SELCO FOUNDATION

Annual Report
April 2015 - March 2016

ANNUAL REPORT

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MISSION

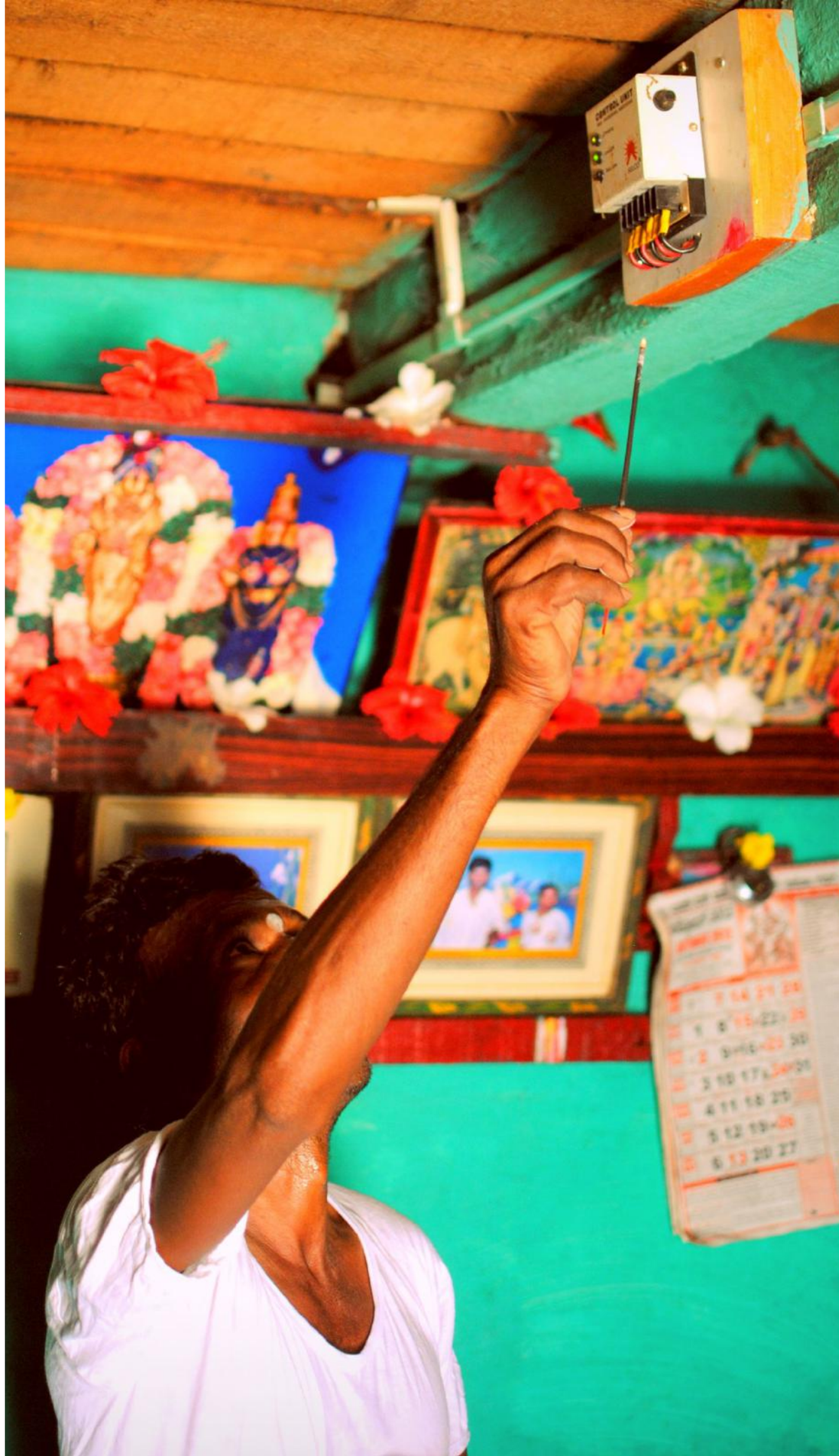
SELCO Foundation envisions a socially sustainable society: we seek to create avenues for asset building, enhancement in quality of life and wealth creation that will uplift deprived sections of society through sustainable development solutions.

SELCO Foundation was officially registered on 5th October, 2010 as a public charitable trust, with the mission to:

1. Systematically identify diverse needs of underserved communities, understand and define the role of sustainability and energy in these communities.
2. Create and support innovative and sustainable solutions that positively impact well-being, education and livelihoods and work towards the alleviation of poverty.
3. Foster ecosystem development in the social sector through holistic thought processes in technology, finance, entrepreneurship and policy.

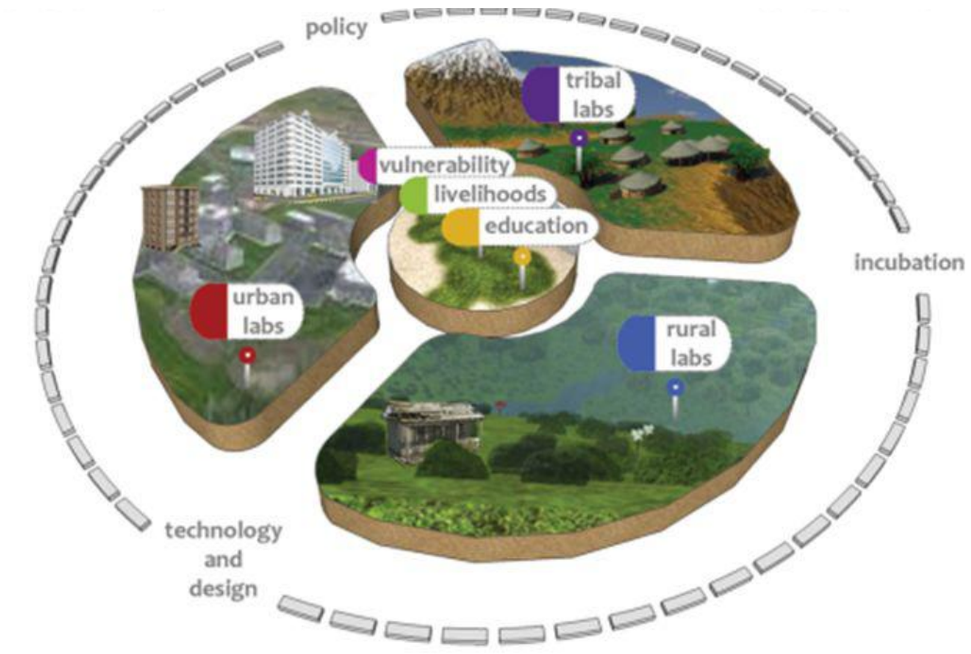
VISION

In the next 4 years, SELCO Foundation seeks to have created multiple processes and models that use sustainable solutions to address issues of poverty. These processes could then be customized for different geographical and cultural contexts around the world. The SELCO Foundation also seeks to build up a comprehensive ecosystem for energy access solutions to be delivered.



OVERVIEW AND MILESTONES

Since 2015, SELCO Foundation through its 3 community labs for rural, urban and tribal communities has facilitated energy linkages across different verticals and developed holistic models on the ground. The Ecosystem support entities within the organization have worked towards understanding other contexts and building the foundation to disseminate the models developed.



The projects of SELCO Foundation can be broadly categorized into:

- Access to resources and amenities
- Livelihoods
- Ecosystem Development
- Education and Outreach

The broad intent of each category and the progress of specific projects are articulated in the sections below.

Key Milestones for the year include:

Access to Resources and Amenities:

- Integrated Energy Center concept chosen by local government led initiative as effective means of addressing energy access issues in Urban poor communities. Pilot with to be implemented with Government support in 2016-17.
- Scoping and Need assessments undertaken in other states- Uttarakhand, Maharashtra, Uttar Pradesh, Rajasthan - will pave way for replications with ground level partners, incubatees in 2016-17

Livelihoods:

- Successful pilots undertaken on energy efficiency for small livelihoods such as Tailoring, Roti rolling and technology solutions ready for replication through Incubatees and partners in other geographies.
- 35 Micro energy entrepreneurs and small livelihoods financed with soft loans to access decentralized clean energy systems. This helped in creating a credit history and evaluating repayment schedules, thereby improving banker confidence in lending for such livelihood solutions.

Ecosystem Development:

- An energy access ecosystem framework- covering aspects of Finance, Capacity building/Skills, Policy, Technology, Infrastructure and Entrepreneurship- was developed to enable a better understanding of newer regions to absorb and sustain energy solutions for households, livelihoods and community spaces.
- Two regions in Africa- Tanzania and Nigeria- explored to understand their current scenario around energy access and determine the potential for cross learning through local partners. Aspects such as incubation of energy entrepreneurs, replication of solutions and policy advocacy are key to this engagement.

Education and Outreach:

- Inventing Green introduced as a course module for the first time with Product design students in Srishti school of Design (India) and MIT (USA). The course builds on understanding of field and supply chains to design “greener” components for renewable energy systems.
- Successful expansion of Invention and Sustainability education program to 5 more rural government schools (in addition to the 10 from last year); Introduction of teacher training modules as well.

PROJECT CATEGORIZATION

Category	Verticals	Programmes
Access to Resources and Amenities	Energy Access	Integrated Energy Centers, Urja Gram Kendra + solar home systems, Micro grids, Other solar solutions, Model villages
	Water and Sanitation	Water purification, Sanitation for urban migrants
	Built Environment	Housing for Urban migrants, Natural Lighting & Ventilation
	Education	Lighting, Digital edu, Model schools
Livelihoods	Energy Entrepreneurs	Micro entrepreneur development
	Agriculture	Agricultural livelihoods
	Non-agricultural livelihoods	Urban Livelihoods, Rural and Tribal livelihoods
Ecosystem Development	Energy Policy and Planning	Electricity mapping, District energy planning, Taxation
	Financing Ecosystem	End user financing, Enterprise financing
	Ecosystem Assessments	Energy access ecosystem, Global replication
	Technology Ecosystem	Storage, Tools and Resources- Energy auditing, Product testing
	Funding and Investments	Impact investments, CSR and Philanthropies
Education and Outreach	Sustainability and Innovation	Invention and Sustainability in schools, University engagement
	Partnerships and Outreach	Partners, Publications and presentations, Fundraising

SNAPSHOT OF DELIVERABLES (Part 1)

Program	Metrics	Actuals
Product Innovation	No of technical products worked on	30
	No of products taken to market (Process innovation)	13
	No of business innovations introduced (Program Pilot)	13
Technical Testing and Evaluation	State of market reports	7
	Corporate Relationships	9
Community Organizations	Organizations worked with	20
	Products introduced	5
University and School relationships	Capacity Building with Students on Innovation	1518
	Internships and Fellowships	42
Entrepreneur Incubation	Small and micro entrepreneurs trained and financed	38
Policy	No of policies/guidelines impacted	2
Processes documented	Internal documentation and case stories	14
End users impacted	Direct	107000
	Through partners (Energy Solutions for Health, Education and Water)	14600
	Through entrepreneurs	2400

SNAPSHOT OF DELIVERABLES (Part 2)

