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Awardee Booklet - Round 1,2 & 3

Agriculture Climate Change

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Agriculture

BioAvert I Biological program of disease aversion for horticulture crops

Organisation: Swasti Agro and Bioproducts Pvt. Ltd.

Challenge

Farmers treat diseases of crops symptomatically after seeing the symptoms. Hence, they incur significant losses, irrespective of having products for disease control. In the absence of tools for preventive diagnosis, analysis of predisposal factors, and products for building disease resistance, they lose crop anywhere between 10 and 90% based on the adversities of climate.

Solution

We want to provide Healthcare system for plants with the help of patented products for building disease resistance, and point of care scalable diagnostics. This will improve the productivity for farmers significantly, without use of toxic chemicals; thus also increasing the value of the product.

Impact

Farmers will get higher production. Requirement of toxic chemicals will be drastically reduced. Produce being residue free, will fetch better price. They will get 10X to 100X ROI on the product purchase price (Rs. 6000 – 60,000 extra profits per acre)

Potential to Scale

The products have been tested in sixteen crop-disease combinations. The land under these crops within India – as per FAO estimate – is 240 Cr acres. At minimum value and use of our products, the potential scale for revenue to our company is estimated at Rs 15,000 Cr. The potential for higher production within India is at least worth Rs. 1,50,000 Cr. Toxic chemical use could go down by 60 Lakh Mt.

Popularising Bamboo Polyhouses among small farmers

Organisation: Self Reliant Initiatives through Joint Action (SRIJAN)

Challenge

There are three development challenges that are addressed by our innovation - one, increasing agricultural incomes of small farmers; two, mitigating climate extremities; and three, promoting robust farmers' institutions. Each is described below in some detail.

Solution

SRIJAN is a national professional agency that is engaged in livelihoods promotion for the rural poor. As a development agency it is committed to promoting sustainable and self-reliant models of development. SRIJAN team has come up with a solution is that reduction of per unit cost of construction of polyhouses and easy and local availability of appropriate construction material could be the key to increasing the outreach of cultivation of horticulture under protected climatic conditions in India and at the same time small farmers too can grow crops under protected conditions. Bamboo is one such material, stronger than steel yet light, and widely available in large parts of India, particularly tribal India.

To lower the entry barriers to greenhouse technology, SRIJAN propose to scale down and build small polyhouses of the size of 100 to 150 square meter area.

Actualizing this model would include: agriculture extension, in other words, transferring to tribal farmers the skills of growing vegetables under controlled conditions; aggregating and marketing of produce from polyhouses at favourable prices almost round the year; financing of the assets (bamboo polyhouses) costing close to Rs. 65,000 a piece (the size assumed to be 100 square meters in the first instance); and finally the organisation of producers into a legally registered company that could then source funds independently, take over the business from SRIJAN professional team, etc.

Impact

Our impact study data says that Crop production worth Rs. 50.000 (Sales revenue) in the first year against the cost of Rs. 22,200, leaves the farmer with a gross profit of Rs. 27,800 and net profit after interest and depreciation Rs. 22000. The profit will increase every year gradually as repayment amount will reduce every year. Fifth year onwards farmer will recive net profit of Rs. 28000 annual. The payback period works out to be 2.3 years. If there were no subsidy, the payback period would be close to 4.5 years.

Impact of innovation on people at the bottom of pyramid would have to be in terms of (i) people who have very small parcels of land and are still able to take up cultivation under BPH (perhaps just one acre or half an acre of cultivable land); (ii) Indirectly, those who are larger farmers can also be counted, benefitting from technology dissemination and collective marketing. The impact would be counted both in economic as well as in social terms, upliftment in the eyes of the others.

Potential to Scale

With support from The Hans Foundation (THF), we plan to establish 30 Bamboo polyhouses in our Angul Location, Odisha in coming 4 months. In next three years we will establish 300 Bamboo polyhouses with small tribal farmers of Chhindwara, Madhya Pradesh and Angul, Odisha. The successful demonstration of the technological packages would raise the awareness of the local community, local leaders and would result in increased peer pressure to integrate these technologies. In addition to engaging policy makers, the SRIJAN team could also replicate this innovative idea in other resource poor countries like sub saharan Africa - Ethiopia being one, there could be others such as Kenya, Eritrea, and so on.

Revolutionizing agri business in north east India

Organisation: Parvata Foods Private Limited

Challenge

Sikkim is a complete organic state. Despite that, farmers are leaving farming as they are not getting right price for their produce. They lack market access. The organic produce from Sikkim is sold in Siliguri mandi as conventional and the organic identity is lost. Also, the farmers use traditional agriculture practices for sowing and harvest, which results in loss of productivity and hampers the quality of produce. It also causes diseases such as rhizome rot in ginger. This reduces the income of the farmers to a great extent. Another major concern in ginger plantation is that 50th generation seed is being used and thus the vigor is lost. This reduces the productivity to a great extent and the keeping quality is deteriorated. There is lack of technology to store ginger in India on commercial basis on large scale. This results in huge price fluctuations and the farmers are at the disadvantage. It also impacts the processing and value addition as round-the-year supply is not available.

Solution

We build farmer-centric integrated value chain and connect farmers to the markets. We undertake processing for higher value addition in our organic spice processing plant in Sikkim so that maximum returns can be provided to the farmers. We provide on-farm collection services with higher farm gate prices and are setting up village level collection centers in the 3 major spice growing belts in Sikkim with facilities for grading, sorting and electronic weighing with on-spot cash payments. We also train the farmers in modern agricultural practices. We have started from very simple practices that are suited for North East, are easy to adopt and show maximum results. We are now expanding into making database of best agricultural practices sourced from across the country from research organizations and agri-businesses and will make this available to the farmers in the form of video and easy to understand and implementable content. As with farmers, "seeing is believing", so we are also expanding into creating demo plots with progressive farmers and use that to train the other farmers. Also, SMS based information dissemination will equip the farmers with market information empowering better decision-making.

Impact

Farmers get the advantage of the on-farm collection services with higher farm-gate prices. Through the use of better agricultural practices, the productivity and income of farmers will increase. Access to market information will equip farmers with better decision-making. Also, improved planting material will increase the productivity 2 times and improve the quality of the produce. We can then also target the export market, so that better returns can be provided to the farmer.

Potential to Scale

Working with 1800 farmers by Year 3, we will provide higher farm gate prices. We will be equipping 5000 farmers by Year 3 with modern agriculture practices. Through simple and adaptive use of technology, their productivity and income level will increase to a great extent.



Low cost Innovative and Smart Irrigation Controller

Organisation: FlyBird Farm Innovations Pvt Ltd

Challenge

Irrigation and applying Fertilizers to plants/crops are very important and critical tasks in any cultivation. Irrigating water at right time and in the right quantity is very important.

