ANNUAL REPORT

2023-24

SELCO FOUNDATION

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Executive Summary →

Energy for Livelihoods →

Stage One

Innovate

- Benchmarking for Scale
- Stregnthening Livelihood Value Chains
- Working with Enterprises for Solution Development
- Climate Action in Sustainable Energy and Livelihood Solutions
- Benchmarking Climate Resilents and Efficient Workspace Designs

Stage Two

Scale

- Developing Program Designs
- Building Ecosystems
- Scaling Solutions
- Flagship Programs

Stage Three

Amplify

- Partnerships for Ecosystem Strengthening
- Championing DRE, Livelihood in Climate Action
- Amplifying DRE and Renewable Energy Benefits

Energy for Health

- Implementation of DRE in Health Care Facilities
- Regional and National Partnerships
- Creating Models for Operations and Maintenance of Solar Energy Systems
- Technical Advisory for Replication of Processes
- Creating a Digital Backbone for Efficient Implementation and Sustainability
- Improving Access to Energy Efficient Medical Technologies
- Improved Built Environments for Healthcare Facilities
- Strengthening the DRE Ecosystem
- Outreach and Advocacy
- Ecosystem Stakeholders

Ecosystem Building

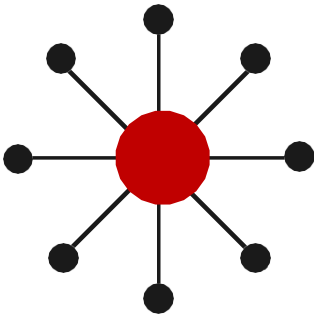
- Catalyse Tech Problem Statements
- Catalyse Tech Challenges
- Technology Incubation
- SELCO Skills
- We Scope
- Apurva.ai

Financials

Energy for Livelihoods

SELCO's effort on building the linkage between renewable energy and livelihoods has been developed based on the past work of the organization and it's partners, which demonstrated the benefits of renewable energy applications in livelihood contexts, alongside others in healthcare, education and household wellbeing.

SELCO has now also entered its second decade of operations. With this turn, it also rearticulated its Theory of Change in the context of its first decade of work. 2023 – 2024, was the first year of SELCO adopting this Theory of Change, particularly in its structure, planning and processes.

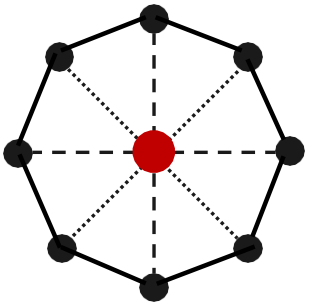


Stage One

Innovate

Actions flow from SELCO to Ecosystem Stakeholders

See the Update →

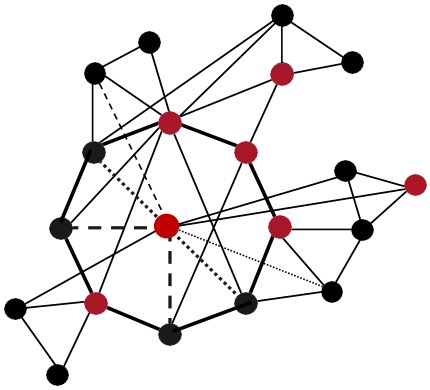


Stage Two

Scale

Linkages between Ecosystem Stakeholders being established. But ownership of those relationships and transactions lie with SELCO

See the Update →



Stage Three

Amplify

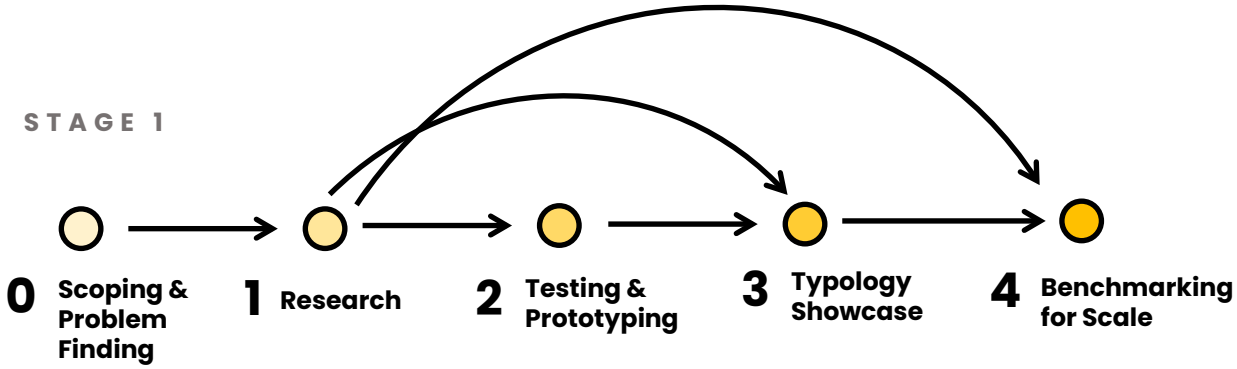
Ecosystem stakeholders take actions forward in their own way, with their own networks; with or without SELCO

See the Update →

Stage One

Innovate

In 2023-24, SELCO has made significant progress in innovating on new technologies, benchmarking new solutions, as well as is fine-tuning its benchmarking documentation standards as part of its Innovate portfolio. Below illustrated is the typical flow of solution identification, development and benchmarking at SELCO.



Benchmarking for Scale

Stregnthening Livelihood Value Chains

Working with Enterprises for Solution Development

Climate Action in Sustainable Energy and Livelihood Solutions

Benchmarking Climate Resilents and Efficient Workspace Designs

Benchmarking for Scale

In line with SELCO's Stage One workstream goal of its theory of change, the Foundation has made progress in benchmarking new solutions. Out of its totally prioritised technology solutions of 133 solutions, encompassing 228 technology variations, SELCO has now benchmarked 38 solutions (29%) as on June 2024.

Agriculture

- Agri Cross Cutting Needs
- Paddy/Rice
- Millets
- Spices
- Cash Crops
- Tea
- NTFPs (Honey)
- Fruits (Tomato, Apple, Jackfruit)

Animal Husbandary

- AH Cross Cutting Needs
- Dairy
- Piggery
- Poultry (Intensive and Backyard)
- Fisheries (Aquaculture)
- Pastoralism (Sheep and Camels)

Microbusiness

- Services and Retail
- Food Processing
- Arts and Crafts
- Textiles (Silk)
- Light Manufacturing
- Solutions for People with Disabilities (Special Focus)

Left
Livelihood value chains/ themes of innovation prioritised at SELCO

On ground field validation of solutions conducted at over

2000 sites

Dough Rolling Machines

OUTPUT PRODUCTS
Papad / Flat Bread/ Roti

LIVELIHOOD SECTOR
Food Processing

TECHNOLOGIES

- Dough Rolling_Hydraulic Press_0.5 hp DC
- Dough Rolling_Belt Conveyor_0.25 hp DC
- Dough Rolling_Belt Conveyor_0.5hp DC
- Dough Rolling_PedalOperated_180 W DC

SIZE OF OUTPUT

DIAMETER	THICKNESS
1 inch to 6 inch	

MOTOR SPECIFICATION

- PMDC 0.5hp , 24 Vdc

PRODUCTION RATE

- Upto 8 kg/hour

SPACE REQUIREMENT

- 50 sq ft workspace (Machine + Movement)
- Drying space needed: 800 Sq ft minimum

RECOGNISED VENDORS

- Bluestar Automobiles
- Star Associated Industries

SOLAR DESIGN SPECIFICATIONS

SOLAR PV CAPACITY	SPACE FOR SOLAR PV	CHARGE CONTROLLER
670 Wp Solar Module	80 sq. ft. shadow-free region	50 A, 24 V

BATTERY CAPACITY	BACKUP	SPACE FOR BATTERY
3600 to 4800 Wh	4 Hrs AUTONOMY 2 Days	6 sq. ft.

For example, highlighted above is the benchmarked solution for dough rolling machines, commonly used for making Papads, Rotis and other Indian Flat Bread.

See the solution catalogue

Stregnthening Livelihood Value Chains

As illustrated in the table above, SELCO's work in all spans 20 livelihood sectors. These sectors are prioritised across three core livelihood categrories like Agriculutre, Animal Husbandry, Microbusinesses (Including Crafts and Textiles). Some of the key livelihood sectors and value chains are highlighted below –

Paddy Value Chain

In the paddy sector, SELCO has prioritised 8 solutions and identified 17 variations across them. Out of the 17 variations, 7 have been benchmarked or are in final stages. Some technologies include paddy reapers, threshers, transplanters and multipurpose tool bars.

Dairy Value Chain

In the dairy sector, SELCO has prioritised 15 solutions and identified 26 variations across them. Out of the 26 variations, 19 have been benchmarked or are in final stages. Some technologies include vaccine carriers, hydroponics for fodder, chaff cutters, milk chillers, and bio-digestors.

Food Processing Sector

In the food processing sector, SELCO has prioritised 20 solutions and identified 40 variations across them. Out of the 40 variations, 25 have been benchmarked or are in final stages. Some technologies include cold pressed oil mills, various types of snack making machines, slicing, grinding and pounding machines.

Working with Enterprises for Solution Development

In the past year, SELCO developed its partnerships with innovation. These innovation partners are mostly aspiring enterprises that are ready to forge pathways into new territories. These selected organizations could be larger ones with long track records or grassroot organizations can be flexible to tinker with technologies and modify them to suit the local settings.

To put to context, SELCO partnered with Prompt Innovations (a dedicated innovations wing of Prompt proper, relatively a large organization) to develop, fairly quickly, an Instant Milk Chiller for remote locations. And on the other hand, SELCO partnered with Sonu Agro (a small grassroots entity) to modify locally available manual paddy transplanters. These were converted to electric to reduce drudgery for the small holding farmers. Both organizations are now promoting their products to other regions.

Sonu's entrepreneurial and innovative spirit helped SELCO in co-developing a paddy transplanter, boasting a retrofitted DC motor in an existing manual machine, commonly available in the market.

Prompt Innovation's MilkoChill can chill milk at any temperature, down to 7° Celsius in 10 seconds. Moreover, it reuses waste but clean hot water (Generated from thermal transfer), to automatically clean the chilling unit, a major pain point for the dairy industry at large.

Read the case studies here

In line with the above-mentioned examples of partnerships, SELCO partnered with a number of different stakeholders in order to innovate on these technologies.

SELCO is currently working with 50 partners, 25 of whom are currently in active engagements. In addition to technology manufacturers, SELCO also partnered with sectoral experts (both enterprises and nonprofits) as well as government institutions.

The partners span sectors like agriculture cross cutting needs, on farm needs, aquaculture, paddy farming, dairy farming, food processing, and so on.

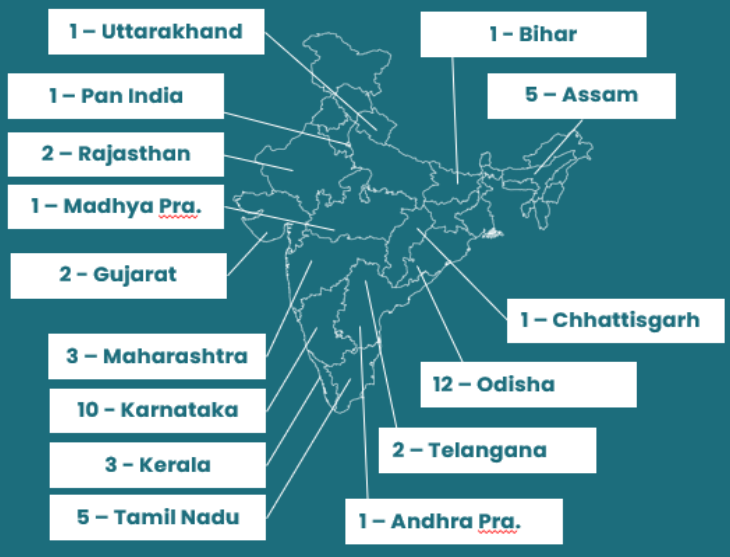
19 Technology Innovating, Manufacturing and Deployment Enterprises

26 Civil Society Organizations, Livelihood Sector Experts and Champion Users

5 Government Departments and Institutions

7	Agriculture Cross Cut/ All Value Chains
3	On Farm Mechanization
4	Millets Farming & Processing
4	Paddy Farming & Processing
5	Dairy Farming
20	Aquaculture
1	Food Processing
2	Accessibility
1	EVs

The partners are located across India with 10 in Karnataka, 12 in Odisha and 5 in Assam.



Left
Distribution of partners by sector

Right
Distribution of partners by geography

Climate Action in Sustainable Energy and Livelihood Solutions

SELCO has mapped its developed solutions across 6 climate impacts it has identified and categorised. Mapping climate impacts helps understand the benefits of solutions which can lead to an improved understanding of problems and development of new innovations

Energy Centric Linkages

Renewable Energy Integration

Use of green energy sources which can have a direct positive impact on the climate.