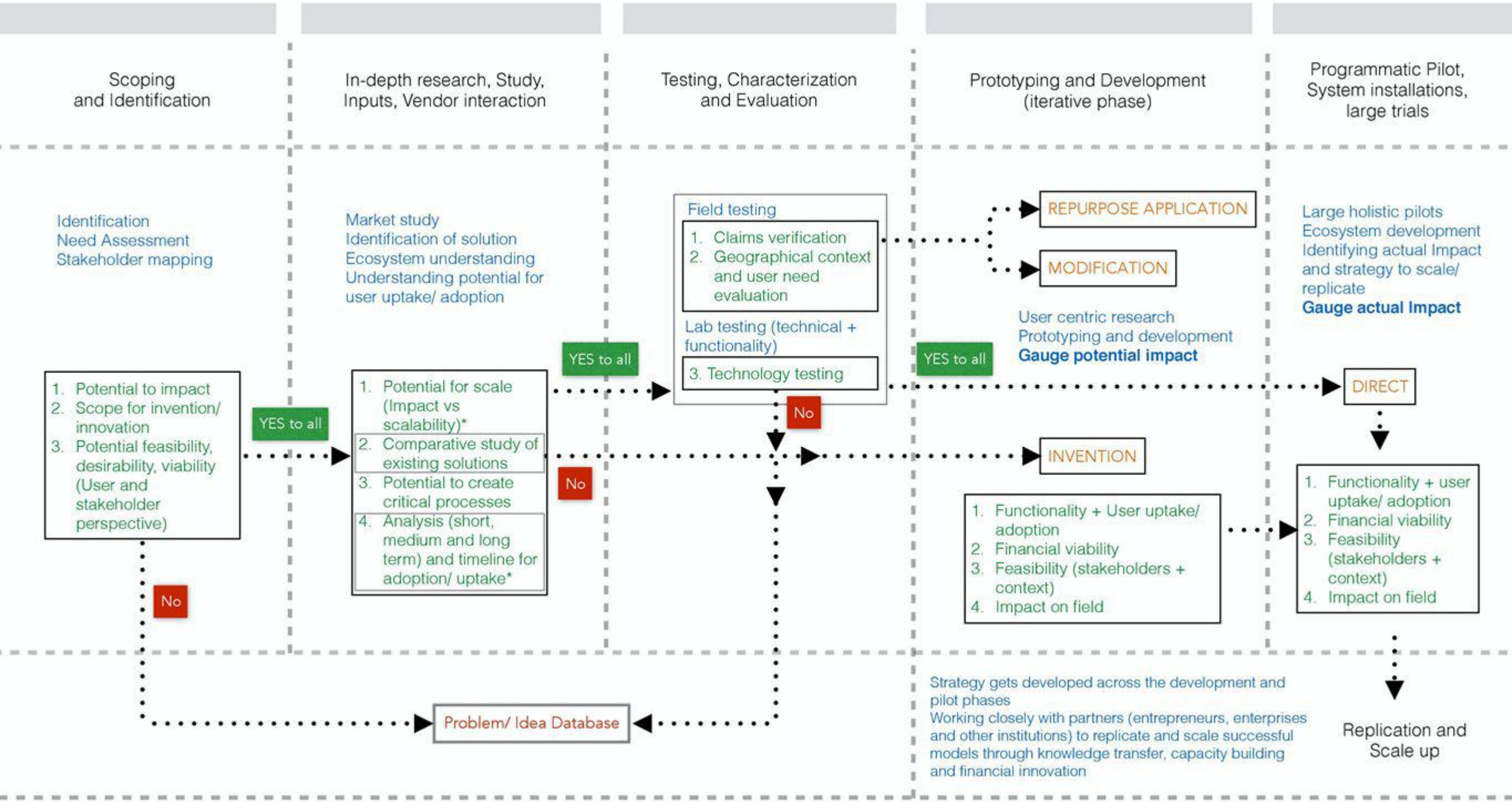
	Metrics	Actuals
Innovations and Replications	Financial intervention/process/model	4
	Replication of products,financial, process innovation	12
Institutionalization	Planning (influencing the process, undertaking planning for govt agencies)	1
Documentation and Outreach	Training Manual or Curriculum developed	5
	Toolkit	8
	Reports and Papers(beyond technology)	19
	Workshops/ Training programs organized	13
	Knowledge sharing through publications and key events	27
Partnerships	Financial partners- credit for end users and micro entrepreneurs	3
	Research partners- academic, think tanks	6
	Technology and Innovation partners (beyond Corporate relationships)- energy enterprises, architects, Industry networks etc.	8
	Education partners- Colleges, Content partners + Schools	24 + 15
	Government partners- departments, govt agencies	7

Not taken up

Complete

Indicates which stage

APPROACH TO PROJECTS



ACCESS TO RESOURCES AND AMENITIES

Energy access is central to development and a catalyst for other developmental activities. Understanding the link between energy and access to different resources and amenities such as water, education, housing and health, thus become pertinent when innovating for last mile delivery of resources and amenities. Under this category, the projects look at understanding the missing gaps, as well as developing models around delivery of water (utility, irrigation and purification), quality education as well as housing which incorporates aspect of natural lighting and ventilation.

ACCESS TO RESOURCES AND AMENITIES

INTEGRATED ENERGY CENTRE

The Background:

The poor's access to safe, affordable, and reliable services is still relatively low across urban, rural and tribal areas. Need for high capital investment, affordability of solutions, and feasibility of existing technologies for smaller and marginal use hampers economic and social development.

The Solution:

Integrated Energy Centres are solar powered community centre's that can host a range of basic services and activities lacking in an underserved community. The centre aims at positively impacting quality of life and livelihoods by addressing fundamental energy needs and services relying on energy.

Energy centres are essentially solar powered independent service centres for rural/urban/peri-urban spaces where a combination of energy services (such as lighting, mobile charging, charged batteries, and others) can be provided on a daily/monthly rental basis.

Progress:

- Replication: 15 new IECs were implemented across geographies and with different partners and operating models.
- Value-add Services: Innovations around portability and services for health, education and livelihood were added (portable projectors, refrigeration and cooling, vaccine and medicine storage, laptops and printers, sewing machines).
- Partnerships: 6 new partnerships were established
    - To replicate in other geographies- community based organizations
    - Technology or knowledge partners- for increased service provision in the Energy Centres

Next Steps:

- Institutionalization: As one of the chosen projects under the Neighbourhood Improvement Partnership Challenge, and Integrated Energy Centre will be implemented along with the local city government in Bangalore as an addition infrastructure in an existing Bus Stop. While the pilot phase in the coming year will look at implementing one such centre, the program hopes to prove a successful model for providing flexible clean energy solutions to the urban poor communities.
- Focus on Vulnerability and beyond basic energy access: In the coming year, the focus would be on creating models and contextualization services for vulnerable communities across geographies.
- Replication and Partnerships: replication with partner organizations will also help identify other services resulting in IECs that focus on education, health and livelihood.

ACCESS TO RESOURCES AND AMENITIES

MICRO-GRIDS

The Background:
Generally, electricity access can be provided through individual solar home energy systems, while also leveraging this as a means for facilitating linkages to financial institutions. However, when households are located in remote locations, the transaction costs of tariff collections and the maintenance costs for individual systems tend to increase. This line of reasoning is often used to justify electricity provision through pico, micro and mini-grids, which are more capital intensive.

But, it is important to note that a successful microgrid project is not just an installation of technology, but consists of many stages and aspects which need to bring in social and cultural dynamics in the community, while also including appropriate needs assessment and setting up a suitable business model for the site. SELCO Foundation's investigation into microgrids therefore focused on experimenting with different models and drawing out learnings from each phase of the project.

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The Solution:
In 2015, the objective was to pilot the micro-grid technology as a part of larger goal to establish micro-grid as a sustainable energy service system. Apart from technology, we also focussed on processes required for site-assessment, design and implementation of the micro-grids.

Two DC micro-grids were implemented in off-grid, remote locations of Neelkantarayanagaddi in Yadgir and Mendhare in M.M. Hills. Both the systems contributed to the technical capacity building and learnings in the operational aspects of the technology.

We are also collaborating with MIT GridForm team to evaluate their microgrid design and planning tool through pilot projects in Bihar.

Progress:

- Pilot projects were undertaken in Karnataka (2) and Bihar (2, in process)
- Developing processes and systems for design and implementation of microgrid projects.
- Key Learning: Collections also fail because the households are often poor, and mere access to home-lighting would not increase their ability to pay. There could be a case for repayments if various livelihood options are developed, and the micro-grid is leveraged to support these operators/entrepreneurs. In practice, there is often a lack of such livelihood and community loads. Instead of mere capital subsidy for the micro-grid, the grant monies and other subsidies should be directed to towards *developing the supporting ecosystem* for the villages. This could include setting up livelihood centers, small utility shops, access to banking, basic health services, etc. Increase in living standards, better health and incomes can eventually also lead to increased ability to pay for electricity services.
- Piloting tech for control and monitoring of the systems.

Next Steps:

- Piloting microgrids with different operational and financial models, through labs and operations.
- Developing toolkits for design and planning.
- Look at developing models to replace diesel generator sets

ACCESS TO RESOURCES AND AMENITIES

WATER PUMPS

The Background:
Severe electricity issues affect the usage of irrigation pump sets that are a critical source of water for agriculture. In most areas, electricity on the 3 phase line is only available late into the night between 12am and 3am which makes it extremely inconvenient for farmers to irrigate their land. In some states, diesel is used to meet this gap, which also increases expenditure.

Alongside solar powered water pumps, incentives must be created for farmers to keep the usage to the minimal and ensure water conservation, a critical need across most parts of India today.

The Solution:
Solar powered agricultural pumpsets that are of high efficiency will reduce expenditure on diesel for farmers in some regions while also reducing the inconvenience caused by erratic power supply in others. A solar powered water pumping system is made up of three basic components. These are PV panels, pump controllers and pumps. DC current from the panel is fed into the pump controller that gives a 3 phase AC output, which in turn operates a 3 Phase AC pump whenever the sun shines.
The pump set must be combined with drip irrigation or incentives that ensure water conservation (see below) as it can otherwise lead to overuse and water depletion.

Progress:
- SELCO Foundation played the role of the ground partner for farmer surveys and measure groundwater levels,in a government led pilot that retrofitted existing pumps with efficient solar pumps and allows them to feed back to the grid, thereby incentivizing efficient use of the pump and water conservation in Harobele Village
- Certification for 5HP pump system
- Vendor finalisation

Next Steps:
- Documentation of changes in groundwater levels, if any, owing to the government led initiative in Harobele
- Design of Portable pumps to facilitate an entrepreneur model for renting out pumps to small and marginalised farmers
- Micropump piloting
- Manual Tracking structure prototype
- Certification for 2HP, 3HP and 7.5HP pump sets
- Provide input for policy paper and intervention on certification

ACCESS TO RESOURCES AND AMENITIES

WATER PURIFICATION

Programmatic Pilot

The Background:

Across urban, rural and tribal populations the need to easy access of affordable clean drinking water is a priority, and this can be achieved through small and medium sized entrepreneurs and enterprises at local levels. The issues around providing access to clean drinking water may be from different perspectives:

- Lack of awareness around contamination
- Little or no access to clean drinking water or energy/technology required to purify water. In the case of few, accessing raw water is itself a challene
- Type and source of contamination

The Solution:

- *Technology:* Depending on the contamination type, water source and scale, availability of power different technologies can be looked into. The more common and popular technology for water purification- Reverse osmosis (RO) was found to be extremely inefficient in terms of resource management as well as energy usage- hence, special focus was on looking at alternate technologies such as Ultra Filtration and Capacitative Deionization
- *Social*: In most of the communities, the awareness is a key aspect to ensure the impact and sustainability of the project. This is especially also to ensure that the communities know how to distinguish between drinking, cooking and utility water, as well as to ensure that storage of water at the household level is clean as well.

