial statements  
As per our report of even date

For SELCO FOUNDATION

*W. Srinivas*  
Trustee

*R. Srinivas*  
Chief Executive Officer

Place : Bangalore  
Date : 28/08/2023

*Raymond J*  
Trustee

*Prashanth Karanth*  
Chief Financial Officer



Prashanth Karanth  
Partner  
M No. 214235



**SELCO Foundation**  
# 690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078  
Receipts and Payments account for the year ended 31.03.2023

Particulars		For the year ended 31st March 2023	For the year ended 31st March 2022
<b>Opening Balance</b>			
Bank		5,11,28,695	4,58,65,095
Cash		10,005	7,266
Fixed Deposit		1,09,69,62,480	48,43,41,973
	A	1,14,81,01,180	53,02,14,334
<b>Receipts During The Year</b>			
Donation Received		15,69,74,963	16,13,43,705
Grant Received		2,86,84,96,855	1,25,09,89,026
Interest Received - From Banks		6,81,47,031	3,53,81,011
Professional Income and Other Income Received		16,09,020	38,54,329
Sale of Fixed Assets		12,712	1,39,830
Tax refund received		-	60,32,153
<b>Net Receipts</b>	B	3,09,52,40,581	1,45,77,40,054
<b>TOTAL</b>	(A+B)	424,33,41,761	198,79,54,388
<b>Payments During The Year</b>			
Administrative Costs	14	7,76,66,118	7,04,62,434
Fixed Assets Purchased		73,93,260	1,09,70,068
Project Costs/Research And Development Cost	13	90,89,96,077	72,96,15,881
Payment for purchase of office building		5,00,00,000	2,87,00,000
Payment of Rental Advance		17,55,000	1,04,825
Tax deducted at source		23,91,031	-
<b>Net Payments</b>	A	104,82,01,486	83,98,53,208
<b>Closing Balance</b>			
Bank		45,56,34,614	5,11,28,695
Cash		789	10,005
Fixed Deposit		273,95,04,872	1,09,69,62,480
	B	319,51,40,274	1,14,81,01,180
<b>TOTAL</b>	(A+B)	424,33,41,761	198,79,54,388

As per our report of even date

For SELCO FOUNDATION

  
Trustee

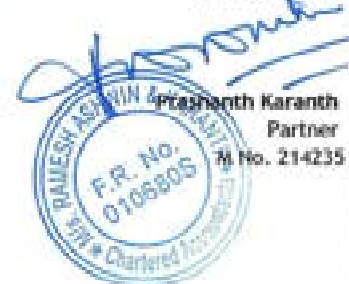
  
Chief Executive Officer



  
Trustee

  
Chief Financial Officer

For M/s Ramesh Ashwin & Karanth  
Chartered Accountants,  
F.R No. 0106805



Place : Bangalore  
Date : 28/08/2023