48
Solutions integrated with renewable energy

Improving energy efficiency

Changes made in hardware technologies, which help consume less energy can have multi fold impacts on people and the planet

19
Solutions with reduced energy use

SELCO partnered with Blue Star Automations, to co-develop 10 energy efficient food processing machines where it has seen power requirements of motors used reduce by 56%, costs reduce by 40% and in turn, expected net profits from livelihoods to increase by 16%.

Right
Comparison of costs of food processing technologies and solar energy systems before and after energy efficiency improvements

783k -12% → **692k**

Total Cost of 10 Original Machines in INR

Total Cost of 10 Modified Machines in INR

2.2 m -55% → **1 m**

Total Cost of Solar Powering 10 Original Machines in INR

Total Cost of Solar Powering 10 Modified Machines in INR

3.0 m -40% → **1.8 m**

Total Cost of Machine and Solar Powering 10 Original Machines in INR

Total Cost of Machine and Solar Powering 10 Modified Machines in INR

Livelihood Centric Linkages

Enabling Local Supply Chains

For certain sectors, technology can enable decentralized ecosystems which would have multiple impacts, from supply chain emissions and equity of livelihoods

20
Solutions enabling local supply chains

Enabling Adaption to Climate Change

Some technologies may directly help in adaptation of communities to the changing climate.

7
Solutions helping adapt to climate change

Enabling pro-climate over unsustainable practices

Certain livelihood practices and sectors may by nature be more climate friendly. These sectors could be strengthened by introduction to new technologies

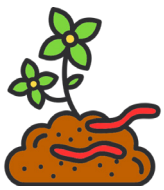
4
Solutions enabling pro climate practices

Enabling use of Sustainable Materials

Technologies which enable manufacturing of various products using sustainable materials like bio materials, waste materials, naturally and ethically sourced materials

5
Solutions helping use of sustainable materials

For example, below provided is the process of vermiscom-posting which is an example of organic farming, a pro-climate agricultural practice. Solutions solving for problems in these processes can encourage adoption of the practice at scale.



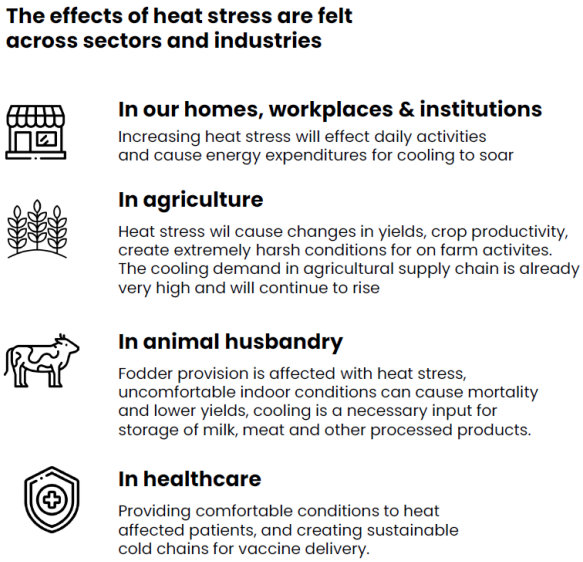
Pit Filling Stage → **Decomposition Stage** → **Harvesting Stage**

Benchmarking Climate Resilents and Efficient Workspace Designs

As part of this program, SELCO has in the last three years made significant efforts to develop and benchmark solutions for workspace design and construction for its targeted livelihood activities. Its work, combatting the lack of efficient natural light, ventilation, space utilization and material use, also helps mitigate the growing challenges of heat stress which are particularly felt indoors or in closed environments.

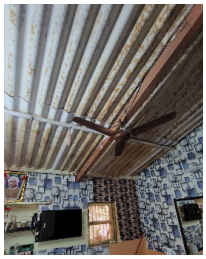
In one example, SELCO has conducted need assessments with retail and service based livelihood practitioners. Between 2020-23 SELCO has conducted approximately 300 need assessments in understanding the need for optimizes productive workspaces among communities. Findings were further analysed and programs for implementation were designed in the past year.

A key approach of SELCO in this workstream is to identifying critical built environment challenges in critical sectors like animal husbandry, retail and services, crafts, and food processing industries where infrastructural dependencies are higher.



Above
Snippet from SELCO's documented learnings on heat stress and its impacts on lives and livelihoods

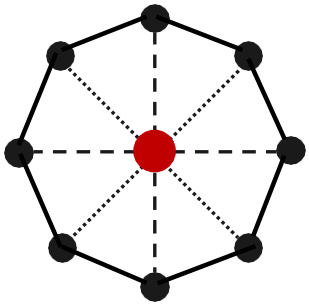
Read the document



SELCO surveyed 90 barbers in the northern districts of the state of Karnataka and identified challenges such as heat stress, high recurring costs, need for improved comfort, among others. In one common problem, 91% of the barbers had bad or poor-quality roofs.

Stage Two

Scale



As part of its efforts to scale solar powered livelihood solutions, alongside streamlining its implementation processes and expanding its teams, SELCO has now developed improved articulations of what activities under this portfolio means- ie not adoption of solution in itself, but more importantly innovating on processes that create enabling conditions for scale. SELCO primary approach continues to identify and build partnerships with stakeholders across different pillars of the ecosystem (i.e. Technology, Finance, Linkages, Training and Capacity Building, and Government Policy). These partnerships are developed via programs which follow the below illustrated typical pathway

STAGE 2

Developing Program Designs

Building Ecosystems

Scaling Solutions

Flagship Programs

15th Finance Commission in Karnataka

Livelihood Development in Ri Bhoi with Mosonie

DRE integration with Odisha Livelihood Mission

Developing Program Designs

To enable improved program design, SELCO has categorised programs with each of these partners in different ways.

Sectoral Programs

SELCO carries out sectoral ecosystem development programs in partnership with organizations specializing in specific thematics. For example, its programs on agriculture and allied themes with various sectoral governmental departments, like the Agriculture Production Cluster program run by the Department of Agriculture are designed to demonstate replicable solutions linking sustainable energy access and the use of hardware technologies in the sectors.

Regional Programs

SELCO also carries out regional ecosystem development with its partners. For example, it partners with MOSONiE, a civil society organisation based in Ri-Bhoi, Meghalaya to to integrate renewable energy and hardware technologies in local livelihoods like Eri Spinning, pig & poultry farms and food processing units. It has together with MOSONiE developed partnerships with the Meghalaya Rural Bank, Meghalaya State Rural Livelihood Mission and the District Collectors office in Ribhoi, all of which are helping scale solutions to more end users.

Thematic Programs

SELCO also carries out thematic ecosystem development programs, focused on specific user segments such as those with people with disabilities. In one example it partnered with civil society organisations like Enable India to develop and scale relevant solutions. enabled the outreach of its solutions to over 75+ persons with disabilities. **More information about its work in this partnership can be found here.**

Building Ecosystems

In order to drive partnership building across the ecosystem, as well as various ecosystem development programs as highlighted above, SELCO engages with partnerships with specific stakeholders in each state of operation. It is ensuring that a good mix of partnerships, with appropriate program designs, representing all aspects of the ecosystem are being engaged with. The stakeholders are highlighted below -

Financial Institutions

- Financial Institutions like Banks, Microfinance, Banking Correspondents.
- The national bank for agriculture and rurual development (NABARD)

Civil Society Organisations

Civil society organisations working towards livelihood development

District Government

- District collectors office
- Various district level departments.

State Government

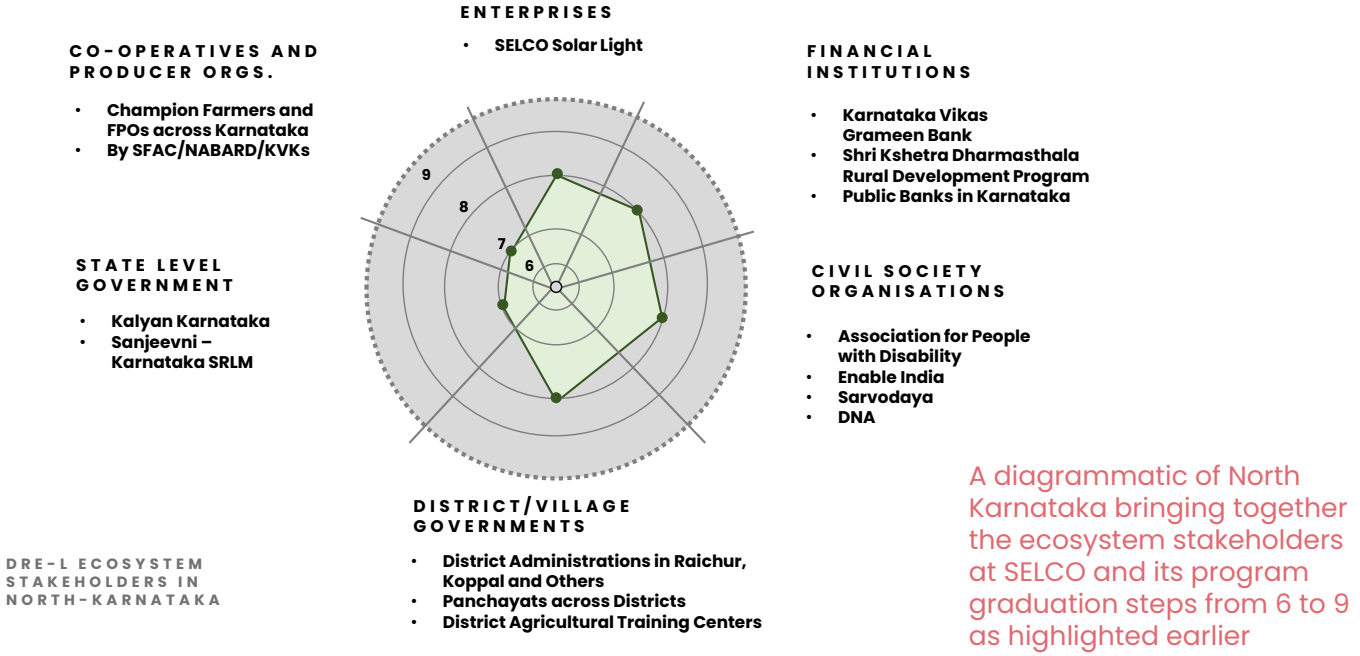
- The state rural livelihood mission and other livelihood development missions or agencies.
- State level sectoral departments like the department of agriculture, or the department of sericulture

Community Based Organisations

- Cooperative societies like those of small holder poultry or dairy farmers
- Producer companies like Agricultural Farmer Producer Companies
- Community Based Organisations like SHG Federations

Enterprises

- Livelihood development technology enterprises providing services at the last mile
- Clean and renewable energy solution providers at the last mile



DRE-L ECOSYSTEM STAKEHOLDERS IN NORTH-KARNATAKA

A diagrammatic of North Karnataka bringing together the ecosystem stakeholders at SELCO and its program graduation steps from 6 to 9 as highlighted earlier

Flagship Programs

Unlocking the 15th Finance Comission Scheme for Persons with Disabilities in Karnataka

As mentioned, SELCO's thematic programs towards livelihood development for persons with disabilities (PWDs) have seen tremendous ecosystem support, especially within regional government institutions in Karnataka. In the previous years of this program, SELCO had demonstrated the use of the 15th Finance Commission funds available for the livelihood development of PWDs, controlled and allocated by the Panchayati Raj Institutions (PRIs). Having seen success in this process, in the last period, SELCO replicated it, at scale across districts and has now reached out to 385 enterprises, run by PWDs who are using technologies run using renewable energy. In this process it has helped unlock finance from 46 PRIs via the 15th Finance Commission. Based on these programs and complimentary programs with civil society organizations in the sector, SELCO has set a new target to enable the adoption of renewable energy led livelihood by 25,000 PWD run enterprises in the next few years.

DRE powered Eri Spinning in Ri Bhoi, Meghalaya with Mosonie

In the past year of the program period, SELCO has made extensive efforts in developing solutions which cater to local livelihood contexts. SELCO specifically focussed on developing these in the north-east region of India, and one solution developed here was the Eri Spinning solution.

SELCO has been able to successfully test and deploy at scale a solution which caters to the livelihood needs of many women in the regions of Meghalaya and Assam. It first implemented solutions in partnership with organisations like MOSONiE and Diya Foundation to validate solution impacts and therafter began unlocking credit from various sources like the state rural livelihood mission's village organisations (VOs) as well as the Meghalaya Rural Development bank.

To build greater sustainability and conditions for scale, it helped develop training centers for solar powered eri spinning, one among them being Eri Weave run by the co-operative leader Kong Ayesha who trains and provides back and forward linkages to eri spinners.

It has, in partnership with the district magistrate, unlocked governmental grant support, under the aspirational district program to scale solutions to more vulnerable end users. It recently also held a delegation of key ecosystem stakeholders from the state of Mizoram, to learn from experiences in Assam and Meghalaya.