Progress:

- 4 water purification systems installed across urban and rural geographies
- Water awareness workshops conducted (particularly in urban communities where awareness is one of the main issues identified)
- 3 different operational and financial models worked on- entrepreneur based, partner based, by leveraging public infrastructure/funds
- Partnership building with manufacturers for feedback on energy efficiency and added features for usability and/or monitoring

Next Steps:

- Continue to pilot systems across different contexts, innovating on financial and operational models
- Expand to tribals areas while also exploring household level solutions
- Continue to work with manufacturers of the technology on energy efficiency aspects of the system
- Document and create case studies bringing out viability and feasibility of each technology- according to contamination levels, market reach and scale.
- Sharing of learnings with finance institutions and government bodies currently looking at water problems at community level

ACCESS TO RESOURCES AND AMENITIES

DIGITAL EDUCATION, LIGHTING

The Background:

Most Government schools in rural and remote areas face severe power crisis during the day when classes are run, while students continue to deal with unreliable electricity for study at home in the evenings. While many of these schools are equipped with computer labs, owing to this power shortage students are deprived of audio-visual aids in learning, and reliable, clean lighting for after-school exercises. This issue is also faced by students residing in Government hostels.

- Light from kerosene lamps or candles is too dim, unsuitable for studying and also emit fumes and heat with health implications.They also carry the risk of fire accidents
- Lack of audio-visual aids not only restricts contemporary information that students could be exposed to using online resources, it also hampers the learning process making it less interactive.

The Solution:

With the support of a content partner, content mapped to the state syllabus (Grades 5-9) are made available through an efficient projector that is then solar powered. In some cases, the projector is replaced by an efficient television. The content is run through an android device and covers subjects such as English, Science and Mathematics for each of these situations. Projectors have also been made portable to allow teachers to move them between classes. The Teachers are provided a handheld device to maneuver through the content.

To address the issue of lighting for study in the evening, Light for education (portable study lamps charged through a solar bank in the school) and Hostel lighting projects are being undertaken. In both of these cases, 50% of the total cost is raised through a CSR partner keen on education while the school authorities bring in the remaining 50% with the support of local institutions. In the case of ‘Light for Education’, students also pay a small sum on a yearly basis for maintenance.

Progress:

- Over the last 3 years, more than 500 schools across Karnataka have been equipped with the Digital education program
- 300 hostels have been powered off decentralized solar energy systems
- 40000 students are accessing the Light for Education program
- Teachers across 500 schools have been trained on the use and operation of the digital aids

Next Steps:

- School wise tracking will be undertaken to better understand how teachers are using the digital aid- what subjects are taught, how often the system is being used, which subjects has it been most helpful with. These analytics will help determine if there is a need for modification in content or operational aspects
- Alongside this, additional content that could be played through the projector is also being explored (through partners). This could add to the body of knowledge of the student and go beyond the curriculum in terms of concepts and learning.

ACCESS TO RESOURCES AND AMENITIES

HOUSING FOR URBAN MIGRANTS

The Background:
A large proportion of Bangalore today lives in squatter communities with little or no access to basic resources and amenities. Since the communities are prone to eviction, it influences the way they interact with their physical environment. Further, living in geographically vulnerable areas in the city (low-lying areas flooding every monoon or dumping sites that attract epidemic diseases), make for unhygienic living spaces, as well as throwing them in a constant loop of poverty.

Identifying the lack in availability of affordable housing or housing that accommodates for the flexible needs of migrants in the community, housing for urban migrants needed to be explored further.

The Solution:

- The H.U.M (Housing for Urban Migration) Project aims to provide immediate relief in temporary squatter communities. These solutions are also applicable in communities which have flexible needs (pilgrims),as well as a housing solution where quick assembly is the key (disaster relief).
- The house designed looks at addressing the critical needs of the communities- ample lighting, ventilation to facilitate smoke extraction, safety from rodents, security at night and sufficient storage.

Progress:

- Learning from pilots and feedback from the field, leveraging on the local know-how, accessibility to materials, the team decided to take a “Do It Yourself” housing solution from two different perspectives:
  - Looking at it as an incremental and modular solution, simple material and technical innovations are incorporated into the existing typology to create a better temporary living space- this required a thorough documentation of all the materials available as well as construction practices adopted by the communities
  - A standardized solution for new housing modules that keep in mind the flexible needs,the skills of the community members, as well as the social and cultural context around housing in these scenarios- material pallette restricted to ensure that houses dont attract attention from landowners or neighbouring plots or give the impression of permanence, which most often than not result in hostility from landowners and threats of eviction

Next Steps:

- Post occupancy assessment of the 5 housing units prototyped.
- Develop a toolkit to hold workshops in the community to spread awareness , introduce solutions as well as build capacity around better design and construction methodologies that can help make more resilient structures that incorporate natural lighting and ventilation.
- Standardize solutions and implement a pilot that looks at intervening for housing at the slum level, with thorough documentation for baselines and impact observed
- Solutions developed further will also look at bridging the gap between temporary relief and permanent rehabilitation by accounting for structures that can accommodate for permanence in an incremental manner as the communities become more stable- such approach can also be used for disaster relief housing or formal labour colonies

ACCESS TO RESOURCES AND AMENITIES

EFFICIENCY- NATURAL LIGHT AND VENTILATION

The Background:
How efficient equipments, result in affordable renewable energy solutions, better design of structures incorporating natural lighting and ventilation, result in more sustainable built environments.

Corrugated metal sheets are commonly used as roofing in slum areas. Although these sheets are cheap and keep the rain out, they also prevent natural light and ventilation. Inadequate natural lighting and ventilation across domestic, institutional or commercial structures due to improper planning has an adverse impact on the wellbeing of the dwellers ranging from reduced productivity to long term health issues. The common approach of invasive manoeuvres (making windows in walls etc.) can also compromise the integrity of the structure endangering lives.

The Solution:
Intervening through the roof to bring in natural light and ventilation during day time, without compromising on the privacy of the household or the structural integrity of the house itself was recognized as the approach for the project. Airlite, a product developed together with a partner organization to bring in natural lighting as well as ventilation was piloted in Bangalore. It is a FRP roofing sheet that replaces an existing metal roofing sheet to bring in light and ventilation. In addition, similar approach to develop technologies for other roofing technologies needs to be made.

Progress:

- After field testing the Airlite technology, the focus was to find local fabricators in Bangalore itself
- Technology Customization across roof typologies
    - A key challenge for Airlite product (for metal sheets) has been local manufacture and financing. Learning from geographies where it has been successful as a solution, Airlite is combined together with a program on Energy Auditing, as well as loans given out from a financial institution for Energy Efficiency product- thus, addressing both the awareness around the product as well as making affordable financing available.
    - The solution for bringing in light through the country tiled roof houses (through FRP tiles) in Orissa has received considerable interest from the community.
- Toolkit to spread awareness around benefits of natural light and ventilation in the community was developed.

Next Steps:

- A larger pilot will be conducted in the tribal country tiled houses, as well as in the blue sheet squatter urban communities to incorporate in them aspects of natural lighting and ventilation.
- For metal sheet roofs, a larger pilot with 50 airlites across geographies and contexts, along with dissemination models need to be developed

ACCESS TO RESOURCES AND AMENITIES

MODEL VILLAGE

The Background:

There is a need for a more integrated approach towards energy, where energy is seen as a means to improved health, safe water, education, livelihoods rather than an end in itself. In 2014, after taking office, the Indian Prime Minister encouraged Members of Parliament to adopt villages within their constituency and showcase them as model villages. Similarly a number of CSR entities were keen on looking at the needs of villages in their areas of operation and build them into model villages. Against this backdrop, It was critical to ensure that energy was seen as a critical part of any model village plan.

The Solution:

Capitalizing on the SAGY program (Sansad Adarsh Gram Yojana) of the MPs, the concept of a model village was further developed. The process for creating a model village begins with need assessment and energy mapping, followed by customization of solutions, implementation and monitoring and evaluation. Current model village interventions are integrating energy related inputs in health, education, livelihoods and skill development, while also providing safe drinking water and low cost infrastructure facilities. Additionally, the model attempts to create energy entrepreneurs or appointing local operators to manage energy centers. Where possible local leadership is leveraged to facilitate implementation and, mobilize the community thus cementing buy in from the villagers.

Progress:

- A comprehensive model village toolkit has been developed based on experiences from a set of need assessments and recommendation reports.
- 6 primary assessments of villages have been undertaken in Karnataka and 5 Recommendation reports for potential interventions have been submitted. (Bhuvanahalli, Harobelavadi and Kabbenur, Tangelo, Holtikoti and Perabe)
- 2 of these villages were identified under the SAGY program through an Member of Legislative Assembly (MLA) and a Member of Parliament (MP) with support from a partner- Climate Parliament; This provides an opportunity for institutionalization.
- Other villages have been identified through CSR networks

Next Steps

- Create a database of villages based on existing lists of SAGY as well as metrics indicating extreme vulnerability
- Create a database of partners to work on areas other than energy access
- Develop a detailed project report for interventions in Harobelavadi and Kabbenur to be taken forward with various stakeholders, led by the MP
- Facilitate replication in geographies beyond Karnataka with MPs or Corporates, through partnerships.

LIVELIHOODS

With technology evolving at a fast pace, the sector's focus has been on increasing efficiency and productivity at an industrial level. However, there has been very little work done on looking at energy efficiency and needs of smaller livelihoods and entrepreneurs. Innovation on technology- invention and development, customization, re-purposing or modification.

Additionally, the projects illustrated under this section, recognise that increase in production does not necessarily translate to increase in income. Understanding feasibility of each technology in terms of the social and financial aspects, and innovating upon market linkage and reach, entrepreneur training, product value-add and diversification, are the main objectives of these projects.

LIVELIHOODS

MICRO BUSINESSES AND ENTREPRENEURSHIP

The Background

Micro Entrepreneurs and businesses in rural areas face power shortages during the day that directly affect their income generating capacity. While there are specific DRE solutions that could address this need for energy, these small businesses and energy delivery entrepreneurs are also limited by the access to credit and longer term financing for such energy solutions. This could include small grocery shops, bakeries, local tailors, local printing-internet shops, microgrid operators, integrated energy center and hawker light delivery entrepreneurs. This is mainly caused by:

- Limited credit history of entrepreneurs or limited ability to provide collateral
- Limited understanding of financial viability and returns on investment from such interventions, on the part of financial institutions.

Solution:

A comprehensive Entrepreneur Development and Financing programme was designed for micro entrepreneurs across Karnataka, Bihar, Odisha to:

- Determine financing need of micro energy entrepreneurs and develop mechanisms to support such financing- direct lending, guarantees for bank loans, interest subsidies.
- Create processes to make the financing more formal, thereby building a credit history to unlock financing through banks in the future. (includes entrepreneurs providing energy services and entrepreneurs using energy services as part of their livelihood needs.)
- Monitor income increases directly linked to interventions, evaluate value of the intervention for entrepreneurs and use the expertise of other teams to support with aspects of training and business development.

Progress:

- 40+ entrepreneurs trained, of which 35 entrepreneurs financed for energy solutions (Hawker model, Sewing machines, Laptop-Printers, Refrigerators), across Karnataka, Bihar, Odisha
- 3 financial mechanisms used to facilitate credit access: Direct, collateral free loans at low interest rates; Bank loan guarantees; Interest subsidies for bank loans
- 2 Regional Rural Banks also engaged in lending
- 4 workshops organized on business development for entrepreneurs financed and supported

Next Steps:

- Expand to support 100+ micro entrepreneurs across 4 geographies (including North East India)
- Institutionalize lending through existing Banks or Micro credit agencies
- Facilitate mechanisms for better collections- using tech or digital tools
- Strengthen internal monitoring, evaluation (Data, Targets, Documentation)

LIVELIHOODS

SEWING MACHINES

The Background
The SELCO Foundation team identified the need for highly efficient sewing machine that can be run on solar energy. This is especially relevant in areas that have no electricity or rampant power cuts where their livelihood is impeded. The increased productivity combined with a bank loan makes the product affordable

The Solution
Along with a technology partner Emsys, SELCO Foundation developed a re-modified sewing machine. By solar powering a manually pedaled straight stitch sewing machine the speed increased from 300 stitch/min to 1000 stitch/min.