- Small and marginal farmers typically cannot afford Irrigation controllers and have to manually control water flow which can be Inaccurate and Inconsistent.
- Over-irrigation or under irrigation for the crops/plants
- Water table is going down day by day, needs precise and effective utilization of natural and available resources

Solution

FlyBird Innovations has developed a low cost & innovative Smart/Precise Irrigation Controller for poor farmers to irrigate water as per crop needs & improve crop yields by precise irrigation. By using scientific methods, soil moisture, temperature and humidity sensors very precise irrigation will be done. It prevents the under/over dozing

of water to plants and will improve the crop production and saves water, electric power, time and money for farmers.

Impact

Impact achieved through Smart Irrigation and Precision Farming

- Water saving 25% to 30%
- Crop yield / productivity improvements – 10 to 15%
- Less dependent on manpower and no human errors
- Conservation of electric power
- Reduces weeds and agri inputs
- Improvising the Livelihood of Farmers
- Integrating Affordable Technology for Farmers

Potential to Scale

There are 47 Million small and margins farmers in India and 22 million hectare of land under Irrigation. There is huge scope and potential to scale the business. And there are big opportunities in African countries too.

Low Cost Manual Milking Machine

Organisation: XX

Challenge

Milking is a skilled and tedious job and form the major work load in a dairy farm. 96 per cent of the 118.59 million milch animals in India are still hand milked and 70 per cent of the work force in this sector is contributed by women, which causes back pain, shoulder pain, finger fatigue and allergic reaction and they are also exposed to hazards like cow kicking and tail lashing. Milk which is secreted sterile often gets contaminated during hand milking increasing the bacterial load and lowering the keeping quality. The young generation is turning away from this vocation as the practices are primitive and due to the drudgery associated with this job. The solution for this problem is the use of eclectically operated milking machines which are very expensive and cannot be afforded by the millions of small and marginal farms who owns majority of the milch animals.

Solution

Simple low-cost manually operated milking machines with pulsation which is efficient in operation and affordable to the rural society will solve all of the above mentioned problems. Two simple low-cost manual milking machines were invented 1). Bi-cycle type milking machine, with hand operated vacuum creating system and pulsation produced by pedalling a chain drive. 2). Rocker type milking machine, where the teat cluster is attached on the cow with a Velcro strap and milking by rocking a pedal operated cylinder piston with foot. The following are the key benefits of these machine

- Cheap, efficient milking machine affordable to millions of rural people
- Anybody can operate (women & children)
- Complete milking is possible
- Electricity is not required (No recurring cost)
- It eliminated health problems of the milkers with added health benefit of exercise in an ergo cycle.
- Improves the quality of milk with increased Fat & SNF.
- Drastically reduces the bacterial load in milk
- Fetches more milk price to the farmers

Impact

Scientific and hygienic milk production will be possible for 70 million rural household in India who owns cows and buffaloes, but who cannot afford costly electrical machine. It is easily portable and does not have any recurring operational and maintenance costs. The distinct feature of this invention is that it has a pulsation system which exactly stimulates sucking by a calf leading to high milk ejection. The quality of milk will improve as it cannot be contaminated by dust and microbes in the shed and also prevents falling dung and hairs into the milk. It will prevent damages to the teat of cows due to excess positive pressure hand milking and also reduce the incidence of mastitis. It will fetch more revenue to the farms as the machine can draw the last strips of milk which contains more fat by simultaneous rocking and pedalling.

Potential to Scale

This machine can be adopted by millions of small and marginal farmers in developing countries. This machine can stimulate rural development being used in remote villages where there is no electricity supply and improve the economic status of dairy farmers. The stigma associated with drudgery of the job of milkers, which prevents the young generation from this vocation will vanish by the use of this machine. The machine will improve the quality of milk which is the need of the hour globally. It will also improve the health status of women who are 70 per cent of the work force of this sector.

Pilot demonstration and transfer of Solar Conduction Dryer SCD from India to Nepal

Organisation: Science for Society

Challenge

One of the sources of food insecurity in Nepal is post-harvest crop loss. Post-harvest loss of fruits and vegetables in SAARC countries is alarming which is estimated at 20%-50% in Nepal. This is mainly because most subsistence farming communities do not have access to appropriate technologies. A wide range of existing food processing technologies is not accessible to and adapted by farmers. Climatic conditions also contribute to crop losses. Floods, heavy rains, droughts and other related factors also lead to considerable post-harvest crop loss. Overcoming the perish-ability of the crops, enhancing nutritional value and adding economic value through processing are the main ways of increasing food security in Nepal.

Solution

The development and introduction of new processing technologies offer potential to improve food security and local industrialization Keeping these aspects in mind; this program is aimed at tackling the problem of post-harvest losses by introducing the innovative solar conduction dryer technology. Solar Conduction Dryer (SCD) is an electricity free solar powered food dehydrator that reduces moisture content in agro-produce so that farmers and rural women can preserve their produce up to 1 year without using any chemicals and earn additional income through the sale of dehydrated products. SCD converts agro-produce into value added dehydrated products. Dehydrated products can be sold at high value and can also be used by farmer families throughout the year.

Impact

By adoption of this technology, local farmers will be able to process the harvest surplus, making it possible to store and sell produce that would otherwise be wasted. The solar dryer enables control of the drying process so that high quality dried products can be sold in distant markets. This creates new business opportunities for small-holder farmers in remote areas. The initiative will also aim to enhance nutrition and food security for participating small-holders during the rainy seasons, which last several months.

Number of women farmers benefited: 500 in 3 years

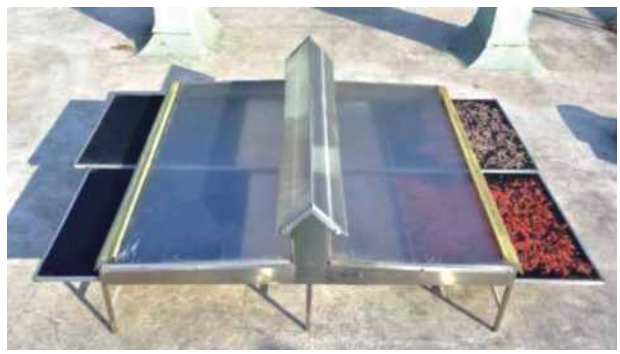
Each SCD processes 3 ton material/year Total processing: 1500 tons/ year

Each SCD provides profit: USD 1000/farmers

Total profit for farmers from the project: USD 1.5 million (USD 500,000/year)

Potential to Scale

During this pilot phase of 36 months, we will create a replicable and scalable eco system of producers (women farmers), local administration and monitoring partner and buyers of the dehydrated products. It will be a farm to fork model. Scope to reach 2000 farmers by the end of 2020



CassavaTech

Organisation: Science for Society

Challenge

Kenya has been experiencing declining per capita agricultural production with total annual on-farm production of food crops lagging behind consumption. This has resulted in food deficits and the consequential food insecurity being witnessed in the country. In the past, agricultural innovations in Kenya concentrated on improvement of production of major food crops such as maize, wheat, rice, beans and Irish potato. In recent times, agriculturists and extension workers identified cassava, as one of the high value traditional crops with the ability to withstand adverse climatic conditions and an important food security crop for resource poor households. Micro-processing units, a step above the household level can process up to 200 kilograms in a day. Household processing is labor-intensive operation and requires 90 man-hours to process 100 kilograms. The operations account for significant wastage as the cassava tuber is not processed immediately, and the product's shelf life is limited.