Training carried out by the MOSONiE team for Eri Silk Spinning

Met through the *Unreasonable Lab* at Bangalore 2016 and formed strategic partnership with SELCO Foundation in 2017.

Reached out to 54 villages through Clean Energy under Ri-Bhoi Dist., Meghalaya.

Implemented 314 systems (154 livelihood solutions and 138 solar home lighting systems) to the last mile in Ri-Bhoi Dist. Meghalaya.

Set up 3 training centres for Eri spinning and 1 resource training centre at Umling, Jirang and Bhoirymbong Blocks, Ri-Bhoi Dist. Meghalaya.

Operation & Monitoring of 49 Health Centres

NUMBER OF LIVELIHOOD UNITS DEPLOYED

314

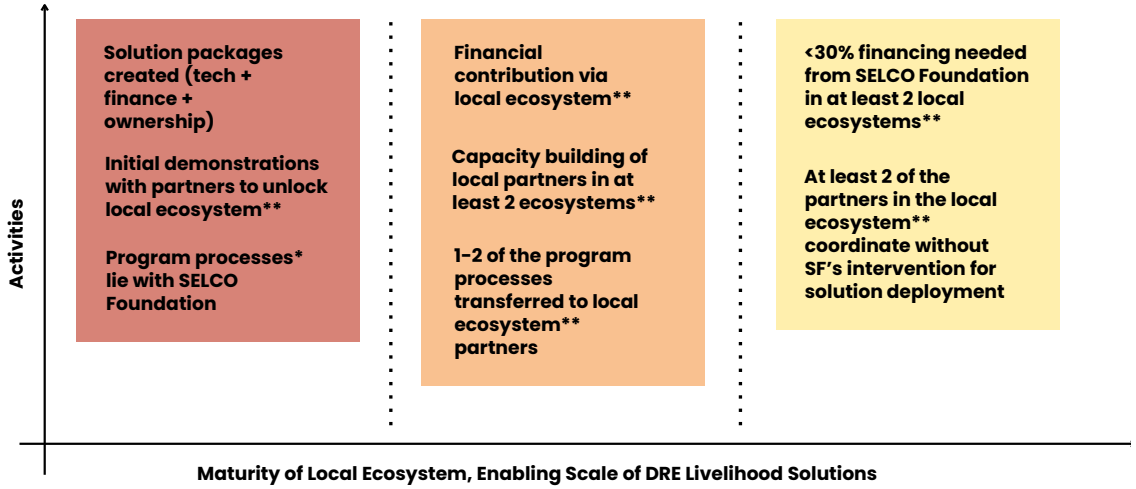
Upto March, 2024

TYPES OF LIVELIHOOD SOLUTIONS DEPLOYED

- **Digital Service Centers**
- **Sewing Machines**
- **Eri Silk Spinning Machines**
- **Rice Processing Units**
- **Egg Incubators**
- **Solar Energy for Lighting and Other Needs for Various Livelihoods (Pig Stys, Eateries, etc.)**

Scaling Solutions

Beyond partnership building efforts, SELCO has also improved upon its articulation of solution level exits from Stage Two. A key output of SELCO's activities at this stage is evidence building at scale and model creation with respect to solutions it has previously benchmarked at the end of Stage 1. In this respect, it has stipulated the conditions in which a solution would have been said to have attained this level of maturity and demonstrated this in five solution examples namely solutions like Digital Services, Tailoring, Flatbread Making, Milking Machines



*Program processes refer to End user awareness, assessment, solution design, ecosystem mobilisation for financing, installation, and O&M
**Local ecosystem is defined as a geographical boundary based on the partner's geographical reach.

Above
Conditions required for a solution to have achieved scalability

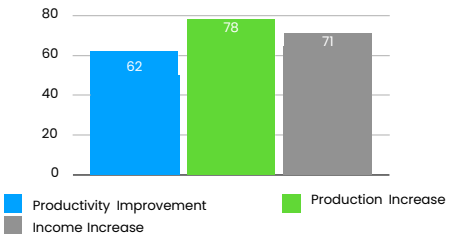
Below
Impact and model data on solar powered digital services, one of the five solutions to have achieved scalability

Digital Centres

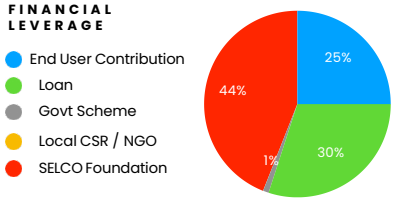
FOCUS STATES: Karnataka | Assam | Meghalaya

N = 660

IMPACT



FINANCIAL LEVERAGE



Karnataka

36% SELCO's Financial Contribution

FINANCING	GOVT SCHEME
SKDRDP, KVGB, KGB, Canara, Cooperative Banks	Mudra, SRLM, Gram One, 15th Commission, Disability Department
CEE	**NGO**
SELCO India	Sarvodaya, BIRD

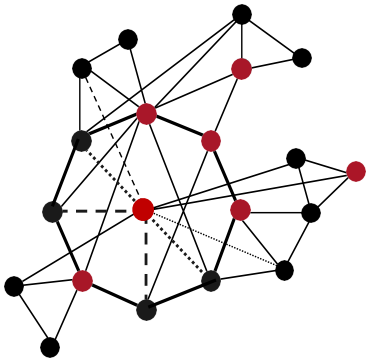
Meghalaya

70% SELCO's Financial Contribution

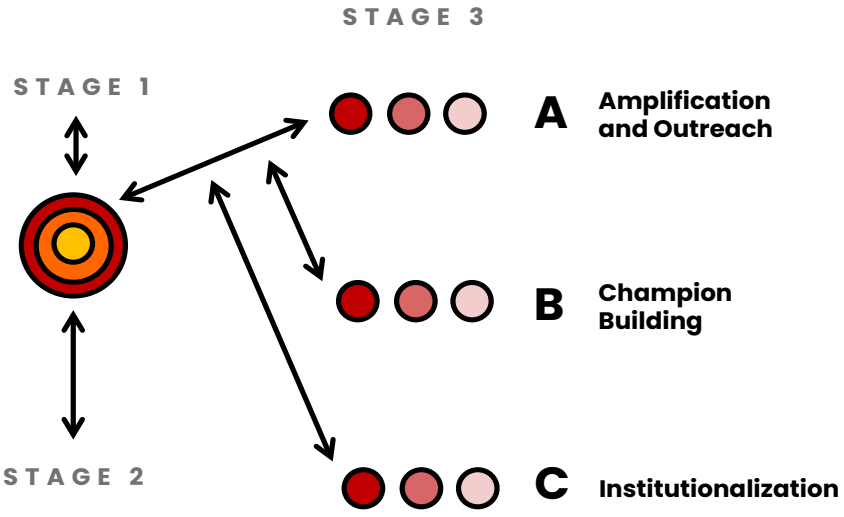
FINANCING	GOVT SCHEME
MRB	MSRLS
CEE	**NGO**
ERES, Soltech, etc	**MOSONiE**

Stage Three

Amplify



In the past year, SELCO created a new team whose main goal is to coordinate activities which lie within this approach, including amplification of solutions, mobilization of ecosystem partnerships at larger levels of influence, building champions for SELCO's approaches within key institutions, and aiding the institutionalization of its approaches within institutional processes.



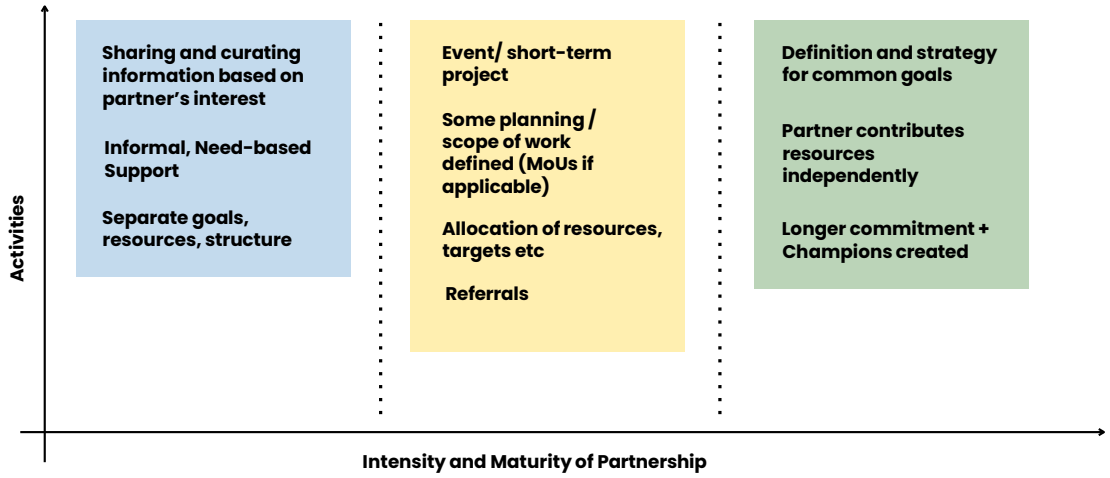
Partnerships for Ecosystem Strengthening

Championing DRE, Livelihood in Climate Action

Amplifying DRE and Renewable Energy Benefits

Partnerships for Ecosystem Strengthening

Partnerships at the highest ecosystem levels are central to the Stage Three approach and in this respect SELCO has made significant efforts to improve the organization and measurement of its efforts to engage with other partners. SELCO has created a partner activity map, as per the intensity of the partnership to better distinguish different engagements.



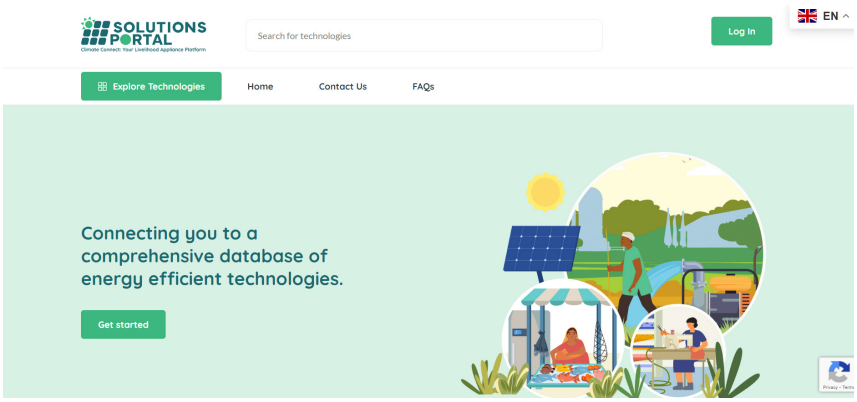
Low Intensity

Sharing and curating information based on the partner's interest and providing informal and need–based support. In these partnerships, SELCO and other stakeholders have independent goals, resources and structures.

For example, SELCO shares its ground learnings with various central and state government ministries, like the Ministry of New and Renewable Energy which utilizes them to strategize new policies and programmatic actions.

See the video

Furthermore, SELCO's technology hardware vendor research and network, now available via it its Solutions Portal, is now being used to provide available data and benchmarked solutions to the Ministry for use in its own portal.



SELCO has developed a Solutions Portal, which hosts technology hardware solutions for livelihood problems, targeted to end users and their immediate ecosystems.

Till date hardware technologies by approximately 300 manufacturers have been added onto the platform, spanning sectors like agriculture, animal husbandry, crafts, textiles and services.

The platform is currently seeing over 100 visitors per week with 5-6 enquiries with vendors through the platform.

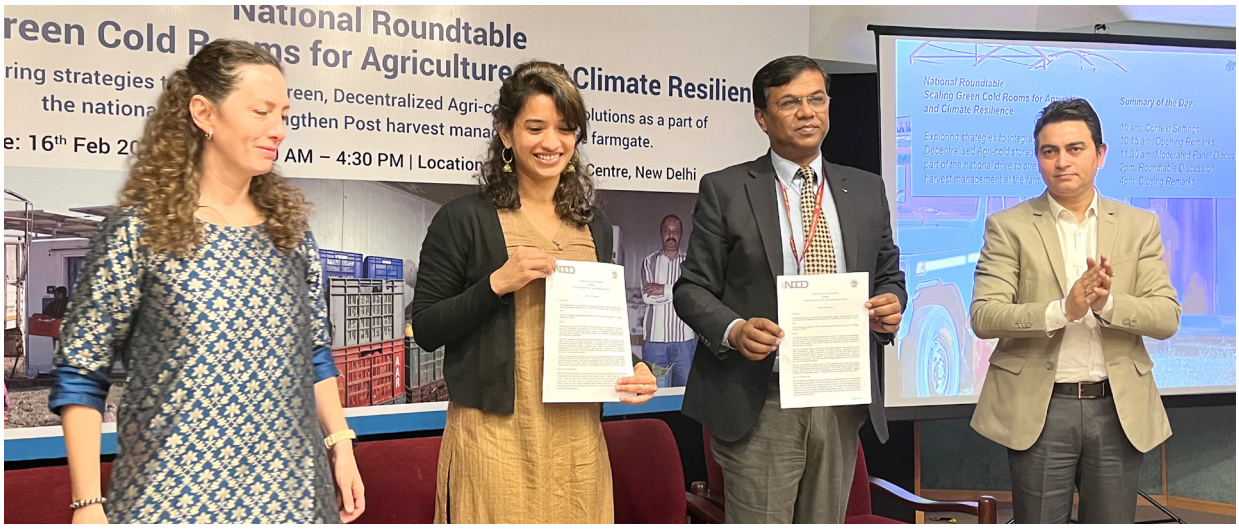
Visit the Portal

A snippet of the solutions portal showcasing solutions in the millet value chain.