At the same time replacing the universal motor with a PMDC motor lead to a saving of 30W to 40W power.This substantially reduces the cost of solar powering the machine. In industrial sewing machines the clutch motor is replaced by a variable frequency drive controlled induction motor. As a result the energy consumption is reduced by 50%. For each case, the tailor's cash flow, increased productivity, market linkages etc are all taken into consideration to arrive at the optimal EMI for a bank loan and the connect is made.

Progress
The Foundation has installed 15+ solar powered sewing machines in total. Each of the models are different in terms of market linkage, financial model, business process. All the experimented eco-system processes can be replicated in different regions of the developing world – thus impacting many more. So far, another 6 machines have also been installed by our incubatees in 3 different geographies with our support.

Scale up has also been slow because after the first few machines were installed there were multiple issues with the pedal. To solve the issue we had to make some changes to the circuit and mechanical workings of the pedal to get better speed control. Now the new pedals have been installed and are faring well in the field.

Next Steps
- Supporting more incubatees to take up sewing machines as a part of their product portfolio. We also plan to talk to various other solar social enterprises as well as organizations working on livelihoods in order to share the technology with them.
- We have also reached out to USHA, a leading manufacturer of sewing machines, to adopt these products in their rural training centers and also eventually make it a product option through their sales channels.
- Bringing in a few rural sewing machines dealers to act as Business Associates. The idea is to spread the reach by going directly to the source where people buy their machines and offering a solar + financing package at the time of purchase.

LIVELIHOODS

KOWDI

Enabling craft conservation and market linkages for vulnerable migrants families

The Background

To link the solar powered energy centers to livelihoods in urban migrant slums SF worked with a group of women to develop their traditional craft of Kowdi into an alternate source of livelihood.

The Solution

Kowdi is a patchwork embroidery craft from North Karnataka. A successful pilot was run in the Nagvarpalya slum in Bangalore from 2014-15. The pilot included elements such as organizing the women, training with a designer, developing market linkages and producing various products under the “Kowdi Kutumba” brand. The goal is to have Kowdi work centers for women in informal unelectrified settlements so that they can have access to alternate livelihood opportunities and build an increased or added income source for better security and stability.

Progress

The pilot established that Kowdi Kutumba can be run as a viable business following which we began looking for an entrepreneur to take it forward independently. An “Entrepreneur in Residence” program was designed in Dec 2015 to incubate a potential entrepreneur for 6 months. The program provides hand holding, knowledge transfer and capacity building and a nominal stipend.

A two entrepreneur team has been working for the past 6 months on building and scaling the business. They have streamlined procurement, production, and manufacturing processes, come up with a line of 6 new products and established 5 new sales channels. They have also tied up with women from low income households to do the sewing and finishing of the products.

Next Steps

- Continued handholding and capacity building for the entrepreneur to stabilize the business.
- To help them reach sustained sales of a minimum of 700 pieces per month within the next 3 months
- To help them attract long term investment to take the enterprise forward independently.
- Replicate the EIR (Entrepreneur in Residence) program for other projects which lack the ecosystem for linking renewable energy to income generation.

LIVELIHOODS

NEERA (Palm Nectar)

Low Cost, Efficient, Cold Storage for palm nectar

The Background

Neera (or palm nectar) is a sap extracted from the coconut palm. Neera, though high in nutritional value, is susceptible to natural fermentation at ambient temperature few hours after extraction. Once fermented, Neera turns liquorish. Neera tapping is conducted extensively in Kerala.

Currently, Neera is collected in small water coolers fitted with a T Junction PVC pipe and ice is used to keep it cold (as pictured). The collection happens twice a day and after collection they are replaced with a fresh set of the coolers. Each tree has 6 sets of cans. The current cooling mechanism is inefficient and expensive.

SF was approached by PCPCL (Palakkad Coconut Producers Company Ltd), which consists of 450 coconut producers' society and 24 coconut federations, to identifying and develop appropriate, low cost energy efficient cooling technologies to prevent the fermentation of NEERA: thus increasing the incomes of the tappers.

The Solution

The solution was to design a low cost and high efficient storage box that could be used on the tree to tap Neera. The box has been designed with Phase Change Material (PCM) panels. Each bag includes 6 PCM panels and a plastic container totally weighing 4.27 kgs. The PCM panels were frozen in a 240 liter refrigerator for 8 hours and the cooling can last for up-to 48 hrs.

Progress

- It has been field tested in 2 locations in Palakad with PCPCL. There are operational issues such as local storage and freezing of the PCM panels. Exploring options such as DC fridges of flash freezing using liquid nitrogen

Next Steps

- Evaluation of field test results and changes in design if necessary
- To use solar powered refrigeration system for PCM.
- Testing other applications: portable vaccine box & temporary cooling for small street vendors

LIVELIHOODS

HANDLOOMS

To modernize the handloom industry with high efficient machinery

The Background

The traditional handloom weavers are small and are heavily outnumbered by the owners of large power looms. Often the capital cost and lack of consistent power supply preclude them from moving to power looms. Also many traditional weavers do not want to give up their craft and skill but their technology has not been upgraded for decades.

The Solution

In traditional handlooms, the speed at which a weaver co-ordinates pedaling and hand movements determines the productivity. It is possible to increase productivity for the weavers by automating all the coordinated movements through a single movement which, also then makes it possible to attach a motor and solar power. With this even a small weaver could have the option to owning a cheaper and efficient loom.

Progress

Acquired one efficient handloom from NRGEE Solutions Pvt Ltd which was lab tested and following some modifications was implemented in a master weavers workshop in Belgaum for long term field testing. The weaver has customized the loom to his needs making several modifications and also testing it using different types of yarn.

Based on his feedback the feasibility and potential impact has been worked out for the cotton/silk weaving techniques in Karnataka. We are also implementing on in Manipur with a weaver there to do the same.

Next Steps

- Working with NRGEE solutions to set up production centers in rural areas across geographies for silk reeling and handloom.
- SELCO Foundation and NRGEE together will provide training and capacity building for groups to form producer companies that manufacture “eco-friendly” clothing. SELCO will focus on training of solar technicians to service and maintain the systems as well as build bankable business plans for the groups and connect them to long term bank financing to run the enterprises.
- Items made on the energy efficient loom will not be applicable for the handloom tag as current handloom policy dictates that only machines without a motor are considered handloom. However, there is a growing market for “green” or “eco friendly” clothing that could be tapped into. We are working with existing handloom brands to build a brand for such products and the response from the companies has been encouraging.

LIVELIHOODS

ROTI ROLLING

Energy and financial linkage for small scale home based roti businesses

The Background

In North Karnataka jowar roti (a millet based flat bread) is a staple. Roti rolling machines are used extensively in homes and villages by women who make and sell these in the local market. They can make and sell anywhere between 250-1000 rotis a day. Erratic power supply means they have to start very early in the morning and work late into the night to meet the demand or lose out on business.

The Solution

Roti rolling using solar power in poorly electrified areas can be critical to such small businesses. The Foundation team procured and installed a roti machine with an efficient motor that was powered by solar. The entrepreneur was also given two lights along with the system upon request. At the same time a simple financial model was prepared and presented to the bank for a loan under the MUDRA scheme for women entrepreneurs.

Progress

- The system has been working for 6+ months and has also increased production.
- A financial model was created showing the cash flow of the business while also factoring in the cost of the solar system. This was taken to the local bank to persuade them to give the entrepreneur a loan which the bank has agreed to finance.
- Other locations have also been identified to replicate the same.

Next Steps

- There are already orders for 2 other roti entrepreneurs
- Explore possibilities of improving the overall productivity of the business by creating a comprehensive business plan which would include, product diversification (the same machine can make papads as well) and adding more roti machines and human resources to optimize the running and productivity of the business
- Institutionalize sustainable roti making as a package (technology+finance) solution that can be taken to any bank and any women entrepreneur across the state and country.

ECOSYSTEM DEVELOPMENT

For any organization to thrive and deliver services to communities, particularly in the development sector, an enabling environment is critical. The facets of such an environment can range from suitable forms of enterprise financing, availability of appropriate technology, availability of trained workforce, conducive policies and so on. This forms the foundation for innovating, testing, implementing and replicating sustainable solutions that meet the needs of the poor. Such an enabling environment is broadly referred to as ‘Ecosystem’.

The Ecosystem for energy access includes technology innovation, entrepreneurship and skill development, financing for end users and the entrepreneur, and policy and regulations. By virtue of the challenging locations and customer segments they cater to, organizations in this sector operate in under developed ecosystems. They are then then caught up in trying to build this ecosystem or work despite its absence, which reduces impact potential or worse - creates unsustainable models.

Given this background, SELCO Foundation seeks to understand the energy ecosystem in various geographies, identify gaps specific to each and develop solutions to bridge these gaps.

ECOSYSTEM DEVELOPMENT

ENERGY PLANNING

The Background:

In terms of electricity planning and policies, the focus in India has largely been on ensuring access (grid connection). Far less attention has been paid to aspects of Reliability of electricity (hours of actual supply and time period) and adequacy (powering livelihood loads, community needs during the day). While the Government of India has proactively initiated 'Power For All' plans at a State level that can help achieve 24*7 electricity, these plans only indicate demand and supply gaps at a macro level. Local levels of administration who have a ground level understanding don't tend to engage in electricity planning. This also reduces the possibilities of convergence where existing housing, education or livelihood schemes could benefit from decentralized clean energy interventions.

The Solution:

Bottom-up demand assessment at a district level, with a more detailed understanding of existing supply scenario (particularly aspects of reliability and adequacy mentioned above) can facilitate more detailed planning. The role of Decentralized Renewable Energy can also be clearly identified.

- Feeder meter data to determine actual hours and time of power supply to each region; Needs of local households, community spaces, small businesses to outline applications for which DRE is best suited.
- Assessing local ecosystem for DRE solutions- technology supply, access to credit, existing developmental schemes for housing, livelihoods, education at district level that can use energy interventions- to inform local administration on how electricity planning can be better managed at a District level to increase well-being and productivity.

The larger goal is to suggest alternate planning methods, such as District level, bottom- up energy planning where DRE is used to complement the grid.

Progress:

- 1 Report prepared for Karnataka Electricity Regulatory Commission (KERC) analysing Availability, Reliability, Access to power supply in various districts of Karnataka and relevance of DRE in Power for All planning in Karnataka
- Through partnerships with Regulatory agency in Rajasthan, scoping undertaken on District level Energy Planning for Udaipur district.