Solution

CassavaTech is designed to overcome the challenges and improve processing efficiency at the household and micro-processing levels, thereby directly addressing household incomes, and offering livelihood diversification options. CassavaTech overcomes issue of operating cost and capital cost by patented technical innovation. CassavaTech will reduce drying time from 10 days to 10 hours with high quality Cassava flour. During the same time, project will create revolving micro-finance fund for 200 farmers to create market demand.

Impact

With the adoption of CassavaTech local farmers will save 90 % of their time that is required for traditional cassava processing. The CassavaTech will result in

- Formation of 10 Farmer co-operatives each with 1 lead farmer and 20 members
- Awareness on dehydration and prevention of post harvest loss
- Set up 200 cassava dryers units
- Training and demonstration on cassava drying
- Training on production of high quality cassava flour
- Provide market linkage for dry chips/flour
- Reduction of 90% women labor hours involved in cassava drying
- Utilization of extra women hours for family, farming and health

Potential to Scale

Following the pilot, the program will be evaluated for its success using measurements and indicators that will inform the future scale-up strategy. Project involves mapping of scale up strategy for scaling up CassavaTech from 200 farmers to 20,000 farmers by 2020.

Portable Solar Cotton Picking Machine

Organisation: Agventures Corporation

Challenge

Cotton harvesting in India & Africa is done by hand. Handpicking of cotton is labour intensive, tiresome and ergonomically challenging. Moreover it has low productivity; only 10 to 40 kg of cotton can be picked per day, leading to high labour requirement and costs. Further, due to the staggered blooming characteristics of Indian cotton hybrids and small sized farm holdings, the large fully automated cotton harvesters used in the US are not considered suitable for Indian farming conditions. Many villages in India and Africa have acute power shortage or have no electricity at all. This necessitated a harvesting solution without the use or electricity or AC recharged batteries

Solution

In 2012, Agventures Corporation started working towards developing the first prototype of the solution. The innovation is a portable backpack solar cotton picking machine. The product consists of a light weight portable solar panel that can be mounted on the worker's back or head. Workers will mount the solar panel on their back or head and connect the cotton picking machine (attached with a cotton collection bag) to the solar panel. They will then harvest the cotton lint using the solar powered cotton picking machine. During usage, the portable battery stores the extra power that is generated by the solar panel. The stored power can be used in the evening by farmers to light their homes and run home appliances. The invention deploys the use of solar energy to run a cotton picking machine. The circuits behind the solar panel are designed to convert solar power to electricity at the required levels to drive the cotton picking machine; and to store the additional power generated in a battery for later usage at home. Farmers thus can improve productivity, avoid child labour and also have power at home, all with one single device. School going children could study at night even if their homes are electricity deprived.

Impact

The portable solar cotton picking machine was used by 2000 farmers in Burkina Faso in 2015, who experienced the following:

- Burkina cotton farmers earlier harvested 30 kgs per day by hand. With our machine, they could harvest 150 kgs per day. The per hectare cotton yield in Burkina Faso being 500 kgs, farmers just deployed 3.33 workers per hectare with the machine against 16.66 workers needed for hand harvesting. At USD 2 a day, the labour saving worked out to USD 27 per hectare

- Burkina cotton farmers were happy with the quality of cotton picked and were hopeful of obtaining a 10% premium (4 cents per kg) for their cotton, working out to an additional USD 20 per hectare and enhancing profitability by USD 47 per hectare.

- Women were happier not only because they could now devote their time for household chores and easier farm jobs, but also because they could send their children to school as they weren't needed to help out in the fields anymore.

- Farmers were elated about having lights in their homes in the evenings with the solar panels, batteries and the LED lights provided by us.

Potential to Scale

India has 12 million hectares of cotton grown by 8 million farmers; Africa has 1.2million hectares of cotton. This gives us a total potential of 10 million farmers = 10 million machines. Agventures Corporation intends to reach out to farmers in these geographies through an effective distribution system, cotton ginneries and mills, government subsidy programmes, farmer co-operatives and agri input partners.

Producing More with Less: Promoting Sustainable Sugarcane Initiative

Organisation: AgSri

Challenge

Indian farmers cultivate about 5 million ha of sugarcane. Average size of farm is less than one ha. The current method of sugarcane cultivation is seed, water and fertilizer intensive. Average yields are stagnated and cost of cultivation is raising. There is a need to radically transform sugarcane cultivation, which is to produce more with less.

Solution

Sustainable Sugarcane Initiative, an innovative method developed by AgSri is to reduce inputs while increasing the productivity. The point of departure is from planting 8-10 tonnes/ha of sugarcane as seed to planting seedlings. Chipping buds from sugarcane, using simple growing medium and manufacturing seedlings which can be planted directly in the field.

Impact

More than 15-18% of total production of sugarcane in India is used to re-plant the cane. Total value of this cane buried in the ground as seed cane exceeds ` 7,000 crores. AgSri has developed SSI method, tested, improvised and proved that planting one month old seedlings at wider spacing will improve the yield, reduce the water input and requires less inorganic fertilizers. Thousands of farmers have tested and approved the method and ready to adapt SSI.

Potential to Scale

The process of manufacturing seedlings creates rural jobs, particularly for women and saves large quantity of water. SSI improves productivity, saves water, and creates jobs. Recently the process of SSI has been certified as water saving by Gold Standard which has enabled AgSri to receive water benefit certificates. AgSri innovation is suitable for all the sugarcane farmers with some local modifications and adjustments. Now SSI is being tested in Cuba, Mexico and Tanzania with limited support from AgSri. SSI manual has been translated into several languages including Spanish.