Medium Intensity

Intensive partnerships, however for short term or for specific events. Co-planning activities, and joint scope of work definition in MoUs may be carried out if applicable in addition to jointly committing resources and setting targets. Partners in this category would also act as referral providers and network builders for SELCO and its solutions.

For example, with the National Cold Chain Department and the National Horticulture Board, SELCO works closely to develop and publish vital sectoral knowledge based on its own and from its partner network implementations and programs. SELCO has a MoU with the organizations to this effect and it has so far worked together to developing guidelines, training modules and tools for business modelling, servicing and maintenance etc for cold chain development across States in India.



In the past year SELCO has worked closely with the Atal Innovation Mission to further build out its Vernacular Incubation Program which SELCO has itself greatly influenced in its conception stage. In the past year SELCO participated in a workshop organised by the mission, created to evaluate the progress of the Vernacular Innovation Program, originally inspired to tackle the linguistic barriers in the Indian innovation ecosystem. The meeting aimed to refine strategies and discuss the integration of cultural aspects into the program via the mission's new effort on vernacular knowledge sharing called LIPI. A note on the workshop and findings can be found here. Going forward, this group of attendees will be a strategic advisory team for the program to regularly act as a regulatory sounding board for the LIPI program.

High Intensity

In these partnerships, SELCO and its partners would have defined a common set of goals and strategy. Partners would contribute resources to the program independently. These partnerships would lead to the creation of champions and develop long term commitments to ecosystem building.

For example, with the Internation Renewable Energy Agency, SELCO has entered a multi-year partnership, announced at the COP28, focussed on ecosystem development for DRE financing for livelihoods.

SELCO Foundation has worked on unlocking financing ecosystem for DRE since its inception. It has always understood financing as a critical aspect of the ecosystem which unlocks both demand and supply of DRE- ie with long term financing accessible, end users are able to afford investing in DRE solutions; and suppliers are able to convert latent demand into sales.

Facilitating cross-learning in a global context, SELCO recognised that DRE financing programs often focus on technology rather than the end user's needs. The work and cross-learning sessions conducted, have resulted in a partnership with IRENA to help transfer learnings in at least 3 African countries with relevant financing partners and Government entities.

Key Partners

Local financial products with: Equity Bank Foundation + Equity Bank, CRDB Bank, Sinquee Bank, Cooperative Bank of Oromia

NGOs such as: Kakute, Elico Foundation

Site Visits

SELCO organized immersive experiences for the above mentioned partners by showcasing examples of a financing ecosystem which is allowing for end users to invest in DRE livelihood solutions. These visits highlighted innovative financing models—from government schemes to bank loans and capital expenditure subsidies. Partners from diverse sectors, including NGOs, banks, individuals, and international agencies, gained valuable insights into effective financing practices and asset optimization.

Tailored Program Design Sessions:

SELCO conducted collaborative deep-dive sessions with anchor partners to align financing strategies with the unique needs of various ecosystems. After the visits, SELCO presented different approaches based on varying geographies- ie depending on the terrain and the type of ecosystem- and facilitated knowledge exchange on program design. The discussions emphasized selecting appropriate financing mechanisms—avoiding premature loan products and exploring group models in less mature regions to maximize impact.

Championing DRE, Livelihood and Climate Action Linkages

In the program so far, SELCO has conducted multiple engagements and published knowledge documents. These activities were carried out with over 30 stakeholders comprising global, national and regional audiences.

Making Odisha Climate Resilient, 2030

SELCO Foundation hosted Climate Resilient Odisha 2030 Event in Bhubaneshwar, Odisha bringing together representatives from social enterprises, NGO's carrying out on-ground implementation, NGO's doing training & capacity building, rural banks, government officials and CSRs. The aim was to understand areas of focus and map synergies to strengthen the role of Decentralised Renewable Energy (DRE) in livelihoods and healthcare sectors to make Odisha climate resilient and build a roadmap for the year 2030.

Engagements with Philanthrophies and Multi-lateral Policy Stakeholders

IKEA Foundation

Laudes Foundation

ananta aspen centre

aspen institute

At the US-INDIA Track II Dialogue on cooling needs, SELCO Foundation emphasized the need to address heat stress beyond air conditioning solutions, highlighting policy gaps and the absence of case studies on sectors like poultry and dairy, which illustrate broader impacts of heat stress such as loss of man-days and food wastage

At an assembly of philanthropies held by IKEA Foundation and Laudes Foundation, SELCO Foundation, as one of the committee members, was able to successfully demonstrate to the relevance of the built environment in mitigating emissions from energy use in heating and cooling, but also efficiently addressing the grassroot challenges of heat and cold stresses being felt around the world. The committee meets every quarter where SELCO shares its learnings in the sector.

Scaling Green and Decentralized Agri Cold Storages

SELCO Foundation organized a Roundtable on 16th Feb 2024 on "Scaling Green and Decentralized Agri Cold Storages" with National Centre for Cold Chain Development and GIZ, India with key remarks by Shri Priya Ranjan, Joint Secretary - Department of Horticulture, Asheesh Fotedar, COO-NCCD and Regina S., Project Director at GIZ.

Women Entrepreneurship Platform

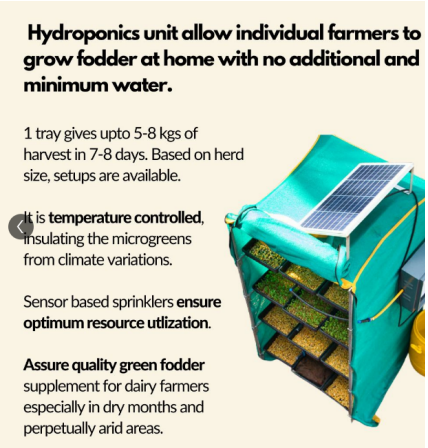
With the Women Entrepreneurship Platform set up by the NITI Aayog of the Government of India, SELCO co-launched the women entrepreneurship themed Catalyse Tech challenge. 261 applications were received, of which 85 were hardware focused, across sectors like agriculture, animal husbandry, food processing, healthcare and built environment. A phase 2 of the program is now underway, in order to get more grassroots entrepreneurs within SELCO's focus states. A grand jury will be planned with WEP in Delhi in August, 2024, where 25-30 entrepreneurs, of which 10-15 winners will be selected, with a special focus on women entrepreneurs from the north east region. All finalists will access mentorship support and this challenge will also serve as a channel/ pipeline for SELCO's incubation support.

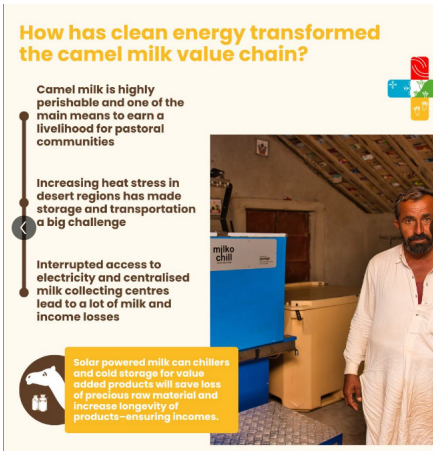
Amplifying DRE and Renewable Energy Benefits

Showcasing Climate Linked Solutions

In the past year, SELCO has taken to social media to showcase its climate linked solutions. Below linked are the publications made

Solving for soil testing
Solving for cattle fodder
Solving for camel milk chilling
Solving for millet processing





Access to Cooling

A communications campaign including photo and video stories was carried out to raise awareness on successful models of agri cold storage solutions, and the ecosystem aspects behind them.

See the Campaign

Ecograin Podcast - Year of the Millets

The year 2023 was declared by the United Nations 'The International Year of the Millet', and was themed around harnessing the untapped potential of millets for food security, nutrition, and sustainable agriculture. IYoM'23 has set the stage for critical discussions around existing and new livelihood opportunities within the millet value chain that can be catalyzed by Decentralized Renewable Energy (DRE) driven solutions The EcoGrain podcast, a six part audio series by SELCO Foundation explores the millet ecosystem in conversation with key partners and stakeholders- through a diverse lens of women empowerment for sustainable development through innovation, tailored energy solutions, financing, market access and policy.

Hear the Podcats

Video - Year of the Camelids

A video was created titled 'Herd on the Move' to raise more awareness regarding energy needs for pastoral livelihoods. This was presented at an event held in partnership with the Desert Resources Center, commomorating the International Year of Camelids in 2024 as declared by the UN

See the Video **See the Website**

Media Article on Hydroponics

An article on fodder linked challenges during draught was published by the Mongabay. It highlights solutions, and extensively features SELCO's approach, the end users it works with and its partners.

Read the Article

Energy for Health

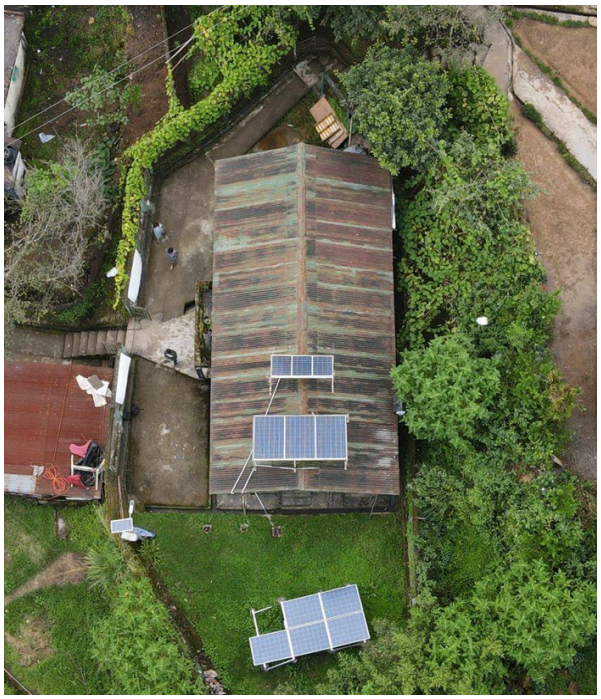
In December 2022, SELCO Foundation initiated a program, Energy for Health (E4H) to make health services affordable and accessible to underserved communities, using decentralised renewable energy.

India currently has 217,000 public health facilities, and the Energy for Health program aimed at targeting about 12% of these health facilities by Dec 2026- i.e. by powering 21,698 health facilities across 12 states in the country, SELCO Foundation would establish processes that could institutionalize decentralized renewable energy in the healthcare infrastructure.

·The goals of the energy health program are twofold:

- To ensure reliable and high-quality electricity is available for all the essential services at the health facilities.
- To come up with innovative models of maintenance of solar systems on public facilities

Alongside solar powering the facilities SELCO also aims to use the opportunity to promote and enable the delpyment of appropriate and energy efficient medical technologies. It also aims to make similar strides to build evidence and enable adoption of energy efficient built environments for health facilities in India.



Implementation of DRE in Health Care Facilities

Deployment and implementation of Decentralized Renewable Energy (DRE) systems in four different regions of the country. 2069 number of public health facilities have been solar powered during the above-mentioned period. SELCO is currently driving governmental leverage for solar powering additional health facilities in Karnataka and Meghalaya and is laying the foundation for implementations in 4 new states of Northeast India. It is also driving investments by the government, for over 650 health facilities in Meghalaya and Assam.