Next steps:

- Advocate for recommendations from KERC report on DRE to be included in Karnataka 24*7 Power for All planning
- Undertake meetings with District level agencies for Housing, Livelihoods, Financing in Udaipur district to include energy access targets within existing programmes
- Undertake complete Ecosystem assessment of the region and map feeder data to build a list of implementation options to be taken up in partnership with local energy enterprises

ECOSYSTEM DEVELOPMENT

ENERGY FINANCING

The Background:

In the process of facilitating energy access, one of key hurdles for end users and micro entrepreneurs across the country continues to be access to credit. While there are pools of credit and RBI has included DRE under the priority sector, accessing these funds and schemes for energy has been limited, owing primarily to:

- Limited knowledge amongst financiers about economics and processes involved in lending to this sector, as well as risk mitigation techniques
- Skepticism on the existence of networks to maintain systems.
- Fear of non-performing assets -challenges in repayments, collections.
- Small ticket sizes of such loans while transaction costs remain the same
- Perception of grassroots level, local, micro entrepreneurs as high risk
- Lack of targets for lending from higher monitoring, regulatory authorities

The Solution:

Towards addressing the challenges mentioned above, particularly (3), (4), (5) and (6), it is essential to engage with Regional Rural and other Nationalized banks, NABARD and its regional offices,

State Level Bankers' committee (SLBC), National Clean Energy Fund (NCEF), Micro Units Development and Refinance Agency (MUDRA) and District Industries Corporation (DIC) on the following:

- Institutionalization of targets for DRE lending, support with repayment mechanisms and facilitate regular monitoring that can support in advocacy efforts in the future.
- Creation of products and programs that promote low cost debt and lending to small entrepreneurs and end users, with a focus on unlocking existing public funds and commercial capital for the sector.

Progress:

- Banker workshops organized at National and State Levels (in collaboration with CLEAN and Karnataka SLBC) to address hesitation around financing in light of the subsidy program suspension and reiterating the need for financing and risk mitigation techniques
- Targets established with Syndicate bank to finance 90 micro entrepreneurs and livelihoods across 4 geographies under MUDRA scheme; Targets also created to finance 500 households in Odisha for solar home energy systems.
- Discussions for targets on with 3 banks in Odisha, Bihar and Manipur
- Proposal created for utilization of National Clean Energy Fund (cess on coal) as bank guarantees for entrepreneurs (through Ministry of Finance)

Next steps:

- Establish targets with 2 other banks in regions outside of Karnataka that can lend for decentralized renewable energy solutions
- Create new mechanisms to support repayment and collections
- Create credit product for small and medium sized energy entrepreneurs using National Clean Energy Fund or other public fund
- Based on experience with banks, engage with RBI and NABARD to undertake bank-wise, district wise targets under National Solar Mission (off grid component)

ECOSYSTEM DEVELOPMENT

VALUE ADDED TAX ON SOLAR

The Background:

Like most states in the country, Karnataka charges a 5.5% Value Added Tax (VAT) on Renewable Energy and spare parts. This contributes to an increase in the system cost for the end user, and becomes an additional burden particularly for rural and poor consumers. More importantly, the provision of capital subsidies alongside taxation significantly reduces the positive impacts and affects the uptake of renewable energy, reflecting a contradiction in Government policy towards renewables.

The Solution:

By exempting VAT on renewable energy devices and spare parts, the cost of a decentralized solar system can be reduced by nearly 15%. Towards this end, meetings were organized with officials from the Energy, Finance and Commercial taxes department in the state. Following an endorsement of the proposal from the Energy department, discussions were undertaken with the Commercial taxes department to understand how this would be operationalized. Finally, the budget announcement provided for an exemption on solar panels and invertors alone but did not address the VAT concerns of other renewable energy devices and spare parts.

Progress:

- VAT exemption (i.e. 0%) on Solar Panels and solar Inverters announced by Karnataka budget (2015 March) with Commercial Tax notification bringing it into effect in August 2015.
- Knowledge document created justifying VAT exemption on all Renewable Energy devices and spare parts and Process documented to compare VAT regulations on Renewable energy across India and Africa

Next steps:

- Understand the Goods and Services Tax (GST) regime, soon to be applicable at a national level, and its implications on renewable energy products
- Support Ministry of New and Renewable Energy's efforts to ensure Renewable Energy products are exempt from GST in the new regime

ECOSYSTEM DEVELOPMENT

ECOSYSTEM ASSESSMENT

The Background:

While a number of social enterprises are focusing their efforts on last mile delivery of energy solutions, the deployment and long term sustainability of their solutions are currently hindered by the lack of a supportive and conducive ecosystem. In the absence of this ecosystem, solutions are harder to deploy and their financing, operations, maintenance and acceptability within existing systems become barriers.

The Solution:

In order to address this challenge from a holistic perspective based on the decades of field experience, an approach has been developed to analyse the energy access ecosystem and consequently plan and implement interventions that bridge energy access gaps and promote large-scale replication of renewable energy (RE) applications/solutions. The key parameters considered in this approach include Local Entrepreneurship (energy solution deployment), Technology, Financing (for end users and entrepreneurs), Capacity building and Awareness, Infrastructure, Policy and Regulation. By analysing the region from these lenses, a set of gaps would arise under each category and possible solutions can be considered for more detailed assessment on the field.

Progress:

- Ecosystem assessment undertaken in 2 regions- Kalahandi and Koraput (Odisha state) and Lakhimpur Kheri and Pilibhit (Uttar Pradesh state) and report published on the Ecosystem framework and the findings, recommendations for the regions
- 3 Stakeholder discussions undertaken to refine the approach and incorporate field level and national level inputs into the framework and recommendations for implementation
- Approach extended to a district in Rajasthan and being promoted by SELCO Foundation and its Partners as a way to comprehensively look at energy access planning and solution design.

Next steps:

- Undertake assessment in Rajasthan as part of District energy planning process to be showcased to District Administration
- Increase uptake of this approach amongst Decision makers and Policy makers, while also increasing engagement with stakeholders relevant to each factor of the Ecosystem- Financing, Technology, Skills, Policy etc to build a more conducive set-up for deployment

ECOSYSTEM DEVELOPMENT

GLOBAL REPLICATION

The Background:

The challenges and opportunities presented by the varied socio-economic situations of each state in India can find a parallel with certain countries in Africa. In recent times, social energy enterprises have established themselves in various regions of Africa and are looking for replicable models and mechanisms to address energy poverty. There is, thus, an opportunity to better understand the context and develop models that could be replicated - between parts of India and parts of Africa- to simultaneously address poverty alleviation and climate change

The Solution:

Towards this effort, SELCO Foundation is gaining a more in-depth understanding of the conducive ecosystem for decentralized energy access solutions in 2 countries of Africa- Nigeria and Tanzania and determining mechanisms to build the same. This includes an identification of potential ground level entities that can support in creating replicable models across Financing, Technology, Skill Development and Policy issues linked to energy access.

Progress:

- A complete scenario analysis was undertaken of the current ecosystem conditions in Nigeria and Tanzania with specific reference to electricity access; Report written capturing the learnings and recommendations
- Local partner identified in Nigeria to support with capacity building of energy entrepreneurs and stakeholders and partners shortlisted for replication efforts in Tanzania
- Plan for replication efforts and capacity building developed for Nigeria and shared with potential funders.

Next steps:

- Undertake active interventions on technology, finance and capacity building for the energy access sector in Nigeria and Tanzania
- Build on learnings of energy entrepreneur incubation and capacity building of financiers to advocate with local policy makers on building a comprehensive ecosystem for energy access and institutionalizing successful models.

ECOSYSTEM DEVELOPMENT

IMPACT INVESTMENT

The Background:

Impact investing represents a segment of the investor community interested in meeting the capital needs of social enterprises without compromising social missions. As the market develops, there are growing gaps in terms of expectation of financial and impact outcomes from both entrepreneurs and investors. The focus tends to be on financial metrics where the expectations on Exit strategies, IRRs, Scale and impact do not match the realities of what social enterprises can achieve.

The Solution:

In an effort to implement and grow sustainable business models, addressing the on-ground realities and aligning expectations of all stakeholders is paramount.

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Towards this, SELCO Foundation is undertaking the following efforts with Impact investors and social energy entrepreneurs:

- Integrating language and clauses in term sheets to prevent mission drift
- Creating a comprehensive list of metrics that add in social and organizational dimensions to a social enterprise impact evaluation process
- Perpetuating learnings and practitioner experiences to stakeholders in the market through trainings and course material that can improve both, the due diligence process and future investments
- Advocating for policy to stimulate sustainable investment and business models over the long-run and recognize social enterprises

Progress:

- Comprehensive list of metrics for social enterprise evaluation compiled and pilot impact assessment being undertaken for SELCO Private limited
- Brief created on Due diligence processes for social enterprises and ways to improve the same for investors; A report written on the importance of Bridging gaps between expectations and realities in social impact investment.
- Workshop organized with social enterprises and investors to better understand varying perspectives and determine the way forward to address gaps.

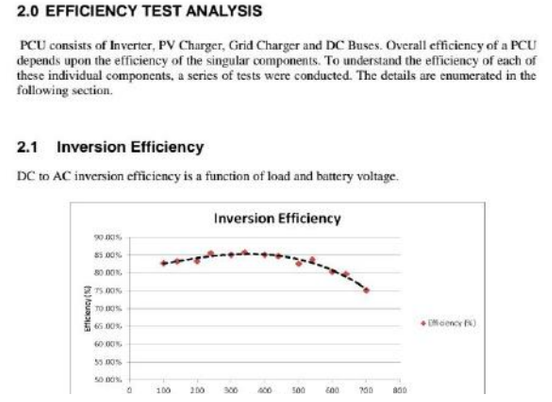
Next steps:

- Develop a course for fund managers and social impact investors highlighting the practitioner perspective and organize a training
- Advocate to influence the investment strategy of 1-2 impact investors
- Support energy enterprises in improving their plans and negotiating on their behalf for investments

ECOSYSTEM DEVELOPMENT

Programmatic Pilot

QUALITY ASSURANCE AND PRODUCT TESTING



The Background:

Based on experiences of SELCO's incubatees, it was observed that there is a lack of products in the market that have been tested in the field. Existing test centers do not always consider field based parameters in the lab testing. This results in products that don't meet field conditions and are not conducive to ground level implementation or result in constant technological issues on the ground. Product testing is also a cost and time intensive task and small energy enterprises lack the bandwidth to undertake this sort of testing in-house. Consequently, the product offerings that can be made to end users are restricted.

The Solution:

SELCO Foundation conducted a pan India study which looked at the technology related issues of clean energy practitioners in india,based on consultation with 25 different organisation. It aim to identify key technology barriers that are limiting the ability of practitioners in india from extending energy access to unserved and underserved communities. After identifying these issues then possible interventions are presented along with a discussion on how CLEAN can take these forward. The following immediate interventions are recommended in the report,

- Information dissemination through web portal
- Testing facility for off grid projects
- Development methodology for internal testing
- Benchmarking for offgrid industry

Progress:

- Strategy Report for CLEAN on quality assurance created through consultation with Twenty five (25) practitioners across india, Ten field visit and detailed consultation in Guwahati for NE focus
- Solar PCU (3) , Solar Module (2),DC Fan (3),PMDC Motor(2) tested and characterised.

Next Steps:

- Complete more technology and product reviews, building up a database on product make relevant for specific context
- Share these reports with others externally on a regular basis - something that energy practitioners can refer to prior to establishing their supply chain for specific products.

ENERGY AUDITING

The Background:

The Energy Audit gives a positive orientation to the electricity charge reduction, preventive maintenance and quality control programmes which are vital for control of expenditure and environmentally benign activities. Audit programmes help keep focus on variations which occur in the energy costs, availability and reliability of supply of energy, decide on appropriate energy mix, identify energy conservation technologies, retrofit for energy conservation equipment etc.

In addition, currently, energy auditing is not contextualised for smaller institutions and commercial enterprises. The primary objective of Energy Audit is to determine ways to reduce energy consumption to lower operating costs in harmony to the ongoing efforts to improve the standard, quality as well as extent of service even with the limited available resources.