Portable Digital Copra Moisture Meter

Organisation: Mr. Sunish Issac (Individual Innovator)

Challenge

Copra is the dried kernel extracted from the coconut shell. It is crushed to extract coconut oil and oil cake. The quality of oil depends heavily on the moisture content of the copra. One of the important issues with coconut/copra farming is, estimating the price of copra based on its dryness. This is currently done purely based on the experience of the estimator. The farmer always thinks that he's supposed to get a better price when the copra merchants feel it is not dried enough. There is also lots of time, energy and man power wasted if the drying process is not stopped when the ideal moisture percentage of 5-6% is reached. The challenge exists in most food crops that are dried for preservation or processing.

The following solutions are available to check the moisture content, but they have drawbacks.

Near IR Analyzer

- Very Expensive
- Non portable
- Time consuming
- Designed for lab use
- Calibration required

Copra Moisture Meter developed by CPCRI

- Inaccurate in giving exact moisture percentage and for values more than 6%.
- Not user friendly.
- Values manually averaged.

Solution

Portable Digital Copra Moisture Meter solves all of the above problems at a very low cost. It uses modern cost effective technology to provide accuracy and usability for all kind of users.

Prototype of Portable Digital Copra Moisture Meter

Following are the key benefits of Portable Moisture Meter:

- Portable
- Very accurate
- User friendly
- 3 different models to suit farmers, merchants and lab grade users.
- Auto Power Off to save batteries

Impact

- Cost effective usable technology for farmers and merchants
- Prevents wastage of time in drying
- Prevents wastage of fuel
- Brings transparency to buying and selling of copra
- Government organizations like NAFED,KERAFED other NGO's will benefit from the speed and accuracy
- Agricultural scientists can use it for quick measurement of moisture as its portable

Since the moisture values can be displayed as percentage as well as in the format required by conventional merchants and farmers, it will be more usable.

Potential to Scale / Global Transfer

The technology can be used for other crops in agriculture and has industrial applications. Wherever fast and accurate moisture measurements are needed, the moisture meter can be used. Only the calibration data needs to be changed based on the material.

Since the device is portable it can directly be used on the field. The device can be connected to a mobile or tab to do data collection and analysis.

Apart from the coconut cultivating countries, the product can be used in other geographical areas for other moisture measurement applications like drying of fruits and vegetables.

To achieve higer farm productivity and reduce losses using web and mobile technology in Kenya using the model from India

Organisation: CropIn Technology Solutions Pvt. Ltd.

Challenges

World agriculture will undergo far-reaching economic and physical change in the coming 50 years. Population increase, urbanization and income growth will drive the demand for food while high energy prices, stress on natural resources, and climate change may act to constrain supply. To feed the world's growing population – projected to exceed 9 billion in 2050 (UN, 2009) – it will be necessary to boost the production of food and to do so sustainably. To be sustainable, agriculture will need to be intensified and its environmental footprint made to shrink.

Growing more with less is the guiding principle, lowering water and land use per unit of output while conserving the productive capacity of soils. The concept of sustainability is a challenging one in agriculture.

Today agriculture engages 40% of world population and around 500 million small farms world-wide caters to 80% of food consumed in developing nation. One of the challenging question which still need to be answered "How to unleash the agricultural potential of currently less productive countries and their small farmers?"

This requires technology, access to inputs and services, extension services support, and remunerative links to markets.

Solution

CropIn was established in August 2010 to develop and offer on a low cost pay as you use product on an IT platform on Cloud integrated with Windows/Android based smart mobile app. The vision was to bring affordable state of the art technology in agriculture and the mission was to make every farm visible on-line, make every farmer adopt the best global agricultural practices and to make every crop traceable so that harvested crops meet global quality standards

CropIn solution introduces following to the Agri Sector.

1. Mobility in managing farm Operations
2. Collaborative Tools for producers, organizers, agronomist & aggregators & lending agencies
3. Interface to Interact and react on field Issues
4. Real-Time Decision support system for planning, production and supply chain
5. Big Data Analytics to reveal the crop behavioral patterns using statistical modeling
6. Ensures sustainability and traceability for a better future

Impact

We are monitoring around 25 different crops in 12 different states of India with thousands of small farmers spread cross various geographies along with implementing partners. We have seen around 12% increases in productivity and were able to reduce losses at farm gate by 18%. This accounts for more income for farmers. Our solution has also encouraged sustainable practices and 100% digitization of farming practices, which is paving path for sustainable agriculture..

Potential to Scale:

Millions of small farmers in developing countries do not have a good resource and knowledge base, and this limits their capacity to pursue sustainability goals. This capacity can, however, be created or enhanced by increasing farmers' access to knowledge and capabilities through education and training, and by improving their operating environment through provision of enabling technologies and services.

Our Innovative solutions integrated with cloud , mobility and big data processing will enable us to reach these millions of small farmers seamlessly with the help of implementing partners. We strongly believe that by "Digitizing Agriculture", we can play an active role in the addressing current farming challenges.

Improving farmers' livelihood through end to end agri services in Nepal

Organisation: Farms and Farmers

Farmers face plethora of problems at every stage of agricultural production like crop planning, inputs availability, unawareness about latest technology, advisory support and Market. Being small farmers, either they do not have access to solution or cost of solution is unaffordable. Consequently overall profitability is too low to survive.

Farms and Farmers (FnF) was started in 2011 with an aim of maximizing the profit per unit area of small farmers by improving efficiencies in agricultural supply chain and connecting the farmers directly to input providers, latest technology and institutional buyers. Team FnF is comprises of highly dedicated people from various background and elite institutes like IIM Ahmadabad, IIT Kharagpur, IIT Delh, ICAR & many more.

We provide end to end services to farmers – right from crop selection to marketing. We have also created a large pool of bulk buyers. Their demand is linked to our farmers and subsequently farmers (cluster level) are trained to meet the demand at minimum possible cost. In other words crop/variety finalization is being led by demand. Our ICT based tools for soil analysis, integrated pest management and crop advisory services assure quality production.

We set up its extension centre "DeHaat" in rural areas at block level. DeHaat is run by last mile entrepreneur (Micro entrepreneurs) on profit sharing model and carters to 600-1000 farmers in radius of 8-10Km. Micro entrepreneurs take care of day-to-day operations and will supported by FnF's Core Team for strategic and logistics issues. Through in house technology of mobile applications, DeHaat captures field level data and receives various types of farmers' queries – Input, Soil test, Advisory & Market.