In implementing these systems, following number of processes are followed (some of the critical ones are highlighted below)

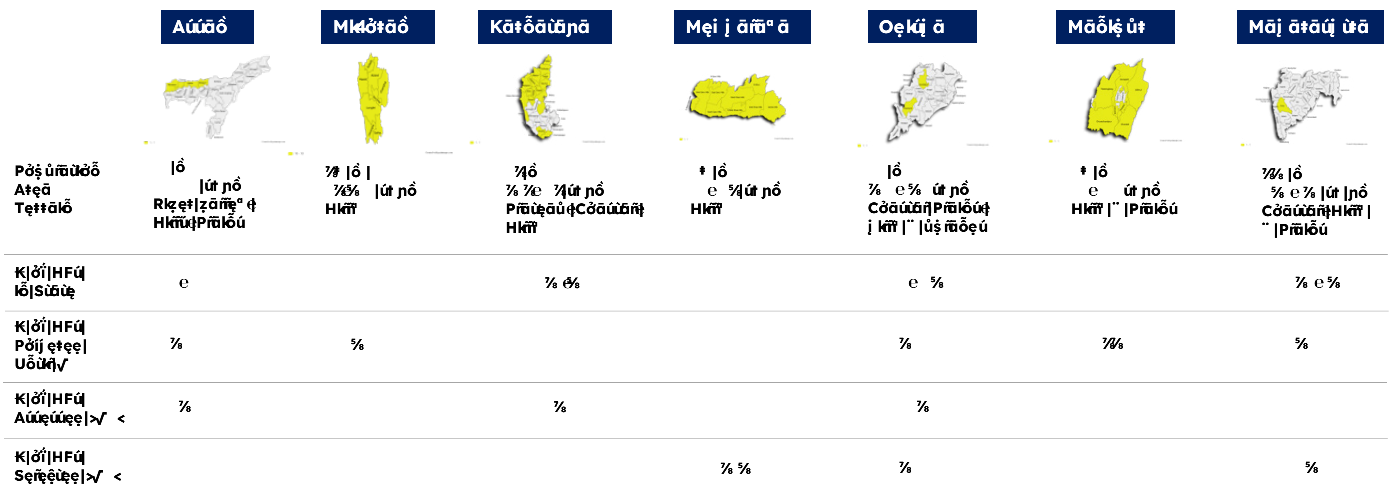
2069 **public health facilities have been solar powered**

`Detailed health-energy assessments at the facility level

Create a set of system designs and costings

Formulating tender documents

Commissioning and monitoring deployments carried out by various local solar energy systems providing enterprises operating in the selected regions.



Decentralized Renewable Energy for 80% of Mizoram

In the remote and terraneous state of Mizoram, SELCO has in a short period of time, enabled a drastic change in health infrastructure functioning across all districts of the state. A staggering eighty percent health facilities in the state are now completely solar powered in the state, with most of these facilities being the only source of healthcare provision for the 1.1 million population residing there. Considering the healthcare and economic impact of these solutions, a special announcement of the achievement was made in the legislative assembly of the Mizoram, highlighting the importance of the solutions to the state machinery and local population. This buy in from the government, and growing goodwill, will be leveraged to secure investments towards operations and maintenance expenditures of the energy systems.

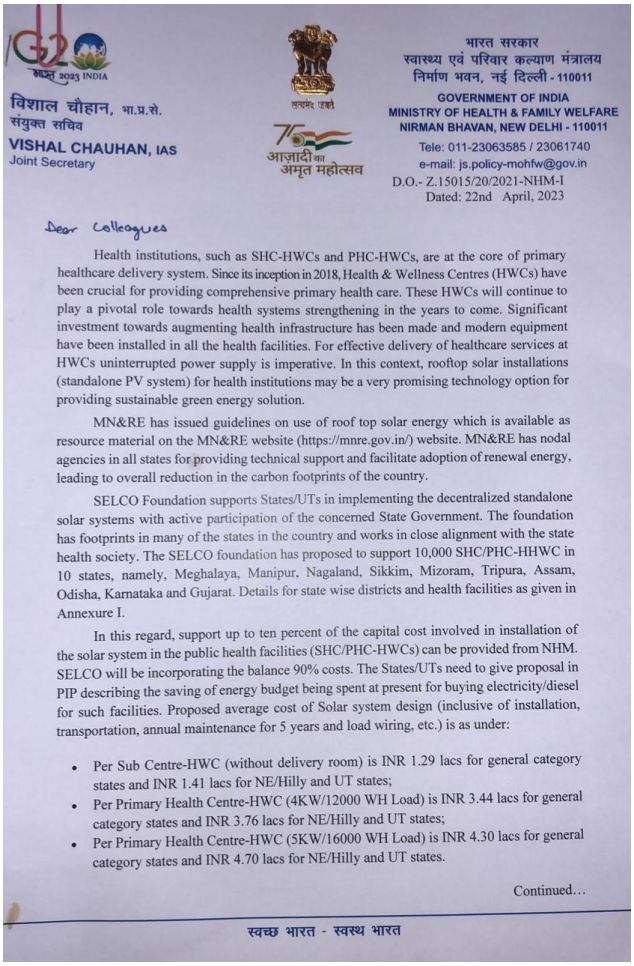
Regional and National Partnerships

To make such a large program, it is critical to have strong partnerships with Government Health Departments and other NGOs (Non-Governmental Organization) working in the region. SELCO now has well established relationships with at least four Ministries of Healthcare (Meghalaya, Mizoram, Assam, Karnataka) and the National Health Mission in the selected states as part of the 1st phase.

Initiated partnerships with four Government Health Departments (Mizoram, Meghalaya, Bodoland (Assam) and Karnataka) and organizations that have been actively working the field of health delivery for the poor across the country.

In one example, the Foundation worked with the Bodoland Territorial Region, an autonomous region, within the state of Assam, to power all the public health centers. In this region it also partnered as a critical knowledge partner with the government of the autonomous region, for purchasing efficient medical devices.

SELCO has entered MoUs with 2 states – Mizoram and Meghalaya, as well as with the Bodoland Territorial Council Government in the State of Assam. It is also developing a new MoU with the state of Karnataka.



विशाल चौहान, भा.प्र.से.
संयुक्त सचिव
VISHAL CHAUHAN, IAS
Joint Secretary

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली - 110011
GOVERNMENT OF INDIA
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NIRMAN BHAVAN, NEW DELHI - 110011
Tele: 011-23063585 / 23061740
e-mail: js.policy-mohfw@gov.in
D.O.- Z.15015/20/2021-NHM-I
Dated: 22nd April, 2023

Dear Colleagues

Health institutions, such as SHC-HWCs and PHC-HWCs, are at the core of primary healthcare delivery system. Since its inception in 2018, Health & Wellness Centres (HWCs) have been crucial for providing comprehensive primary health care. These HWCs will continue to play a pivotal role towards health systems strengthening in the years to come. Significant investment towards augmenting health infrastructure has been made and modern equipment have been installed in all the health facilities. For effective delivery of healthcare services at HWCs uninterrupted power supply is imperative. In this context, rooftop solar installations (standalone PV system) for health institutions may be a very promising technology option for providing sustainable green energy solution.

MN&RE has issued guidelines on use of roof top solar energy which is available as resource material on the MN&RE website (https://mnre.gov.in/) website. MN&RE has nodal agencies in all states for providing technical support and facilitate adoption of renewal energy, leading to overall reduction in the carbon footprints of the country.

SELCO Foundation supports States/UTs in implementing the decentralized standalone solar systems with active participation of the concerned State Government. The foundation has footprints in many of the states in the country and works in close alignment with the state health society. The SELCO foundation has proposed to support 10,000 SHC/PHC-HHWC in 10 states, namely, Meghalaya, Manipur, Nagaland, Sikkim, Mizoram, Tripura, Assam, Odisha, Karnataka and Gujarat. Details for state wise districts and health facilities as given in Annexure I.

In this regard, support up to ten percent of the capital cost involved in installation of the solar system in the public health facilities (SHC/PHC-HWCs) can be provided from NHM. SELCO will be incorporating the balance 90% costs. The States/UTs need to give proposal in PIP describing the saving of energy budget being spent at present for buying electricity/diesel for such facilities. Proposed average cost of Solar system design (inclusive of installation, transportation, annual maintenance for 5 years and load wiring, etc.) is as under:

- Per Sub Centre-HWC (without delivery room) is INR 1.29 lacs for general category states and INR 1.41 lacs for NE/Hilly and UT states;
- Per Primary Health Centre-HWC (4KW/12000 WH Load) is INR 3.44 lacs for general category states and INR 3.76 lacs for NE/Hilly and UT states;
- Per Primary Health Centre-HWC (5KW/16000 WH Load) is INR 4.30 lacs for general category states and INR 4.70 lacs for NE/Hilly and UT states.

Continued…

स्वच्छ भारत - स्वस्थ भारत

Circular issued for partnership between Ministry of Health – Government of India, and SELCO Foundation

Early in the program, SELCO advocated successfully with the Ministry of Health, Government of India to facilitate the allocation of state funds for solar powering of health facilities. A letter was issued to this effect by the Ministry of Health. SELCO has also consistently maintained a working relationship with the Ministry of DoNER (Development of Northeast Region) for entering new states of the Northeast and building state level relationships.

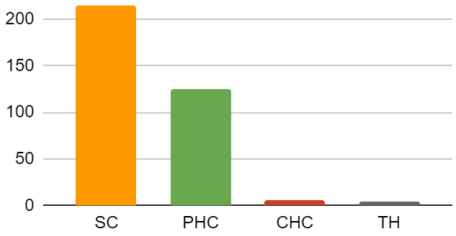
Renewed Governmental Partnership and Scale in Karnataka

In Karnataka, SELCO has worked with the state government to further its goal of solar powering health facilities, securing government investment in the process. In this program period SELCO has implemented decentralized renewable energy solutions across 720 Primary health centers in the state. Considering the vast population of the state, the solutions deployed will impact over 18 million people. To further this work, the government has committed to invest INR 30 Cr (~ USD 3.7 million) over 3 years.

Our Progress in Karnataka

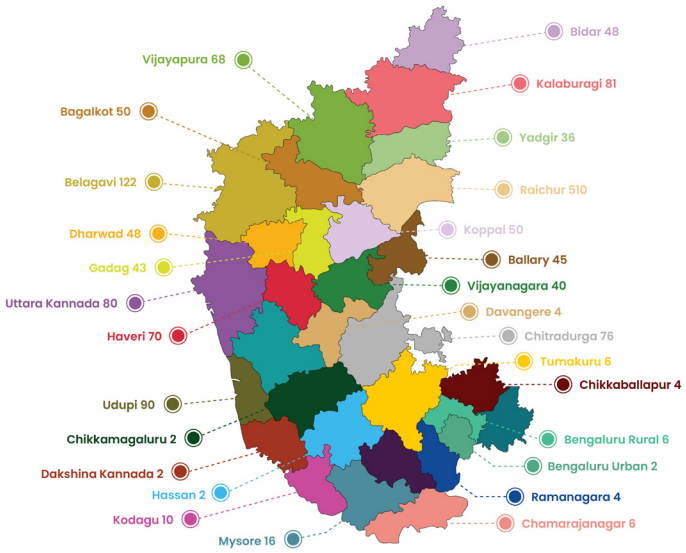
1522

Solar powered Health Centers



Distribution of Solar Powered Health Facilities by Facility Level

Distribution of Solar Powered Health Facilities by District



"The solar light has been extremely helpful in providing proper treatment during emergencies at night. For example, it enabled timely care for a boy who was admitted after a scorpion bite. It is convenient to give delivery treatment to the pregnant woman at night and it is now easier to see the expiry date of medicines at night."

GEETA, NURSING OFFICER, PANDARA HALLI, PRIMARY HEALTH CENTRE, CHITRADURGA DISTRICT

Goal for 2026 in Karnataka

4500

Health Facilities

2.4 Crore

Estimated Population Covered

110 Crore

Estimated Budget : (SF-64 Cr, GoK-30 Cr & Joint Fund Raising-16 Cr)

2.5 Lakh

Tons of Co2 emissions mitigated

Creating Models for Operations and Maintenance of Solar Energy Systems

As previously mentioned, a key focus of the Foundation in the E4H program is to develop multiple models of management and upkeep of solar energy systems installed in public health centers. These models can be replicated in any other part of the world. The systems developed will be institutionalized within the state-owned entities. Till date following steps have been taken under the program:

Outbound calling and monitoring using a customer relationship management system

Outbound calling and monitoring using a customer relationship management (CRM) system was set up and deployed. At periodic intervals, health facilities are contacted to ascertain the working condition of the installed systems. Date gathered through this exercise is not only essential to trigger appropriate response, but an analysis of common problems over a longer term provides critical insights for new deployments.

Data Analysis and Monitoring with Remote Data Logging Systems

SELCO tested various Remote Monitoring Systems (RMS), by which data on functionality is continuously received from healthcare facilities, during this period. It experimented with different monitoring system providers at smaller scales, and based on these early learnings, it has now commissioned RMS in over 1800 health facilities. These will be installed during the early part of 2024.

Physical Monitoring and Verification of Systems

Beyond outbound calls and remote monitoring, SELCO also ensures physical monitoring, especially for systems in remote areas. One main requirement of this process is to estimate the costs required to carry out maintenance activities for future programs. SELCO has prioritized two districts, Raichur in Karnataka and Ri Bhoi in Meghalaya where it is carrying out these activities.

The above 3 monitoring processes are being used to understand the range of issues coming up in the installed DRE systems across different types of health facilities and States. This is then being used to inform three critical aspects of the O&M model:

Technical capacity

Depending on the criticality of the issue, it can be resolved by the medical staff himself/ herself, or may need a trained technician, or senior technician to visit the facility. All of these have different timelines and resource constraints.