The Solution:

Solar is an ideal solution for micro generation. But the main challenge is to make it affordable for the small scale business. The first step for designing an energy system is to understand the load usage.

In the case of intermittent loads, it is very important to understand the usage pattern. A detailed study was conducted to find out the duty cycle of different livelihood applications. The idea was to generalise the usage pattern of different segments of a specific application so creating energy profiles. This helps in design of systems in the future.

For larger systems and applications detailed energy audits are also conducted. The output of these is individual load use patterns, complete load profiles for the customer and advice on how to improve energy efficiency and solve energy problems.

Progress:

- Energy Profiling: Xerox Machines and Printers
- Energy Audit for Livelihood application (Areca nut dehusker, pressing machine)
- Energy Audit of water purifier
- Training Document: Energy auditing of motorised applications and refrigerators
- Training organised for senior technicians

Next Steps:

- Training for project managers & Regional Customer Support Executives.
- Energy audit of institutions.
- Energy audit for mini grid and grid tied systems.

EDUCATION AND OUTREACH

Currently, there is limited innovation on developmental issues, which also has repercussions on the opportunities for entrepreneurship and employment in the social sector. This has resulted due to two main reasons: lack of critical thinking and innovation in learning itself; and apathy towards sustainability and developmental issues.

SELCO Foundation identifies a need to create modules that incorporate aspects of innovation, sustainability and active learning techniques to help students (at school and university level) get a holistic understanding of the needs and challenges in creating solutions for the poor.

In addition, through the outreach work, grassroot perspectives and challenges are shared with a larger audience to influence discourse around sustainability and poverty alleviation. This is seen as an important mechanism to change mindsets and create alternate pathways for inclusive development.

EDUCATION AND OUTREACH

INVENTION AND SUSTAINABILITY EDUCATION

The Background:
Invention and sustainability education addresses the lack of critical thinking, innovation in learning and apathy towards sustainability and developmental issues. It does so with a three pronged approach of innovation, focus on sustainability and use of active learning methodologies.

The Solution:
In order to address this apathy and lack of interactive learning in rural schools, the Invention and Sustainability program has been launched.

Through facilitators who facilitate classes on a weekly basis with students of Grades 6-9, the goal is to inculcate hands on learning on aspects of science, environment, local livelihoods and so on. Existing school teachers are also being brought into classes from a long term sustainability point of view.

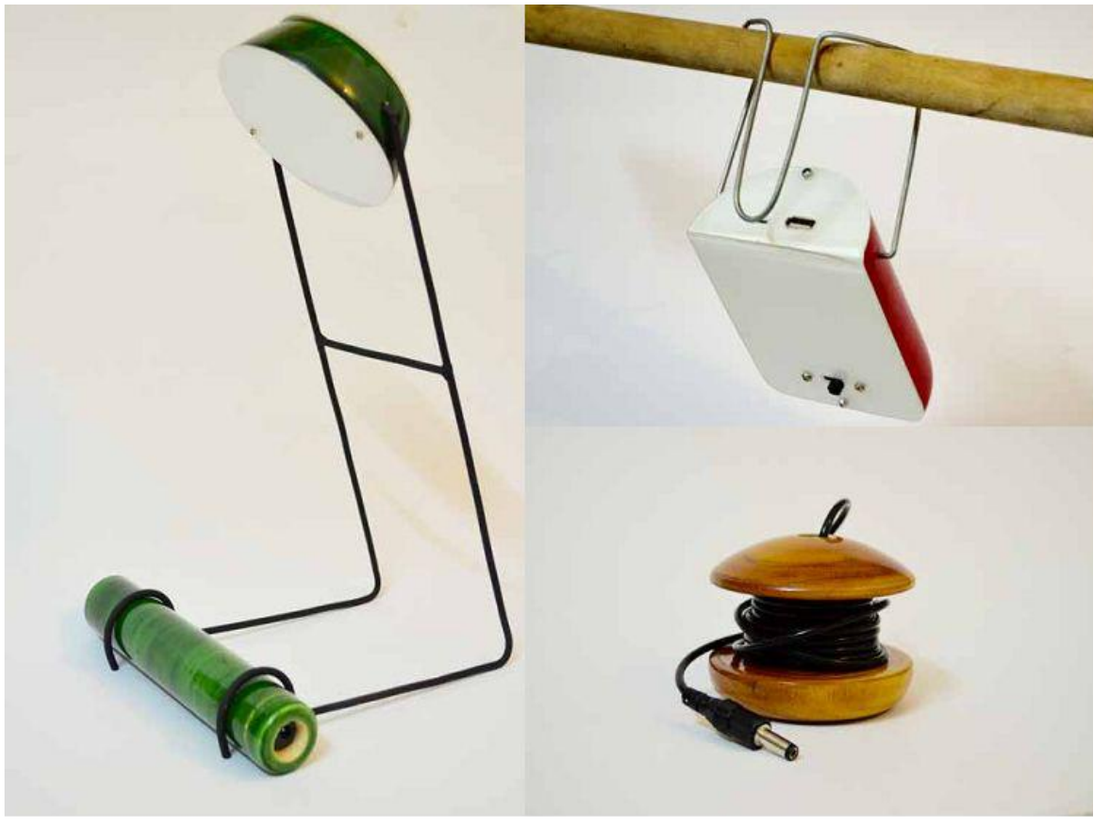
Progress:

- 5 more schools were added to the Invention and sustainability education program this year, taking the total to 15 impacting over 1300 students.
- In all 13 inventions and 2 sustainability activities resulted from these. 15 inventions were nominated in competitions and won 7 awards (6 in Jignyasa 2016 and 1 in Design For Change competitions).
- A student innovation lab using low cost science models was set up in 2 schools reaching 143 children.
- In total 85+ number of teachers were trained across 3 sessions in September (Yadgir-45) and December (Chikkaballapur, Muthur-40 and Ujire-2) to use these models as part of their classroom teaching strategies.

Next Steps:

- In the coming year Invention and sustainability education will expand to 16 more schools, reaching 31 schools in total across urban, rural and tribal geographies.
- 4 models schools will also be set up (3 in underserved urban communities of Bangalore and one in tribal community at Odisha).
- Key partnerships both in terms of on-ground community organisations and content providers are being finalised.
- Through teacher training and discussions with the Education department, attempts will be made to institutionalize the Innovation and Sustainability project within school curriculum.

UNIVERSITY ENGAGEMENT



The Background:

The flaws within the current education system in the country are primarily defined by a lack of exploration and innovation in learning. This includes facets such as restrictions to student exploration of problems and solutions, disconnect between subject and its relevance to students.

The other issue plaguing the student community today is an apathy towards sustainability and developmental issues in general. Often, urban middle class youth are disconnected from the conditions of their rural counterparts. This results in a limited number of young minds considering the development sector as a career or even incorporating holistic approaches, innovative thinking to their areas of work.

The Solution:

The university engagement program at SELCO harnesses the potential of students to engage, grow and learn by partnering with communities and working on global development issues. The program comprises of workshops, internships and fellowships with exposure to field realities and exercises that require a learning of other models in the space and iterating to improve solutions. Innovation and user centric approaches are introduced across various disciplines - engineering, product design, economics and public policy, architecture and so on- as an attempt to incorporate these approaches into any type of solution design.

With specific reference to students of product design, a project called Inventing Green was introduced to increase thinking around the embodied energy and efficiency of components of a Renewable Energy system- thus aiming towards greater environmental sustainability while using clean energy solutions.

Progress:

- This year 6 new modules: Community mapping & profiling, Financial Sustainability, Built Environment, Holistic Approach and Human Centric Design, Policy processes and Replication were added to the university program curriculum.
- Inventing Green program was launched with Undergraduate students at Srishti, India and MIT, USA. It resulted in development of 7 prototypes in India and 3 concepts in MIT, USA for renewable energy components with lower embodied energy along with course curriculum developed at both schools.
- Engineering for social innovation and sustainability for BMS students: A 2 credit course, planned for implementation during June-July 2016 during summer vacations, 35 hours/2-3 week program with 3 hours daily(min).
- Overall the program reached out to 260 university students by way of internships (39), workshops (11) and fellowships (2).

Next Steps:

- Further detailing of the new modules and building at least 2 new university partnerships for the same.
- Inventing Green curriculum after refinement will be appropriately packaged and shared online like an open-source repository. At least 2 more universities will be identified for replication of this course. Prototypes developed by Srishti students will be tested in multiple community locations and will enter product development phase depending upon feasibility, viability and appropriateness of their design.
- Create champions among teachers and students who can build these aspects into existing classroom learning.

EDUCATION AND OUTREACH

OUTREACH AND PARTNERSHIPS

The Background:
Replication and Institutionalization of processes is seen as the mantra for scale up by the Foundation. Constantly innovating on technologies, processes, models or concepts that can be then replicated across segments, cultures and geographies, lead to a holistic understanding of the need as well as the solutions. In this regard, outreach and partnerships is central to the work of Foundation. A crucial aspect of the communication effort is to promote, persuade and educate various sets of target audiences about the ongoing efforts and findings in the social innovation sector.

The Solution:

- An outreach strategy should keep in mind the capacity of the different stakeholders to absorb information as well as the goals of the communication efforts. This helps in identifying channels as well as mediums of communication for each stakeholder.
- Partners are engaged keeping in mind the following organization activities-
    - *Innovation*- Partnerships were established with research institutes and technology manufacturers for field test and collaboration for customization or to work on efficiency of the technology
    - *Implementation and Replication*- identification, capacity building and sharing of knowledge with community based organizations, non-governmental organizations, entrepreneurs and incubatees.
    - *Ecosystem Building and Institutionalization*- policy makers, institutions, think tanks and financial partners who can make clean energy financing a part of their portfolio to build ecosystem for innovation and energy access enterprises.

Progress:

- Documentation for dissemination of learnings and processes created through different mediums depending on the absorption capacity of different stakeholders
    - templates developed to capture processes and key learnings from implemented projects to capture nitigrities of the project
    - Case story infographics for more interactive and brief summary of interventions
    - Videos documenting impacts as well as solutions for online media
- Conducted our first Replication Workshop, which was attended by 22 partner organizations from around the country. The workshop aimed at initiating a conversation with organizations that look at processes developed rather than projects- using analogies and cross-learning between sectors and projects.
- Identifying potential ground partners and building relationships, in support of the ecosystem development assessments
- **Key Partnerships during the year**:
    - Education: 15 Rural Government Schools- Karnataka, MIT and Srishti School of Design, ACARA, GMRVF, BMS College of Engineering
    - Technology and Enterprises: Emsys, CLEAN, Boond, Mangaal, Armstrong Energy, Godrej
    - Credit access for end users: Syndicate Bank, 2 Regional Rural Banks
    - Research,Think tanks: WWF- India, Climate Parliament, WRI, Shakti Foundation

Next Steps:

- Capitalizing on outreach work for solution development and field testing for user feedback: for example, piloting solutions developed in labs and studios in the field
- More focus on print media, with special focus on vernacular media. Due to the medium's larger reach and credibility.
- Customization of documentation for various stakeholders using different communication channels and mediums

CHALLENGES AND KEY LEARNINGS

Based on the projects as well as the larger goals of SELCO Foundation to facilitate Innovation, replication and institutionalization, key challenges and possible means to address them are captured in the section below.