More than 5000 farmers are directly associated with 15 DeHaat centers in 6 districts of Bihar. Our farmers are fulfilling diversified agricultural requirements of Maize, Wheat, Fruits (Litchi, Papaya, and Mango) Honey & Vegetables for many buyers like Godrej Agrovet, Spencer's, Metro, IPCA and quite a few exporters. Hence DeHaat provides following basic services to the farmers:

1. Seeds & other agri inputs
2. Soil Testing
3. ICT based Crop Advisory:
4. Market Linkage of farm produce
5. Contract Farming of niche crops
6. Cattle Feed
7. Mobile based services for crop reminders and information about govt. schemes & market price
8. Banking facilities

We are targeting 20 DeHaat centers by end of this F.Y., 2013-14. We have already identified and trained 65 micro entrepreneurs so far. Our scale up strategy is to add "DeHaat" at different locations. We are aiming 300 DeHaat in next 3 years to increase our reach directly to 150,000 farmers.

Ensuring food security and income generation for poor farmers of Bangladesh through Innovative Water Management Technology named "BHUNGROO"

Organisation: Naireeta Services Private Limited

'Bhungroo' is the local name of innovative water technology; it assists farmers in two ways e.g. during rain it saves farmers' land from excess water and in dry period it ensures adequate irrigation. It filters, injects and stores excess storm water in subsoil strata in form of water lenses. In lean period, it allows withdrawing of water from stored water lenses. Each unit of Bhungroo guarantees lifelong food security to more than 30 rural poor and allows farmers to increase their agro income by manifold in lean period. This technology has been invented as a result of eighteen years of field experience in semi arid and disaster affected regions of north Gujarat of India with a special focus on gender centricity in Gandhian principle of Antodaya and Sarvodaya. Till date, it has been transferred from laboratory to field, field to expansion, expansion to scale, scale to state finance budget, state finance budget to self sufficient bankable model. The technology and its interfacing against poverty is recipient of series of global awards/recognition viz World Bank India development Marketplace, US Department of State, Ashoka Globalizer, Department of Science and Technology of Government of India, Government of Gujarat and lastly in 2014 it got awarded by UNFCCC as the unique model of climate change mitigation and poverty eradication.

Naireeta Services Private Limited (NSPL), a social enterprise start up, endeavors to cater food security and income generation needs of disaster affected small landholding farmers across the globe with the use of "Bhungroo". NSPL has been nurtured by renowned global networks viz LEAD, Ashoka, Commonwealth, Fulbright, US IVLPs (to name a few).

2 million farming families in India and 260 million across globe (FAO 2011), affected by excess water on their land for a duration of more than 15 days in form of water logging, need Bhungroo technology and associated support from NSPL, which is going to increase India's agri-income by more than USD 1.5 Billion annually whereas that of whole world will be USD 208 Billion annually along with attainment of MDG I;

With a monthly cost of as low as USD 2.5 per acre, Bhungroo enjoys high acceptance among the ultra poor especially when the yearly return from 2nd year onward exceeds next 35 years lifecycle cost. Till date more than 19000 rural poors in India are accessing benefit of Bhungroo. NSPL works in partnership and handholding model where enough space for co-creation for local communities is ensured. Within India, partnerships are getting inked with CBOs, NGO, Cooperative, producers' organizations, CSRs, Government Departments, private corporations, research institutes, educational institutes, HNI and commercial banks. Globally, NSPL is also successful to have implementation partnership within Ghana, Kenya, Zimbabwe, SE Asian countries and it is in process of creating knowledge partnerships in Europe and USA.

NSPL's small core team is having more than 103 years of combined experience in poverty eradication and innovation, coached by premier education institute like IIT, IIM, US and UK Universities.

Clean Energy

Expanding solar-as-a-service to lower income households & micro-enterprises in rural India

Organisation: Simpa Energy Pvt Ltd (Simpa Networks Inc)

Challenge

400 million Indians and 1.5 billion people worldwide lack access to modern grid electricity. They are already spending $50+ billion per year on unclean solutions, such as kerosene fuel for small lanterns. In India, the situation is dire, with human development opportunities greatly constrained for 75 million families that have no access to electricity.

Solution

Simpa sells solar-as-a-service to energy-poor households and micro-enterprises in rural India. We sell high-quality solar products, combined with point-of-sale financing and convenient pay-as-you-go payments for topping up the system. Customers make a small initial payment to have a solar home system installed, and then make ongoing "top-up" cash payments to purchase "clean energy days" until the end of the contract, after which they achieve ownership of the system.

Impact

Simpa has reached over 15,000 customers in rural Uttar Pradesh across 8 districts, and has impacted more than 75,000 lives.

Potential to Scale

We believe our solution will work operationally and deliver new impact and at a greater scale due to the following reasons: 1) We have demonstrated proven ability in our existing 8 areas of operation; 2) We have invested heavily in planning our expansion to new areas, by assessing the energy need, existing market infrastructure and customer demographics in additional districts within 6 states; and 3) We have assembled a senior leadership team which has had deep experience in operating at scale in rural India across various sectors, such as telecoms, DTH, insurance and microfinance.

Biogass Based Cooking Grid

Organisation: Gram Oorja Solutions Pvt Ltd

Challenge

A large part of rural India still uses firewood or biomass for their daily cooking needs. The adverse health effects of traditional, open stove cooking with biomass, especially on women and young children have been well documented. The smoke from such methods of cooking causes suffering to the whole family causing lung and eye trouble, especially to women and children. The collection of firewood for cooking is also very difficult and time consuming for rural women. In addition, open stove biomass cooking is a major source of pollution. The huge demand for firewood in rural areas is also a major cause of deforestation.

Solution

Learning from experiences in rural India, Gram Oorja has implemented a solution of a Biogas based cooking grid, which will be used to provide cooking gas to households in the community. A biogas grid is one where there is a central biogas plant in the village where all the cow dung is collected daily. This biogas is then transferred using a pipeline to each household, where the flow is measured and the pressure is regulated, in order to provide a satisfying cooking experience.

A local entrepreneur or village body is responsible for collecting the tariff amount, depending on the monthly usage as well as to look after the operation and maintenance of the plant. The tariff collected is used for operation and maintenance of the plant and for paying back the upfront capital costs. The tariff is finalised by Gram Oorja based on the design of the plant and other factors such as willingness to pay of the community, their income levels, previous expenditures on fossil fuels, etc. A person from the community is also trained by Gram Oorja for maintenance and operation of the Plant. The key steps followed for the successful implementation of project are:

Impact

Across different decentralized renewable energy solutions, Gram Oorja has touched over 25,000 lives across four states. The projects have enabled people to live better lives with access to electricity, drinking water and cooking fuel.

Women and Children of rural households face maximum exposure to smoke and gases emitting out of a firewood/fossil-fuel dependent kitchen. Biogas based cooking grid will provide them a smoke-free and ash-free kitchen. They can use the time saved on collecting firewood for other productive activities, which may also contribute to an increase in their income. In the long run, this project will improve the health conditions of the family due to the use of cleaner fuels for cooking gas. Farmers can also greatly benefit from this project as they can use the by-products from this project as manure in their fields. This will allow them to save money which was earlier spent on purchasing fertilizers. Thus, their land productivity will increase along with their income levels.