Financial allocations

Depending on the type of issue (ie covered under warranty or not), availability of spare parts etc, financial allocations for issue resolution can be understood better

Process of resolutions

The above 2 can better inform service level agreements for vendors, local technicians as well as health officials.

Moving forward, the aim would be to institutionalize the above amongst the different state actors. This is already in talks with Meghalaya and Karnataka Government, and the discussions are being initiated in Assam (Bodoland specifically), Mizoram and Manipur.

New Models for Operations and Maintenance in Meghalaya

While new deployments were prioritized in other states, in the state of Meghalaya where considerable deployments had already been completed, the aspect of ownership and maintenance of health facilities were prioritized. Two major evidences of the impact of this work are seen in the in the integration of energy related aspects in the health facility maintenance hotline of the Government of Meghalaya, and the investments made by the government in the replacement of batteries and renewal of annual maintenance contracts with clean energy enterprises. These investments have enabled the state to emerge as a champion in this domain, serving as a global knowledge center for renewable energy integration for health facilities

Creating a Digital Backbone for Efficient Implementation and Sustainability

Alongside ground operations like partnership building, operations & maintenance, and implementations, the SELCO Foundation recognizes the need for building digital tools, which are used to sustain the program and aid decision-making across stakeholders in the local ecosystem. Towards this effort, it has partnered with the eGov Foundation, an organization devoted to developing digital platforms that allow for better governance, data, and decision-making transparency across various state governments.

SELCO imagines that this digital platform for the Energy for Health program will be critical to ensure a proper handover to the State Governments.

SELCO and eGov Foundation are working on a set of three tools:

Tool to Manage Operations and Maintenance
Particularly issue raising at the health facility level and corresponding redressal at the governance level

Assessment and Survey Tools
To help improve efficiency of this processes currently being carried out at scale globally

Vendor management tool
To assess the status of contracts, and the viewing the progress of the program as a whole using dashboards and analytics

Technical Advisory for Replication of Processes

Both in India as well as globally, SELCO has been spearheading knowledge sharing, for replicating its processes towards health facility solar electrification programs. It is currently working with governments, civil society organizations and multi-lateral organizations to further these efforts.

In India, it has seeded partnerships with the Emmanuel Health Association which operates several hospitals in the country, as well as the Public Healthcare Foundation of India (PHFI) which has been acting as a technical advisor to the National Center for Disease Control. It works with local partners across regions, to conduct assessments, and complements their work by analysis results, creating system designs and tender documents for procurement of systems. Both in India (Via PHFI and NCDC) as well as globally (Via WHO (World Health Organization)) it has provided the bulk of technical information used in publications by the two groups, stating the mechanisms of health facility of solar electrification at scale.

Technical Capacity building programs for health departments of all states in partnership with PHFI

See the Document

GIZ-India, in partnership with SELCO India and technical support from SELCO Foundation, has completed a health-energy assessment for the state of Goa with 25 public health facilities (PHC & CHCs).

The state will now be raising funds towards the same.

At the global level, it has developed long-term partnerships with the World Health Organization and the International Renewable Energy Agency, through which it directly provides technical advisory to over 10 countries in Africa.

List of countries with technical advisory and planning engagements

Sởồ ăñă
Cį ăẹ
Yẹồ ẹỗ

Bůŧŋkỗă|Fāúở
Māñk
Mở4āồ ếkt ůẹ

Zkồ ếāếíj ẹ
Sāở|Tởồ ẹ|¨ |
Pŧkỗệkṣ ẹ

Ui ăỗẹā
Zāồ ếkā
Eự kởṣ kā
Pāŋkúừāỗ

Skẹŧŧā|Lẹởỗẹ
Eự kởṣ kā
Tāỗ4āỗkā

ENERGY FOR HEALTH

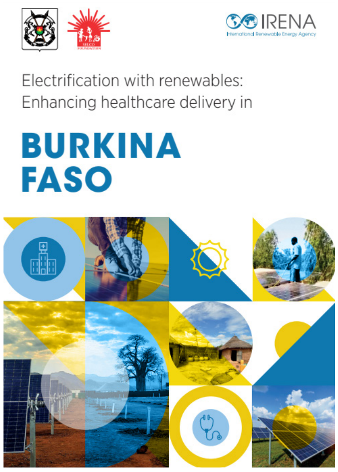
With WHO & IKEA Foundation, SELCO will be hosting an activation at COP28, showcasing Energy for Health problem and solution

SELCO's learnings formed the bulk of the technical guidelines published in a report by WHO

See the Document

First out of five country level report published by SELCO and IRENA for Burkina Faso

See the Document



Demonstration implementations have been carried out by SELCO and the Global SDG7 Hubs in Somalia, Sierra Leone, Ethiopia and Burkina Faso, with larger plans underway

Improving Access to Energy Efficient Medical Technologies

A key impact SELCO hopes to achieve through this program is the decentralization of healthcare services at last mile health facilities. A key enabler of these services is the availability of appropriate medical devices which complement the new sustainable energy infrastructure being installed. While many technologies are simply unavailable, due to poor infrastructure, many are not developed (or are very nascent) for the context of last mile operations.

On the one hand SELCO has been working with its government partners to procure the said technologies. For example, in the case of the Bodoland Territorial Region, while SELCO is directly investing its resources for sustainable energy infrastructure, the Government is complimenting these efforts by investing in readily available, energy efficient medical technologies which can drastically improve patient outcomes, like baby warmers to combat hypothermia in newborn babies.

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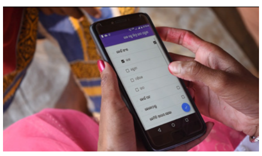
Development of Model Health Facilities with Advanced Medical Technologies



Energy Efficient MedTech Support and Facilitation Program for North East India

Identify, support and strengthen enterprises who can provide innovative and energy efficient medical technologies

See the Document

On the other hand, to address unmet needs, SELCO has carried out in-depth research to map problem statements in sample regions from its selected geographies and has conducted market research to identify available solutions at various stages of development that meet these needs. The results of this research will be implemented in the coming year.

In this program period, SELCO also conducted qualitive evaluations of its previous medical technology deployments which point towards the need for certain ecosystem conditions for the success of these technologies. For example, in the case of diagnostic equipment, it is essential that spare and disposable testing apparatus are readily available in local regions, for continued use of these diagnostic equipment.

Identifying the need for hardware vis a vis climate action and healthcare

Odisha is a malaria-endemic state.
It contributes to 40% of the malaria burden in the country.

YoY basis, there is a 78.34% rise (Sep' 22 vs Sep' 23) in total positive cases (TPC); compared to the last three-year average, there is a 34.26% increase.

Blood smear examination to detect malaria parasite and rapid diagnostic test has been the mainstay of malaria detection, however, two species are easily missed in the slide examination. This leads to challenges in treatment and is a threat to elimination (target 2030). Sub Patent malaria could be threat and underlying factor for anemia and LBW infants in endemic areas,

Odisha made more than 70 Lakhs blood smear slides last year until Sep 23

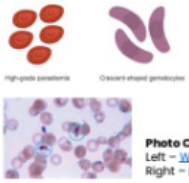


Photo Credits:
Left – WHO.
Right – Med Mastery

See the Document

Hardware Innovation particularly for diagnostics can greatly aid health delivery

Malaria

Unspecified Malaria-B54; Plasmodium falciparum malaria, unspecified- B50.9; Subpatent Malaria;

- Microscopy with AI
- Devices easing the process of blood smear collection
- Innovations/improvements in rapid diagnostic tests
- Use of truelab (truenat device) for PCR/molecular tests for malaria at PHCs
- Satellites & drones to discover mosquito breeding sites
- Drones for spraying larvicide

Filariasis

- Microscopy with AI
- Haematology analyser for DC
- Immunochromatography test for filaria antigen
- Devices easing the process of blood smear collection
- Use of trunaat device for PCR/molecular tests for filariasis at the PHC

Tuberculosis

Pulmonary TB- Active-A15.0

- CBNAAT machines
- Rapid test kits
- Point-of-care biomarker tests (no sputum)
- Energy Efficient X Rays

Pulmonary TB - Latent- Z22.7

Interferon gamma release assay (T.Spot.TB test) cy-tb

Improved Built Environments for Healthcare Facilities

Alongside the solar powering of health facilities and improving access to medical technologies, SELCO has also made significant progress in improving built environments for health care facilities. Before the program period, SELCO had piloted energy efficient built environments, which improve health facilities functioning and provide more comfortable environments to patients and health staff. Based on the impacts seen from the pilots, SELCO was able to motivate the state government of Meghalaya, to imbibe these improved building practices in all new health facilities being built in the state. SELCO is currently providing technical advisory to the government for building 350 new healthcare facilities, 75 of which have now been built.

Co-building 300 healthcare facilities with Meghalaya State using green building practices

Along with the R-Bhoi district administration & NHM Meghalaya, SELCO is working to construct 78 new Sub-Centres (with Labour rooms) as part of the larger 300 program

Read More about the inauguration

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Strengthening the DRE Ecosystem

To enable the aforementioned solar energy system implementations, a substantial domain of work at SELCO, is the engagement with the ecosystem of decentralized renewable energy technologies. In each region of operations, SELCO has identified and empaneled via public bids, clean energy enterprises that procure, assemble and service these decentralized energy systems at the last mile. Furthermore, it has also engaged with remote monitoring solution providers, as well as a host of consultants and volunteers who aid SELCO's operations like carrying out assessments at each facility, or evaluations of implemented solutions.
Trainings are carried out across the board, as many topics may be new for these service providers. Clean energy enterprises are trained on topics of quality of installations, and operational best practices for providing these solutions in remote, and often unfriendly terrains. Periodic trainings are also carried out at the health facility level, and across various cadres of the health department to build more knowledge of the solutions being deployed.

The scope of trainings is ever growing, and it is essential that a body of trainers is available in each region to cater to this increasing demand. To meet this need, SELCO has parallelly started a new program, SELCO Skills, which aims to benchmark training content (For global requirements on DRE), and make available training channels and master trainers for building out a skills ecosystem in every region. The Energy for Health program at SELCO remains a key user of this enabled ecosystem.

15

Trainings were conducted in public health facilities of Meghalaya where solar energy had been previously installed

117

Total Health Staff Trained

63

Health Facilities Represented (10% of total PHCs, SCs, CHCs and Dispensaries)

3

Trainers trained and engaged in Meghalaya

Health Staff Types Trained

MCHPs, ANMs, MLHPs, CHOWKIDARs, BDM, FHA, P.M.W, Grade IV, AF

Operations and Maintenance trainings were conducted with Health Facility Staff. Special efforts to integrate local languages, with local trainers engaged paid off, with encouraging feedback from the trainees.

SELCO will be carrying out similar trainings on O&M in Karnataka for 720 Facilities and in Odisha

Outreach and Advocacy

Events and Engagements

Energy for Health at COP28

SELCO Foundation's participation at COP28 focused on the intersection of energy and healthcare, emphasising the critical issue of energy access in the healthcare sector. Through an immersive film, highlighted the challenges faced and solutions implemented by SELCO and IKEA Foundation in India. The showcase included demonstrations of available knowledge, designs, and pathways for addressing energy needs in healthcare, aiming to raise awareness and drive action towards sustainable solutions.

Read More about the event outcomes

See the inaugural ceremony

20+ Countries from the Global South Engaged with for driving the Energy for Health program forward globally

I'm from the field and I have associated myself with the images in the film. It's the exact scenario I can remember.
No electricity or partially functioning which is not really efficient.
We need to make it big and make it also fast. Better. Bigger. Faster. What's missing is the will. WE NEED COMMITMENT! We need a bold plan.

Dr Tedros Adhanom Ghebreyesus , Director General with World Health Organization

National Center for Disease Control (NCDC)

At regular intervals since June 2022, until April 2024, SELCO has engaged in training of State Nodal Officers for Climate Change in India along with the National Center for Disease Control. As a part of these training's, SELCO provides an overview of energy-health programming and processes which the SNOCs can adopt. SELCO's role in integrating energy for health programs, within the National Program for Climate Change and Human Health has been critical over the past year, which is now deploying funds for implementation at the state level. It has recently been invited with the Karnataka government to conduct similar training's at the district level using live demos.