Innovation:

- **Manufacturing and Energy Efficiency**: Manufacturers are often unresponsive about modifying systems and not receptive to suggestions from the field. They expect larger numbers in order to undertake any R&D into more efficient systems. This is true for most large manufacturers

  Learning: Upon analysis of the entire value chain for a sample product it was found that most rural customers purchase motorized applications through local dealers using local motors. A 2 pronged approach will now be adopted to scaling up energy efficiency- 1. Working with suppliers and vendors at the local level to introduce energy efficient products into the their existing product portfolios and increase dissemination. 2. Introducing challenges around energy efficiency in select Technical institutions and Universities and linking them to specific manufacturers (to share results). This can then be supported by philanthropic resources and networks that can aggregate demand.
- **Monitoring and Evaluation:** Owing to the relatively small number of products, models and processes that the SELCO Foundation was working on for the initial year or two, the required processes and Management Information Systems to keep track of the growing number of entrepreneurs, partners, end users were not strengthened to capture the nuances of project implementation and impact that we were able to achieve this year.

  Learning: A monitoring and evaluation framework needs to be set up for internal project management and the operational monitoring of the project. In addition, there is a need to set metrics and indicators to capture qualitative and quantitative aspects of impact in each project.

Replication and Institutionalization:

- **Partnerships**: Identification of the right partners for both implementation and influencing larger stakeholders has been a challenge. ground partners as well as those with greater influence in policy making around key aspects of energy access in and building capacity

  Learning: Clear understanding of the structure, capacity and strengths of the organizations before development of partnerships help in understanding their capacity to absorb knowledge, processes shared as well as the strategy to be undertaken to make up for any gaps. Multiple interactions and meetings with the team members, visits to project sites and structured capacity building can ensure for effective partnership.
- **Documentation:** As the SELCO Foundation opens more opportunities for replication in other geographies through partners as described above, transfer of knowledge- technical, financial and dissemination related- as well as process sharing are essential. At this point, there is only one mode of documentation for each project. This becomes restrictive while looking at varying contexts and different stakeholders.

  Learning: Documentation efforts should be considered from the perspective of different geographies (languages) and customized to the needs of varying stakeholders (partner for field implementation versus capacity building of policy makers for inclusion in existing government initiatives)
- **Scale or numbers of pilots required to gain credibility for institutionalization:** Year 2015-16 was the first year when we started our replication processes. Thus, for example when approaching banks or policy makers for institutionalization, or manufacturers for customization for technologies larger number of pilots are needed to gain credibility and confidence.

  Learning: Bring greater attention to replications that are being undertaken, and constantly share progress of work undertaken in different contexts and geographies with relevant partners.

WAY FORWARD

In the coming year, SELCO Foundation seeks to expand geographically through partners and incubatees , and focus primarily on:

- Replicate and share knowledge
- Provide ecosystem support for partners as the Foundation replicates its processes in other geographies
- Use pilots to begin work with partners that can directly or indirectly facilitate institutionalization.
- Increase efforts around Integrated solutions and policy convergence that go beyond basic energy access and recognize various developmental goals that link energy to livelihood, health, education and water.

Funding Partners

the Lemelson foundation
improving lives through invention

Good Energies
POWER FOR A BETTER WORLD

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the David & Lucile Packard FOUNDATION

reeep
renewable energy & energy efficiency partnership

Audited Financial Report

M/S RAMESH ASHWIN & KARANTH
CHARTERED ACCOUNTANTS
Firm Reg. No : 010680S

Partners
Ramesh B N (M.No : 015170) Mob:9448468958
Ashwin B R (M.No : 214199) Mob: 9886415958
Prashanth Karanth (M.No: 214235) Mob: 9886282946

26-09-2016

INDEPENDENT AUDITOR'S REPORT

To the Trustees of Selco Foundation

We have audited the accompanying consolidated financial statements of Selco Foundation (Trust), which comprise the Balance Sheet as at March 31, 2016, and the Statement of Income and Expenditure and the Receipts and Payments Account for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation of these consolidated financial statements that give a true and fair view of the consolidated financial position, consolidated financial performance and consolidated Receipts and Payments of the Trust in accordance with 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 consolidated financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation and presentation of the consolidated financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements

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We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

M/S. RAMESH ASHWIN & KARANTH F.R.No. 010680S Chartered Accountants

Premier Presidency, # 35/17, 1st Floor, Langford Road, Opp. St. Joseph College,
Bangalore – 560 025. Phone: 080 – 41464630. Email: rakca2004@gmail.com

M/S RAMESH ASHWIN & KARANTH
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Opinion

In our opinion and to the best of our information and according to the explanations given to us, the consolidated financial statements give a true and fair view in conformity with the accounting principles generally accepted in India:

(a) In the case of the Balance Sheet, of the state of affairs of the Trust as at March 31, 2016;

(b) In the case of the Income & Expenditure Account, of the Surplus for the year ended on that date; and

(c) In the case of the Receipts and Payments account, of the cash flows for the year ended on that date.

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

M/S. RAMESH ASHWIN & KARANTH F.R.No. 010680S Chartered Accountants

Prashanth Karanth
Partner
M No. 214235

Premier Presidency, # 35/17, 1st Floor, Langford Road, Opp. St. Joseph College,
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SELCO Foundation

690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078

BALANCE SHEET AS AT 31ST MARCH 2016

PARTICULARS	Schedule	Current Year 31-03-2016	Previous Year 31-03-2015
FUNDS AND LIABILITIES			
Non Corpus Fund	1	48,312,869.96	44,455,816.50
Total Liabilities		48,312,869.96	44,455,816.50
PROPERTY & ASSETS			
Fixed Assets	2	1,359,556.00	648,098.00
Current Assets, Loans & Advances			
Cash and Bank Balance	3	57,710,776.36	49,156,678.39
Current Assets	4	5,699,176.51	1,381,786.11
Less Current Liabilities & Provisions	5	16,456,638.91	6,730,746.00
Net Current Assets		46,953,313.96	43,807,718.50
Total Assets		48,312,869.96	44,455,816.50

For SELCO FOUNDATION

Trustee Trustee

Place : Bangalore
Date : 26.09.2016

As per Our report of even date
For Ramesh Ashwin & Karanth
Chartered Accountants

M/s. RAMESH ASHWIN & KARANTH * Chartered Accountants F. R. No. 010680S

Prashanth Karanth
Partner
M No. 214235
F.R No. 010680S

SELCO Foundation

690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078

INCOME & EXPENDITURE ACCOUNT FOR THE PERIOD ENDED 31ST MARCH 2016

PARTICULARS	Schedule	Current Year 31-3-2016	Previous Year 31-3-2015
INCOME			
Grant Received - Foreign	6	53,873,758.00	64,920,016.27
Donations - Local		43,671,687.00	13,680,459.00
Portable Solar Lights for Integrated Energy Center		-	111,821.00
Interest received		3,617,167.12	992,491.37
Interest received - other source		4,624.00	-
Professional Income		91,500.00	-
Total Income		**101,258,736.12**	**79,704,787.64**
EXPENDITURE			
Project Cost		87,876,452.64	32,625,849.60
Research & Development Costs		1,700,586.75	662,661.87
Administration Costs	7	7,237,565.27	3,852,463.67
Depreciation	2	587,078.00	324,128.00
Total Expenditure		**97,401,682.66**	**37,465,103.14**
Surplus		3,857,053.46	42,239,684.50
Provision for Taxation		-	-
Surplus (Carried to Balance Sheet)		3,857,053.46	42,239,684.50
Significant Accounting Policies & Notes to Accounts	8		

For SELCO FOUNDATION

Trustee Trustee

Place : Bangalore
Date : 26.09.2016

As per Our report of even date
For Ramesh Ashwin & Karanth
Chartered Accountants

M/s. RAMESH ASHWIN & KARANTH * Chartered Accountants F. R. No. 010680S

Prashanth Karanth
Partner
M No. 214235
F.R No. 010680S

SELCO Foundation

 # 690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078

Receipts And Payments Accounts For The Year Ended 31.03.2016

Receipts:	Amount	Amount
Opening Balance		
Cash		38,250.00
Bank		3,487,428.39
Receipts during the year		
Grant Received	53,873,758.00	
Donation Received	43,671,687.00	
Interest received	3,010,087.25	
Other Interest - Other sources	4,624.00	
Professional Income	12,250.00	
Fixed Deposits	2,122,674.21	
Net Receipts		102,695,080.46
TOTAL		106,220,758.85
Payments during the year		
Project Costs	80,757,311.77	
Administrative Costs	6,692,559.26	
Research & Development Costs	1,702,399.25	
Fixed Asset purchased	1,351,109.00	
Working CapitalAdvance	500,000.00	
Rental Advance	650,000.00	
TDS AY 2016-17	364,929.00	
Nett Payments		92,018,308.28
Closing Balance		
Cash		95,265.00
Bank		14,107,185.57
Total		106,220,758.85

For SELCO FOUNDATION

Trustee Trustee

Place : Bangalore
Date : 26.09.2016

As per Our report of even date
For Ramesh Ashwin & Karanth
Chartered Accountants.

M/s. RAMESH ASHWIN & KARANTH * Chartered Accountants * F. R. No. 010680S

Prashanth Karanth
Partner
M No. 214235
F.R No. 010680S

SELCO Foundation

 # 690, 1st Floor, 15th Cross, 2nd Phase, JP Nagar, Bangalore 560078

Schedules forming part of the accounts

Particulars	Current year 2015-16	Previous Year 2014-15
Schedule 1		
Non corpus Fund		
Opening Balance	44,455,816.50	2,216,132.00
Add: Profit for the period	3,857,053.46	42,239,684.50
	48,312,869.96	**44,455,816.50**
Schedule 3		
Cash and Bank Balance		
Cash on Hand	39,475.00	16,740.00
Cash on Hand - FCRA	55,790.00	21,510.00
Bank Balance		
Syndicate Bank 02532010000030 Ujire	38,786.85	37,335.63
Syndicate Bank 04251010005966 C.A/c	24,431.00	24,545.00
Syndicate Bank A/C - 04252010066141	8,661,032.94	832,106.45
Syndicate FCRA A/c 04252010067978	3,629,451.05	2,061,477.48
Syndicate Bank USAID 4252010076849	176,224.65	531,963.83
Syndiate Bank -04252010081750 (GIZ)	565,263.76	-
Syndicate Bank 01112200020295 Manipal	9,110.29	-
Fixed Deposit Axis Bank	4,001,969.00	-
Axis Bank A/c 915010023357123	1,002,885.03	-
Fixed Deposit with Syndicate bank	38,292,799.79	45,250,000.00
FD against Guarantees	1,213,557.00	381,000.00
	57,710,776.36	**49,156,678.39**
Schedule 4		
Current Assets		
Tax Deducted at Source	525,457.49	250,528.36
Advances to Creditors	-	21,644.00
Loans and advances	3,186,437.00	171,412.60
Interest on FD - Receivable	1,002,966.02	395,886.15
Project Advances	248,066.00	185,315.00
Rent Advance	657,000.00	357,000.00
Debtors	79,250.00	-
	5,699,176.51	**1,381,786.11**

For SELCO FOUNDATION

Trustee Trustee

M/s. RAMESH ASHWIN & KARANTH * Chartered Accountants * F. R. No. 010680S

Schedule 5		
Current Liabilities		
Tour & Travelling	11,388.63	135,440.00
Audit fees	32,481.00	38,933.00
TDS - Salary	71,081.00	75,827.00
TDS Rent 194 I	14,700.00	4,350.00
TDS - Professional	126,655.00	114,174.00
TDS - Contractor	16,965.00	3,547.00
TDS Under 195	-	54,903.00
ESIC payable	9,255.00	4,355.00
Professional Tax	7,650.00	5,700.00
EPF payable	148,971.00	103,946.00
Rent payable	175,615.00	72,150.00
Salary payable	1,395,810.00	963,951.00
Security Deposit	89,650.00	63,000.00
Creditors for Expenses	120,866.00	31,902.00
Consultation, Interns, Service Fees	472,489.00	622,275.00
Project exps payable	10,774,471.50	1,396,529.00
Provison for Expenses	22,270.00	8,219.00
Provison for Gratuity	316,142.00	76,945.00
Provison for LTA	200,178.78	54,600.00
Current liablity-Advance repayable	2,000,000.00	2,900,000.00
Provison for Leave encashment	450,000.00	-
	16,456,638.91	**6,730,746.00**