Potential to Scale

There are large tracts of tribal India where forest cover is depleting and firewood is getting scarce. There is also enough bovine population in these areas. In addition, even in non-tribal mainstream villages, there is a growing need for cooking fuel and a scarcity of easily available firewood. Biogas based cooking grids could be a solution for a very large part of rural India. In the initial period, Gram Oorja has already identified 10 clusters across part of tribal India where it can be implemented across a few thousand villages in the first phase.

Piloting of a Novel Table Top Solar Panel Laminator in rural locations for decentralized manufacturing and sales of Solar Panels by rural youth and women

Organisation: Jnana Prabodhani

Challenge

Lack of energy access for the BOP population is a well known development challenge. Worldwide 1.4 Billion people and 400 Million in India still depend on harmful kerosene as primary source of fuel for lighting after dark. Challenges to provide grid electricity access at the last mile exist due to barriers such as poor infrastructure, increasing cost of fuel for power plants, transmission and distribution losses etc. Solar energy is a viable alternative for India. Under the national Solar mission 100 GW installed capacity is to be achieved by 2022. For this, major focus is on centralized Grid-Tied or off-grid Solar Power plants through various MNRE schemes. Here, following issues that limit energy access to the poor are worth noting.

Solution

Decentralized generation of solar energy can address all the above mentioned problems effectively. Originally based on a Japanese technology, Jnana Prabodhini has successfully developed and tested a Micro- Solar panel Laminator that can make Solar Panels in the range of 3Wp to 40Wp Power. We intend to install more of these laminators in rural areas. With training, individuals can manufacture their own panels and sell locally. This technology has potential to make smaller panels available at cheaper prices than current scenario since decentralized process is less capital intensive. Moreover, it imparts a key technical skill-set to rural youth/women and provides a livelihood opportunity. This novel approach of democratizing Solar energy will drastically improve energy access across thousands of villages.

Impact

Both laminators are the size of a Table Top. This dramatically reduces the space requirements of current Laminators which occupy several thousands of square feet of factory floor space. Our laminator can be installed in a small 10x12 feet room. We have created training module and assembly instruction aids such that any rural youth or women can be trained to make these panels. We have already trained several batches of such youth and women in Pune. Through MA intervention, we plan to install three new laminators in Maharashtra, create 50 local entrepreneurs and manufacture and sell panels and related products for 3000 households impacting about 15000 people.

Potential to Scale

Due to the key USP of extremely low capital investment and accessing local labor at lower costs, the potential to scale is very high. Considering the future demand and favorable government polices there will be scope in almost every district from our country for making decentralized solar panel manufacturing through this model. Central government's ambitious schemes such as National Rural Livelihood Mission (NRLM) or National Skill Development Council (NSDC) can be targeted for mass adoption. Moreover it can be easily incorporated in the list of approved courses for ITI and NCTVT by State Technical Board which will create skilled manpower in the solar industry.

Development of Integrated Energy and Revenue Management System for Mini-grids

Organisation: Technology and Action for Rural Advancement

Challenge

Access to affordable and reliable electricity is still a distant dream for the rural poor in India. Even in situations where grid power is available it is generally unusable. Renewable energy is a solution for the segment but it has not seen growth. High cost of operation and revenue uncertainty make the sector undesirable for private investors and are a major reason for the inherent latency of and lack of investment flow into the market.

Solution

TARAurja's Innovation in Load Control and Revenue Management

TARAurja has developed technologies in-house such as programmable load limiters and a cloud based revenue management system to mitigate these risks. Till date, these technologies have been deployed at 22 sites of Bihar and UP. At an aggregate level TARAurja now has installed capacity to generate an average of 18000 units per month, sells an average of 14000 units per month with a revenue of Rs.3.60 lakhs per month.

With further improvements in technology, an integration of the energy and revenue management system (IERMS) it is possible to prevent theft of power and ensure on time revenue collection. This system will allow customization at the household level allowing for features such as pre-paid or credit based electricity supply, ability to limit electrical loads, SMS based activation and deactivation of connections, and real time monitoring of supply etc., while retaining the already existing benefits.

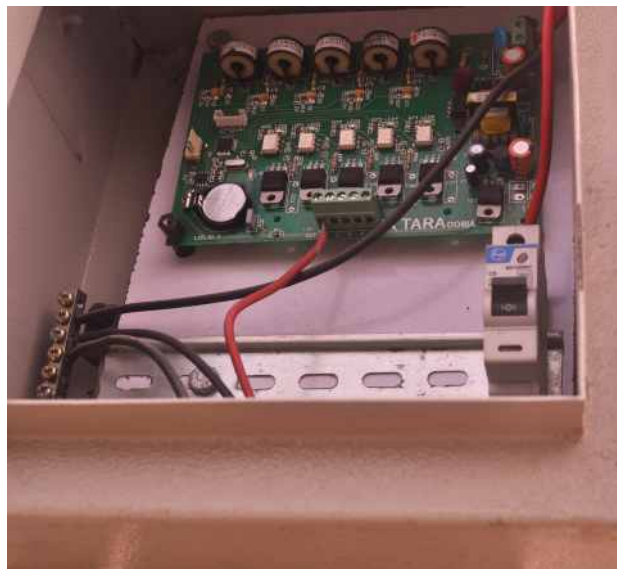
All of these contribute significantly towards reducing transaction costs and power thefts while driving up revenue security. This allows for availability of high quality and reliable electricity for the sector at affordable rates while enabling profitability of enterprises.

Impact

The project could impact 25000 households (100,000 individuals) by providing direct access to electricity for lighting, and income-generation activities, etc. In the long term the solution holds the potential of revolutionizing the entire BoP sector by proving it to be a profitable sector and opening it up for investment.

Potential to Scale

TARAurja will deploy the IERMS in 300 locations, cutting operations cost by Rs. 3.5 – 4 per unit. The developed IERMS solution will become available as a licensed solution in the market, available to customers in exchange for a one time 'connection fees' that Energy Supply Companies (ESCOs) will charge their respective customers. ESCOs are recommended to charge their end users Rs.500 to Rs.600 for the device itself as a one-time connection fee. The low cost of the technology and benefits it brings to ESCOs will be realized as profits.



Harnessing the destructive energy in pine needles for rural development

Organisation: Avani Bio Energy

Challenge

Recurrent forest fires spread by pine needle litter in large tracts of Himalayan pine forests destroy biodiversity, diminishing access to eco-system services such as fuel, water, herbs, and timber, for which rural people have traditionally depended on forests. This is threatening their habitat in the fragile Himalayan eco-system.