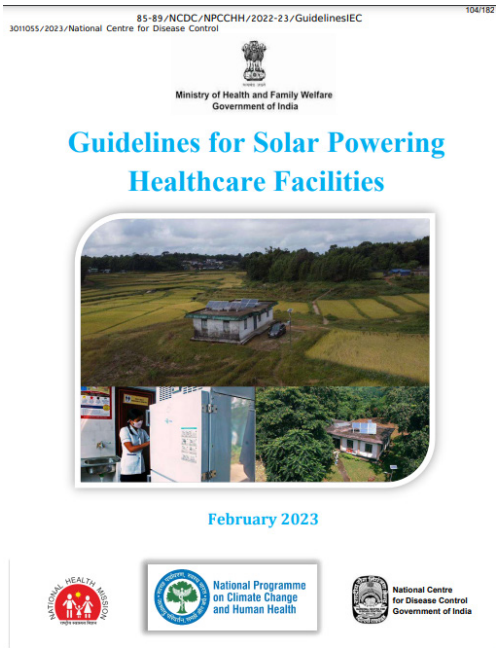
Clean Energy Ministerial

In July 2023, SELCO was invited by the SE4All for speaking at and moderating a session at the Clean Energy Ministerial held in India. SELCO here represented an alliance of global practitioners, including the World Health Organization, the HT Parekh Foundation, and Healthcare without Harm. SELCO spoke about its work in India and Africa, as well as moderated a session between key players in the Indian ecosystem.

Climate Week

In September 2023, at the sidelines of the Climate Week held in New York, SELCO was invited by the SE4All for speaking at a session on climate finance for electrification of health facilities.

First ever, technical guideline document launched by SELCO Foundation with NCDC & NHM



See the Document

World Health Assembly Sideline Event by ISA

SELCO Foundation participated in two events organized by the International Solar Alliance in Geneva in May 2023, coinciding with the World Health Summit. SELCO presented its Energy for Health program, garnering interest from attendees including diplomats, private sector representatives, and philanthropists, with potential for knowledge exchange and collaboration.

Energy for Health
North East Summit

In February 2024, SELCO and partners hosted the “Energy for Health Summit | North-Eastern Region Chapter” an event to showcase the impacts and progress so far in solar powering 25,000 health facilities in India. It fostered a discussion on strategies and plans for action on the ground to enable climate-resilient healthcare systems for all 8 states in the North - Eastern Region by 2026. SELCO will be carrying out other such events in the coming year targeted at different geographies.

In the Media

Provided below are descriptions and links to stories on SELCO's Energy for Health programs covered in the media -

As India's electrical grid strains, rural hospitals and clinics find reliable power in rooftop solar: In regions with unreliable power grids like semi-urban and rural areas of India, decentralized renewable energy, particularly solar, is crucial for delivering modern healthcare. With special reference to the town of Raichur, the article delves into explaining the role of reliable energy in healthcare for towns that are under severe heat stress due to increasing climate change.

Read the Article 

Moments of hope and resilience from the climate frontlines: This short excerpt in BBC Future Planet explains how Decentralized Renewable Energy is not just changing the energy landscape but also rewriting narratives of hope and empowerment in health clinics located remote places.

Read the Article 

Solar panels illuminate path to improved care: Journalist Vandana K describes the transformative work by narrating the story of Mawtawar health clinic in Meghalaya- a state whose mountainous and tough terrain limits grid connectivity impacting healthcare delivery but is now seeing change through the potential of solar energy.

Read the Article 

IKEA and SELCO Foundations launch new initiative to make 25,000 PHCs energy efficient with solar power by 2026: The article talks about the launch of 'Energy for Health' initiative in collaboration with India's Ministry of Health and Family Welfare and State Health Missions by IKEA Foundation and SELCO Foundations. With an initial funding of €48 million, the initiative aims to power 25,000 healthcare facilities in 12 Indian states with sustainable energy and upgrade them with energy-efficient medical equipment by 2026.

Read the Article 

How decentralised solar energy can boost public healthcare: The article emphasizes the critical importance of reliable electricity for public health facilities, particularly in rural areas, where power shortages hinder medical services. It discusses the significant impact of electricity on healthcare equipment, vaccine storage, and overall service provision. Highlighting the initiative to solarize health centres, it underscores the benefits of clean energy for improving healthcare access and resilience, while also creating job opportunities.

Read the Article 

Gone with the wind: How to protect a small DRE in a storm: The article describes the lessons learned while installing DRE systems include adapting to extreme weather events like cyclones and lightning strikes, ensuring robust quality checks for materials and practices in windy areas, elevating batteries in flood-prone regions, and implementing measures to address sandstorms, wildlife, and theft. It states the role of ownership and responsibility from staff and communities for the smooth functioning of these systems, with ongoing learning and adaptation being key to devising locally relevant solutions.

Read the Article 

Revolutionizing Healthcare: Energy for Health Activation at COP28 Showcases Groundbreaking Solutions: The Energy for Health Activation at COP28, endorsed by WHO and UNICEF, highlights the initiative to solarize 25,000 health facilities in India by 2026. Dr. Tedros Adhanom Ghebreyesus emphasizes the urgency for widespread commitment and collaboration to scale up the initiative globally.

Read the Article 

People-Planet Partnership: IKEA Foundation's Impactful Initiative for Inclusive Healthcare: In this extensive interview, Jolanda Van Ginkel from IKEA Foundation discusses the collaboration between SELCO Foundation and IKEA Foundation to implement the world's largest Energy for Health program. Van Ginkel emphasizes the significance of partnerships in addressing challenges, highlighting IKEA Foundation's role in fostering collaboration among organizations to tackle complex issues.

Read the Article 

What's cool at COP28? ST's pick of 6 exhibits that inspire and educate: The article highlights six notable exhibits at COP28, including Pollution Pods, The Passage of Water, an E-waste car, Fossil of the Day Awards, Stella McCartney's Sustainability Market, and SELCO Foundation's Energy for Health exhibition. SELCO's exhibit showcases the initiative to install DRE systems in rural healthcare centers, aiming to reach 25,000 centers by 2026. The exhibition sheds light on the importance of sustainable energy for healthcare and features a short film illustrating challenges faced in accessing healthcare in rural areas with unstable electricity.

Read the Article 

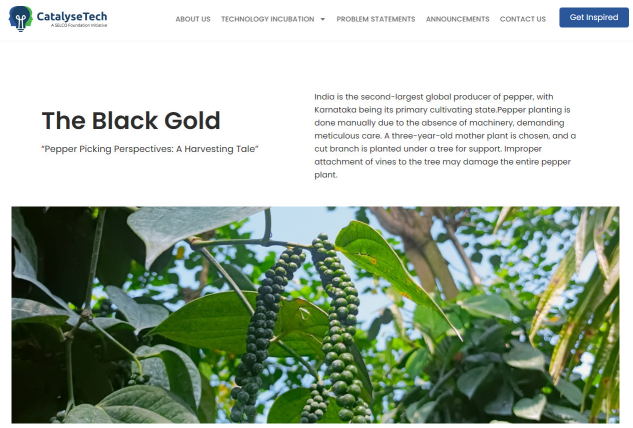
Ecosystem Stakeholders

Ecosystem Building

Alongside the innovation and scaling of sustainable energy solutions for livelihoods and healthcare, SELCO is taking sustained efforts to build ecosystems which cater to growth across sectors. It carries out incubation programs to help develop technology manufacturers for grassroot solutions, it engages with the youth, works towards developing the clean energy skills network and also build sectoral interest and awareness on systems thinking and its own ecosystems approach.

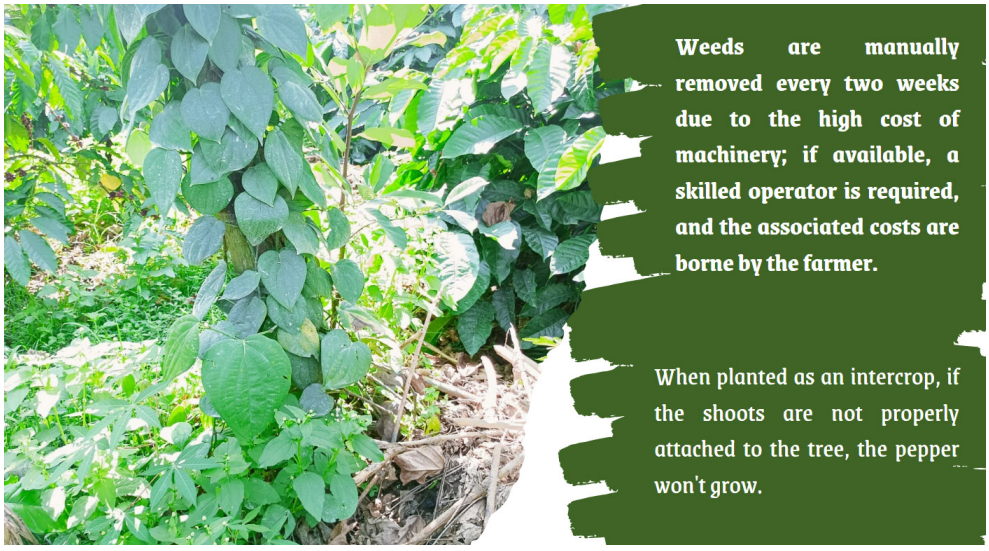
Catalyse Tech Problem Statements

SELCO Foundation has developed a platform, Catalyse Tech, which is an avenue for engaging with innovation-oriented individuals, particularly, the youth. The platform was created in 2022 and now hosts 24 unique problems being faced by livelihood practitioners at the grassroot. Out of these, 9 have been documented in this program period and 16 new problems are currently being documented. 17 of these 25 are from the agriculture and allied sectors, 2 are from the food processing sector, 3 from the manufacturing sector and 3 from the textile sector.



Snippets of a problem on pepper harvesting documented in the platform.

See the platform



Catalyse Tech Challenges

SELCO has been conducting Catalayse Tech Challenges over the past year. These challenges have proved to be good source in attracting new enterprises from rural areas into SELCO's ecosystem.

The challenges in different regions and sectors, have provided the team with immense learnings about diversification, regional biases, culture biases, channel effectiveness and mentor selection methodology.

While, it is one of the many ways to attract new applications, but also pushes the agenda of innovation and incubation deeper into the society (both in terms of geography and financial hierarchy). Following are the areas SELCO has focused on running the challenges:

On Farm Needs

The solutions proposed by enterprises included machines for de-weeding, threshing, harvesting, sowing and planting, and software applications.

For Cooling

This challenge attracts solutions for air conditioning, agricultural cold storage, mobility & cooling solutions, built environment solutions and cold storage solutions for healthcare

Women Entrepreneurs

SELCO launched this challenge in 2023 to specifically target women working on hardware technologies and coming from specifically vulnerable backgrounds or grassroot settings.

See the platform

Technology Incubation

Over the past years, SELCO has focussed its incubation program on potential enterprises and entrepreneurs working in the selected areas of climate, agriculture (both on farm and off farm), small businesses, water, etc. The attention has been on technologies that have immense potential on the marginalized populations as well as is climate resilient.

The Ecosystem of Incubation, if one has to focus on being inclusive and climate resilient, does needs to have a different kind of stakeholders for it to be robust. The input channels for potential entrepreneurs and enterprises have to be more grounded in their presence.

The methodology of selection has to take into consideration the local culture of risk taking, sensitivity of the marginalized populations (in the way of response and acceptance to external interventions), concept of local business structures etc. An outside perspective or formal ways of incubation have to tailor made depending on the region.

The Incubation process of SELCO has tried to inculcate and is still in the process of making it flexible and adaptable. There have been lot of learnings, right from selection of enterprises to mentorship of individuals.

Sectors and Channels

The type of sectors that SELCO focused on where:

- Agriculture, On Farm and Off Farm
- Small Businesses and Crafts
- Food processing centres

The channels selected were mostly via selected vocational schools and social media. While the enterprises have been from different parts of the country, the following year SELCO will focus on very selected geographies and channels that have stable connections to the type of enterprises it has aspired to reach out to. Out of the 16 new enterprises, 14 have been from the North East where SELCO has made some inroads in creating local input channels.