Schedule 6		
Grant Received - Foreign		
BACONTINUUM INDIA PVT LTD	-	4,500,000.00
Climate Parliament	182,000.00	190,100.00
DOEN Foundation	4,089,606.00	3,860,298.00
Good Energy Foundation - CIP	-	11,541,955.85
Good Energy Foundation - CLEAN	-	20,422,233.00
Lemelson Foundation	11,297,158.00	8,883,000.00
Lemelson Foundation - Education	-	3,085,000.00
Renewable Energy and Energy Efficiancy Partnersh	1,139,698.00	1,564,898.42
RSF Social Finance	-	4,619,384.00
S3IDF	1,623,000.00	550,000.00
USAID	5,689,450.00	3,889,097.00
Villgro	-	772,800.00
World Wide Fund for Nature - India (WWF)	1,933,750.00	1,041,250.00
Armstrong Energy Global Foundation	1,027,144.00	-
Conservation Action Trust- CAT	1,200,000.00	-
First Advantage Global Op C P L	750,000.00	-
First Advantage Private Limited	750,000.00	-
GIZ-Germany	5,403,000.00	-
Mott Foundation	9,936,838.00	-
Rahman Bin Hasbardi- Singapore	48,250.00	-
Rotary Club Trust - USA	633,800.00	-
SolarSpring Gmbh	99,886.00	-
The David and Lucile Packard Foundation	8,070,178.00	-
	53,873,758.00	**64,920,016.27**

For SELCO FOUNDATION

Trustee Trustee

M/s. RAMESH ASHWIN & KARANTH * F. R. No. 010680S * Chartered Accountants *

Schedule 7		
Administrative Expenses:		
Rent	2,217,346.00	786,550.00
Insurance for office furniture	37,898.60	39,155.40
Electricity Charges	174,111.00	19,808.00
Travel, Boarding & Conveyance costs	343,683.00	1,160,002.00
Transportation charges	10,135.00	2,350.00
Documentation charges	19,814.50	10,109.00
Communication Costs	511,305.54	182,851.00
Postage and Courier	59,250.00	82,226.00
Repairs & Maintenance A/c	29,273.00	17,180.00
Office Maintenance	711,848.89	275,780.51
Vehicle Maintenance	15,001.00	-
Printing & Stationery	654,472.00	109,872.00
Professional Fees	232,950.00	244,727.00
Service Charges	135,346.00	71,419.00
Audit fees	43,259.00	43,259.00
Rates, Taxes & Fees	7,500.00	7,500.00
Bank Charges	44,926.97	25,014.00
Miscellaneous Expenses	1,656.77	1,441.79
Assets- Scrap\Write Off	52,573.00	-
Salaries	944,623.00	304,815.00
ESIC employer contribution	-	12,527.00
PF admin expenses	-	17,309.00
Leave encashment	540,442.00	-
Mediclaim insurance	174,665.00	34,177.47
Staff welfare	167,868.00	209,012.50
Recruitment Expenses	32,943.00	11,758.00
Meeting expenses	5,081.00	155,980.00
Training expenses	69,593.00	27,640.00
	7,237,565.27	**3,852,463.67**

For SELCO FOUNDATION

Trustee Trustee

M/s. RAMESH ASHWIN & KARANTH * F. R. No. 010680S * Chartered Accountants *

SELCO Foundation

Schedules Annexed to and forming Part of the Balance Sheet as at 31st March 2016

SCHEDULE 2

FIXED ASSETS

Particulars	Rate %	WDV as on 1-Apr-15	Additions during the year		Sale/ write off	Depreciation	WDV as on 31-Mar-16
			> 180 days	< 180 days			
Computers	60%	313,661.00	353,775.00	203,419.00	-	461,488.00	409,367.00
Furniture & Fixtures	10%	195,788.00	253,671.00	73,550.00	-	48,624.00	474,385.00
Building	10%	58,415.00	-	-	52,573.00	5,842.00	-
Plant and Machinery	15%	73,250.00	261,178.00	91,925.00	-	57,058.00	369,295.00
Maestro deluxe black	15%	-	50,571.00	-	-	7,586.00	42,985.00
Camera	15%	6,984.00	9,400.00	53,620.00	-	6,480.00	63,524.00
TOTAL		648,098.00	928,595.00	422,514.00	52,573.00	587,078.00	1,359,556.00

For SELCO FOUNDATION

Trustee Trustee

M/s. RAMESH ASHWIN & KARANTH * Chartered Accountants * F.R.No. 010680S

Schedule - 8

Significant Accounting Policies

a) System of accounting: The Association follows mercantile system of accounting and the books of accounts are prepared on a going concern concept.

b) Fixed Assets : Fixed assets are valued at cost less depreciation

c) Depreciation: Depreciation has been provided on reducing balance method as per Income Tax Act.

d) Income Tax : Since the trust is registered under section 12A of the Income tax act 1961 the income earned by the trust is not liable for Tax. As such no tax provision has been made in the books of accounts.

Notes on Accounts

a) **Employee Retirement Benefits**

Employee benefits include provident fund, gratuity, Leave Encashment and ESI.

Defined contribution plan:

The trust's contribution to provident fund and ESI are considered as defined contribution plan and are charged as an expense as they fall due based on the amount of contribution required to be made and when the services are rendered by the employees.

Defined benefit plans:

For defined benefit plans in the form of gratuity fund & Leave encashment, the cost of providing benefits is determined using the Projected Unit Credit (PUC) actuarial method, with actuarial valuations being carried out at balance sheet date. Actuarial gains and losses are recognized in the Statement of Profit and Loss in the period in which they occur. Past service cost is recognized immediately to the extent that the benefits are already vested and otherwise is amortized on a straight-line basis over the average period until the benefits become vested. The retirement benefit obligation recognized in the Balance Sheet represents the present value of the defined benefit obligation as adjusted for unrecognized past service cost, as reduced by the fair value of scheme assets.

Trust adopted Accounting Standard 15 "Employee Benefits" ('AS 15') as specified in Rule 3 of the Companies (Accounting Standard) Rules, 2006:

A. Gratuity

Particulars	31 March 2016 (Rs.)	31 March 2015 (Rs.)
Change in present value of obligation		
Present value of obligation as at the beginning of the year	3,16,142	-
Current service cost	-	-
Interest cost	-	-
Actuarial (gain) / loss	-	-
Benefits paid	-	-
Present value of obligation as at the end of the year	-	-
Change in plan assets		

For SELCO FOUNDATION

Trustee Trustee

M/s. RAMESH ASHWIN & KARANTH * Chartered Accountants * F.R.No. 010680S

Plan assets at the beginning of the year	-	-
Expected return on plan assets	-	-
Contribution by the Trust	-	-
Benefits paid	-	-
Actuarial gain / (loss)	-	-
Plan assets at the end of the year	-	-
Liability recognized in the financial statement	**3,16,142**	-
Expense recognized in the Statement of Profit and Loss		
Current service cost	**3,16,142**	-
Interest cost	-	-
Actuarial (gain) / loss	-	-
Expense recognized in the Statement of Profit and Loss	**3,16,142**	-
Constitution of plan assets		
Other than equity, debt, property and bank a/c	**Not applicable**	Not applicable
Funded with LIC	**Not applicable**	Not applicable

Particulars	31 March 2016 (Rs.)	31 March 2015 (Rs.)
Main actuarial assumptions		
Discount rate	8.00%	-
Expected future salary increase*	6.00%	-
Expected rate of return on plan assets	-	-

Demographic assumptions(Withdrawal and Mortality Rate)

Withdrawal rates, based on age (per annum)

Particulars	As on	
	31.03.2016	**31.03.2015**
Withdrawal rate:		
Up to 25 years	8%	8%
26 to 30 years	7%	7%
31 to 35 years	6%	6%
36 to 40 years	5%	5%
41 to 45 years	4%	4%
46 to 50 years	3%	3%
51 to 55 years	2%	2%
Above 56 years	1%	1%

Particulars	For the year ended 31 March 2016	For the year ended 31 March 2015
Present value of obligation at the end	3,16,142	-
Fair value of plan assets at the end	-	-
Net liability recognized in Balance Sheet	3,16,142	-
Experience adjustment on plan liabilities (loss) / gain	-	-
Experience adjustment on plan assets (loss) / gain	-	-

B. Leave Encashment

Particulars	31 March 2016 (Rs.)	31 March 2015 (Rs.)
Change in present value of obligation		
Present value of obligation as at the beginning of the year	4,50,000	-
Current service cost	-	-
Interest cost	-	-
Actuarial (gain) / loss	-	-
Benefits paid	-	-
Present value of obligation as at the end of the year	-	-
Change in plan assets		
Plan assets at the beginning of the year	-	-
Expected return on plan assets	-	-
Contribution by the Trust	-	-
Benefits paid	-	-
Actuarial gain / (loss)	-	-
Plan assets at the end of the year	-	-
Liability recognized in the financial statement	4,50,000	-
Expense recognized in the Statement of Profit and Loss		
Current service cost	4,50,000	-
Interest cost	-	-
Actuarial (gain) / loss	-	-
Expense recognized in the Statement of Profit and Loss	4,50,000	-
Constitution of plan assets		
Other than equity, debt, property and bank a/c	**Not applicable**	Not applicable
Funded with LIC	**Not applicable**	Not applicable

Particulars	31 March 2016 (Rs.)	31 March 2015 (Rs.)
Main actuarial assumptions		
Discount rate	8.00%	-
Expected future salary increase*	6.00%	-
Expected rate of return on plan assets	-	-

Demographic assumptions(Withdrawal and Mortality Rate)

Withdrawal rates, based on age (per annum)

For SELCO FOUNDATION

Trustee

Trustee

For SELCO FOUNDATION

Trustee

Trustee

M/s. RAMESH ASHWIN & KARTHIK * Chartered Accountants * F.R.N. 006805

Particulars	As on	
	31.03.2016	31.03.2015
Withdrawal rate:		
Up to 25 years	8%	8%
26 to 30 years	7%	7%
31 to 35 years	6%	6%
36 to 40 years	5%	5%
41 to 45 years	4%	4%
46 to 50 years	3%	3%
51 to 55 years	2%	2%
Above 56 years	1%	1%

Particulars	For the year ended 31 March 2016	For the year ended 31 March 2015
Present value of obligation at the end	4,50,000	-
Fair value of plan assets at the end	-	-
Net liability recognized in Balance Sheet	4,50,000	-
Experience adjustment on plan liabilities (loss) / gain	-	-
Experience adjustment on plan assets (loss) / gain	-	-

Signatures for Schedule 1 to 8

For SELCO FOUNDATION

Trustee

Trustee

Date : 26.09.2015
Place : Bangalore

For Ramesh Ashwin & Karanth
Chartered Accountants,

Prashanth Karanth
Partner
M. No. 214235
F.R No. 010680S
No 102, 1st Floor,
Premier Presidency,
Langford Road,
Bangalore - 25.

SELCO
FOUNDATION