Solution

We employ people to collect these pine needles before they burn, and use them to produce combustible gases which run engine to generate electricity. The process residue is good quality charcoal, which is briquetted to make cooking fuel for rural areas.

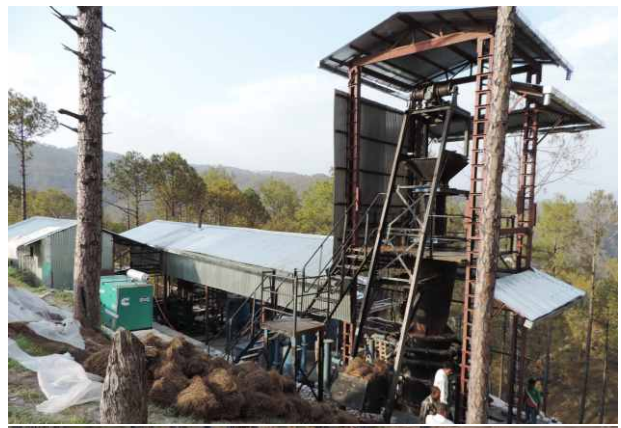
Impact

Job creation for rural people in their villages, in collecting pine needles and running the power plants; Increase in biodiversity leading to enhanced eco-system services; Reduction in carbon emission; Reduction in drudgery for women in collecting fuel wood.

Potential to Scale

In the Himalayan region, 2000 MW of power generation capacity can be set up. We plan to do this by setting up small, 10-25 kW size power plants and bundling them together to create an impact.

Globally, 100 GW of generation capacity can be set up using this technology.



Pre-paid Mobile Payment based Solar Micro Grids

Organisation: Boond Engineering and Development P Ltd

Challenge

About 1.2 billion people across the globe remain without access to grid electricity. These underserved communities and individuals have to rely on expensive and high-emission energy sources such as kerosene oil. Many of such off-grid households and communities can potentially benefit from clean and renewable energy based decentralized solutions. As per Census 2011 there are more than 1 million individuals in India using solar as a primary source of energy, but there are more than 300 million indiviudals who don't have access to grid electricity or any other form of clean and reliable energy. Challenges which inhibit the large scale adoption and penetration of decentralized solutions are poor eco-system for end user financing, absence of universal brands which customers could trust, awareness, poor after sales support – especially in in remote areas. Such challenges are more atypical to small scale dencetralized systems such as solar home lighting systems.

Solution

Boond has developed Pre-paid system for DC solar micro grids using GSM and bluetooth technology, in an effort to deliver 24x7 democratic access to clean and reliable energy. The pre-paid solution for micro grids empowers the customers to choose a service when they need it, and while also making a decision on how much they wish to spend for it. In essence, customers only pay for the power they consume and they consume power based on their needs. Something like this is unforeseen in decentralized and off-grid energy solutions.

Impact

Access to clean energy and quality lighting has a direct and immediate impact on quality of life. In the long run, it helpds in education of kids, increases productivity, social engagements and many other parameters directly related to Human Devlopment Index. Some of the documented benfits of access to clean energy are:

a. Considerable amounts of monthly savings because of non-dependence on kerosene oil.

b. Ease in performing regular household activities after sun set.

c. Children being able to manage their school home-work without straining their eyes.

d. Freedom from smoke of kerosene, which blackens walls and ceilings.

e. Security from wild animals at night who occasionally venture into human settlements.

f. Increase in telecommunication activity since

Potential to Scale

Investments in pre-paid DC micro-grids can already be recovered in a period of 6-8 years. By rigorously demonstrating the financial viability of the proposed solution, Boond will have established a technological and business model that will greatly encourage the provision of debt capital by formal and semi-formal financial institutions, thereby promoting a more rapid scaling up. This will enable Boond, its partners, private entrepreneurs, and even community groups (e.g., SHGs, Farmer Clubs, etc.) to more easily access loans for setting up solar micro grids on a far greater scale than is currently possible. This outcome would have momentous implications far beyond the Unnao and Hardoi districts, providing a scalable model for off-grid communities across South Asia, Africa, and the rest of the developing world. Boond's pre-paid technology also has potential application for decentralized energy systems powered by clean technologies other than solar. With remote monitoring and automation of payment collection, the proposed solution might improve the financial viability of myriad off-grid, renewable energy solutions.

Scaling Prakti Multi-fuel Clean Cook Stoves in India, Bangladesh and Nepal

Organisation: XX

Challenge

166 million households in India, 32 million households in Bangladesh, and 2.5 million in Nepal cook using solid fuels. Smoke from cooking using traditional stoves results in an estimated 875,000 premature, avoidable deaths each year in India alone. Dung and agricultural wastes are used by millions and are the dirtiest fuels with the worst impacts on health. Although people in rural areas of India, Bangladesh and Nepal use a variety of fuels for cooking, there is no existing improved cookstove that allows for clean and efficient combustion of wood, cow dung and agricultural wastes. Further, most available improved cookstoves are single burner while many families cook on double burner traditional stoves.

Solution

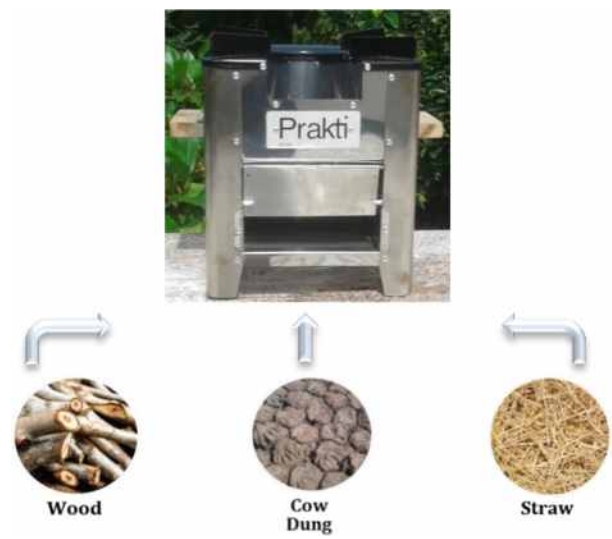
Prakti has developed an innovative solution to address this need – an affordable range of extremely clean, efficient, and user-friendly multi-fuel stoves optimized for burning wood, cow dung, and agricultural wastes for low-income households in South Asia. Prakti's multi-fuel stoves are available in single burner, double burner, and double burner chimney models. While accommodating traditional cooking techniques, recipes, and fuel, Prakti multi-fuel stoves cut fuel usage by at least 60%, and reduce smoke emitted by up to 90%. Cooking is faster by 40%; time saved may be used for educational or income-generating activities. Reduced household air pollution reduces smoke-related health issues. Prakti's multi-fuel stoves have been field tested and are well-accepted by users and distributors in India, Bangladesh, and Nepal.