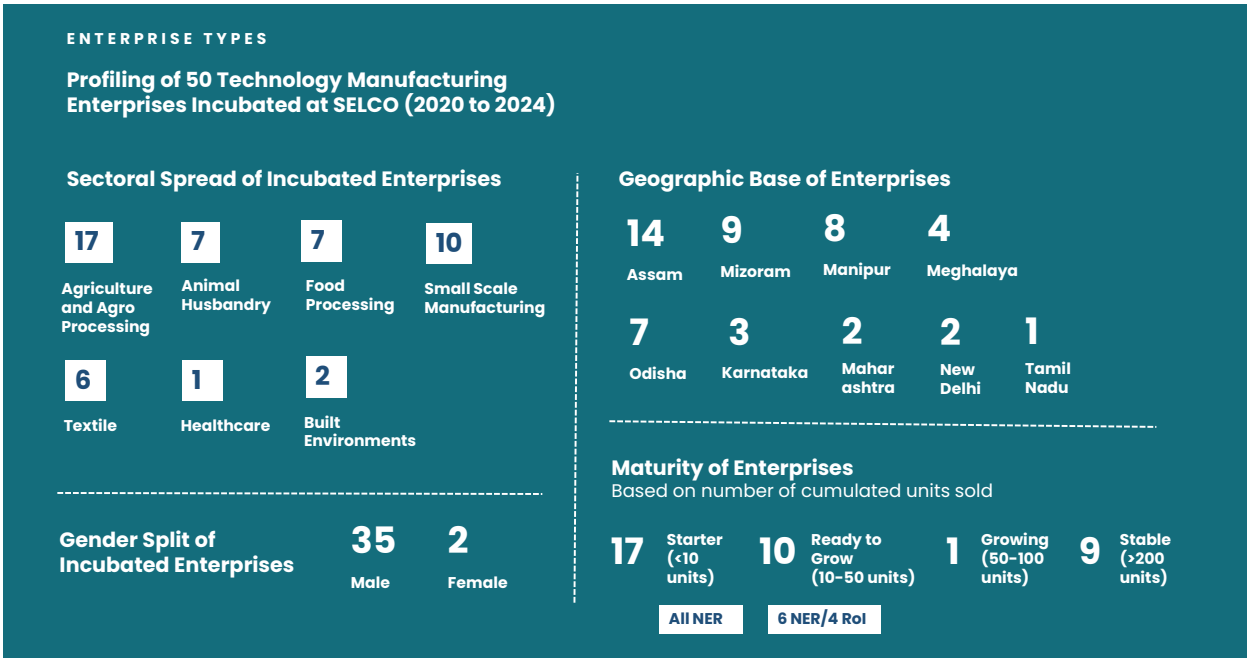




Maturity of Technologies

Majority of the enterprises had defined the problem very well but the technologies selected to solve those problems were not up-to the expected mark. The design, efficiency, and overall packaging were much to be desired. These challenges were on top of the other gaps like markets and end-user financing.

SELCO has provided extensive support via its internal teams of engineers and product designers, as well as via partnerships with other experienced enterprises or technical experts to help improve machine designs. In one example SELCO's brought in expertise to help Jogendra Patra, a Sal leaf plate manufacturer uses heating elements in its machines, which are currently not energy efficient. In another example, Saraswati, an Eri spinning machine manufacturer was supported by product designers for better designs and materials leading to better performance and life.



Business Modelling, Piloting and Showcasing

SELCO also provided considerable resources for these selected enterprises to test, pilot and showcase them across selected segments of their client base. Such an exercise helped them to polish their delivery models, understand the right financial product and to handle other nuances operational issues of business.

SELCO provided business mentors from grassroots enterprises leading to many of them having lesser pitfalls. Also SELCO has been supporting its incubated on other organisation and business development aspects. Those organisations who haven't formally registered their enterprises, or are new to the formal economy are provided support. SELCO is now launching a new effort to engage on business planning efforts in a much deeper way with enterprises, and has created new partnerships for the same.

SELCO Skills

SELCO recognizes that there are concurrent challenges in the clean energy ecosystem in India as well as the global south. While many local clean energy exist may exist, ongoing challenges force poor quality of installation and services. The following key challenges are being addressed by the SELCO Skills program -

- Poor/Non Uniform Installation Quality Standards
- Need for Improved O&M Systems for Health and Livelihood applications of Solar Energy
- Need for Enterprise Quality Assurance
- Relevant and Timely Capacity Building and Training Programs for Enterprises

Goal of the Program

To create a full fledged training center by 2026 that would have trained 200+ local enterprises to scale solutions. In doing so, it aims to develop content to train micro, small and medium, vernacular speaking enterprises and unlocking channels for opportunities and services available for last mile entrepreneurs

Training Content and Delivery Mechanisms

To develop, benchmark and deliver training models for DRE stakeholders who needs hands-on training for solar technical, business development and financing.

Development of Training Channels

To identify, train and certify a pool of trainers and for all subjects who are available to provide trainings in all regions of concern.

Creating a Training Institute / Platform

In-person and online engagement and partnerships with the training delivery partners for enabling trainings.

Training topics chosen focus on the supply side of the ecosystem

SOLAR TECHNICAL TRAINING

Site Assessment – Health & Livelihood
Assessors - ITI / Diploma , Polytechnic , CEEs , Students , Technicians

Solar Energy System Design – Basic & Intermediate
System Designers, Engineering Students , Senior Technicians

Solar PV Installation – Basic & Intermediate
Entrepreneurs, Installers, Technicians, Vendors, CEE's, Students

Load Wiring
Electrical Wireman, CEE's

Quality Inspection & Best Engineering Practices
Senior Installers / Senior Technicians / Engineers with installation experience

Operation & Maintenance – Schedule & Routine Solar PV System (Package) Quality -Assurance Training Program
CEE / technicians / Service Associates with basic solar technical knowledge /End Users (Health Staff, Village Committee, Village Council,RKS tec.)

BUSINESS TRAINING

About Entrepreneurship and different options for entrepreneurship
Entry level , Growth Phase and Mature Phase - Enterprises

Business Planning
CEEs , BAs , Sales Executive

Program Design, Marketing & Sales for Energy Associates Partnership Building Supply Chain Management
Managers – Marketing, Sales and Supply Chain

We Scope

A campaign and platform to propagate ‘Act for Systems Change’ tools from a practitioner’s lens.

MAKING THE INVISIBLE VISIBLE

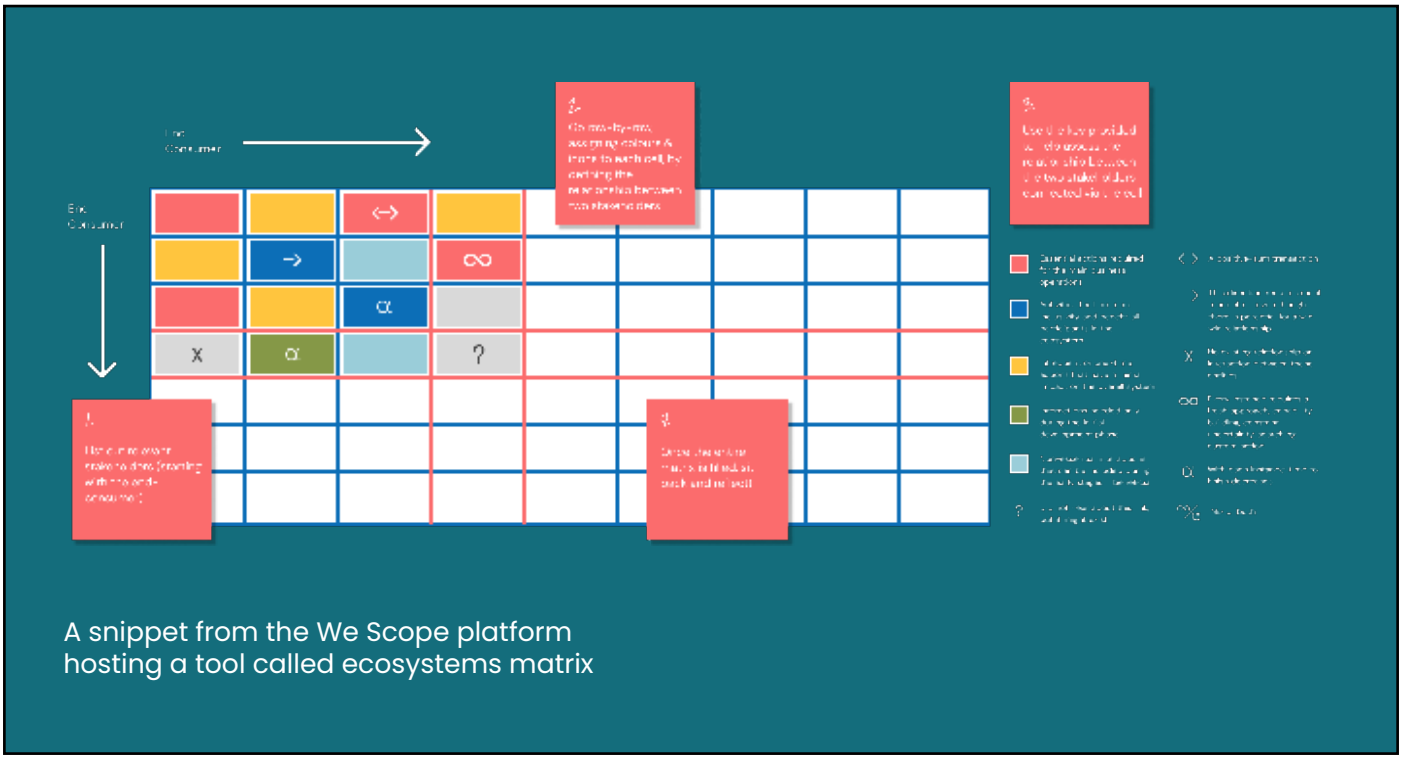
A systems journey to help you navigate the "How" of social impact

While understanding the entire system is important, don't let it paralyze you. Start where you are, use what you have, and do what you can. Every small step forward adds up, and together, we can create meaningful change.

We-Scope is an online platform, curating narratives, tools, case studies and approaches with an aim to advocate for the adoption of systems lens in program design and implementation strategies. To facilitate this, it has invested into clearly articulating its ecosystem approach at multiple levels, and showcased it in the following manner -

- It designs narratives which showcase the value of systems thinking, and presents case studies, tools and frameworks on how systems thinking tools can be applied to build local ecosystems which result in sustained impact, are inclusive and transfer ownership to the marginalised populations
- SELCO conducted consultative discussions with selected experts and influential individuals propgating systems approach. In these discussions, SELCO showed the objectives and vision for the platform.

Visit the platform



A snippet from the We Scope platform hosting a tool called ecosystems matrix

Apurva.ai

SELCO is developing the Apurva.ai along with Societal Thinking, an artificial intelligence-based platform for capturing all of SELCO's working knowledge, meant to be accessed on the go. .

What is the problem statement that Apurva.ai and SELCO Foundation are trying to solve?

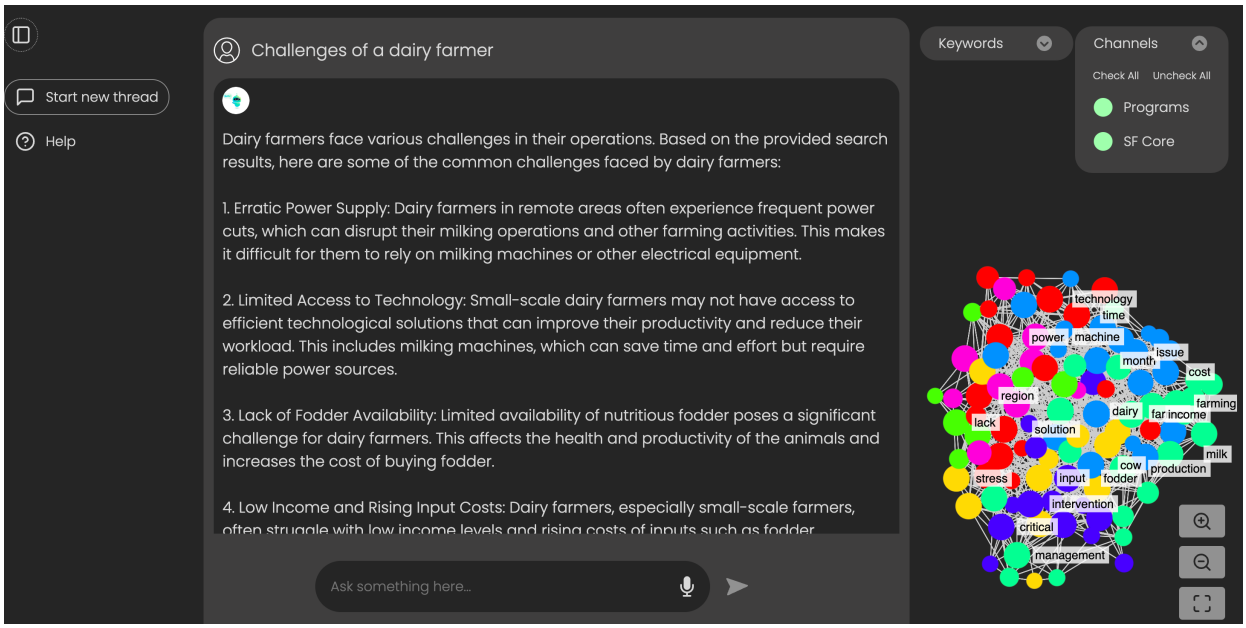
How might we create a platform that allows for converting of silo-ed data and information from multiple stakeholders and regions into collective wisdom?

How might we scale in a manner that it balances scale with purpose, i.e. allows for exponential growth with exponential impact?

How do we create a platform that creates collective wisdom that encourages diverse leadership to learn and co-create?

How does Apurva.ai work?

- Built on Large Language Model (LLM) AI technologies including GPT 3.5, GPT 4, BARD, Marqo, Whisper
- Foundational Neural Network allows for assimilation at scale
- Natural Language tasks including: neural search, text generation, transcribe, translation etc.
- Architectural Model "Transformers" assimilate LLMs
- Generative AI information that bridges language and contextual barriers within vast ecosystem stakeholder networks



Financials

ANNUAL REPORT

2023-24

SELCO FOUNDATION