Impact

The project, within a 3 year period, will commercially launch the multi-fuel stove with 2000 stoves in 6 states in India, 500 stoves in 2 districts in Bangladesh, and 500 stoves in 2 districts in Nepal, in collaboration with local distributor and consumer financing partners. The project, during its span of 3 years, will impact at least 75000 people, generate fuel savings worth $6.8 million, preserve 2800 hectares of forest area, save 282000 trees and 112000 tons of CO2. Prakti's impact measurement methodology has been validated by experts from the SVT Group and SROI Network. Prakti's impact will be tracked in accordance with Impact Reporting and Investment Standards.

Potential to Scale

Prakti collaborates with local suppliers, manufacturers, distributors, retailers with existing channels to minimize costs, build local value chains, and execute effective manufacturing, distribution, and marketing strategies that can be sustained and scaled. Prakti is working with ONergy and Dharma Life in India, Minergy and NAMUNA in Nepal, and VERC and Rahimafrooz in Bangladesh. In addition, Prakti is exploring several other partnerships in these 3 countries to scale and sustain the project beyond 3 years. Prakti aims to sell 1 million stoves in 10 years as a result of this project.



Pico hydro home Lighting in hilly areas

Organisation: Prakruti Renewable Power Private Limited

The Challenge

Reaching grid electricity in hilly terrains is difficult. There are small hamlets that are left out and have no electricity. Many of the houses connected to electricity have poor connectivity due to natural causes and difficulty in maintaining the grid. These houses use Kerosene for lighting. Solar home lighting has been used for lighting such homes. In hilly terrains with extended monsoon solar lighting are not reliable. In many of these terrains small streams are available where pico hydro power can be generated. The innovation proposed is to provide lighting to small hamlets and remote households where pico hydro is possible.

The Villages, hamlets and houses in the State of Uttarakhand located in the foothills of Himalayas are remote. Many of the villages in the districts of Rudraprayag, Uttarkashi and Chamoli face problem in accessing electricity due to unavailability of grid power, broken grid connections and some times due to lack of power. The basic electricity requirements in these villages are restricted to lighting. The hilly areas have water streams from which power could be generated to meeting the lighting and other requirements. The need is to provide reliable picohydro lighting solutions backed by technical support at their location at a affordable cost. This requirement is true for most of the hilly areas across the Himalayas and other hilly areas in India and internationally.

Solution

Prakruti Renewable has set up a demo 1440 RPM 1 KW Pico hydro power generating unit in a hamlet in village named Khumera in September 2013. The village is located at about 40 kms distance from Rudraprayag in Uttarakhand. The villagers often faced problems in power connectivity due to broken grid connection in rains or due to shortage of power supply. The hamlet had a water flowing in a streams which connect to the river Mandakini. The water flow was about 8 LPS with a head of about 25 meters. There were 6 households located within a distance of about 100 meters from the water stream. The power generated has been used for lighting and one of the 6 user households has been trained to operate and safeguard the pico hydro unit.

The plan is to set up off grid Pico hydropower generating systems to provide accessibility to power to these remote users in hilly areas. The requirement for setting up these off grid power generating systems is a water flow of about 3 Liters per second with a height of about 20 meters or 30 litres per second at 2 m height. The Pico hydro system would be of a capacity of 150-300 watts with 48 V DC. The power generated would be connected to 6 -9 households located within about 100 meters from the system. One of the households would be responsible and trained for operating and maintaining the Pico hydro system.

We would set up 100 such units as demonstration projects across Rudraprayag, Uttarkashi and Chamoli districts to provide power access in villages. At these locations, a business model for marketing, identifying prospective sites, delivering and maintaining the system through locally identified individual resource persons would be set up. It is proposed that a tablet based communication and management information system would be established so that from a central knowledge center the whole system would be supported.

The target is to provide an income of about Rs. 10,000 per month for each local resource person who provides technical and other support for such systems. The individual household would pay about Rs. 10, 000 per system. Total cost of system would be about Rs 75,000. The individual household would have to pay about 25% as down payment and the remaining in monthly installments. The financing shall be tied up with local banks and Micro finance institutions.

Impact

There is a large potential for such systems. It has been assessed that over 200,000 systems can be set up India. Each system would reach lighting to potentially 30 persons. At a delivery of 1000 systems per year in a

period of 5 years over 150,000 persons would have access to clean lighting. As part of the delivery about 50 local resource persons would be trained to handle renewable energy devices and earn over Rs. 100,000 per year for their services. There would be direct saving of Kerosene used for lighting. In addition these remote area can have access to electricity driven services using a local resources managed locally like TV, internet and become part of the mainstream India.

Potential to Scale

The same business model would be extended to the states of Jammu and Kashmir, Northeast states, Karnataka and Kerala. There is requirement internationally in Himalayan belt, South East Asia, Africa and South America for Pico hydro based lighting solutions. It is also possible to integrate the product with Pico solar, Pico wind and Pico biofuel solutions for reaching out basic lighting to house holds on a wider geography.

Clean Energy and women empowerment through Women led enterprise

Organisation: Sewa Bharat

Challenge

Energy access plays significant role in the lives and livelihood of women. There are multiple impact of energy inaccessibility on women compared to men as women are not only primary caregivers in the household but also workers who use home as workplace (basket, leaf-plate, bidi, papad, incense sticks and so on). For example, in India 16 million women homebased workers use their house for income-generating activities Access to clean, reliable, efficient and affordable energy minimizes household expenditure on fuels, helps women to perform household work and children to study. Additionally women workers augment income by increased productivity possible through increased working hours and days (due to better lighting and health conditions).However, the state of Bihar, where the intervention is focussed, has dismal infrastructure, capacity and resources to meet basic energy needs of base of pyramid population. Here, 16% of total number of household use electricity and 82% use kerosene to meet their lighting needs! Due to pressing need for energy alternatives in lives and livelihood of women, the intervention on promoting decentralised solar home light system (DSHLS) has been initiated by SEWA Bharat.

Solution

For increased adoption of DHLS, 3 core challenges are addressed by SEWA Bharat which is (i) Lack of awareness, (ii) Affordability and (iii) Technical reliability. Risk perception among end-users is high due to prior bad experience with cheap products or lack of awareness. Widespread awareness about renewable energy and decentralized energy system is undertaken through village level meetings, camps, awareness materials, demonstration units. Energy systems for poor household are unaffordable because products are costly and end-users paying capacity is less. End-users are linked to Regional rural bank for financing. SEWA Bharat undertakes responsibility of repayment through door-step repayment collection. Subsidy for end-users is leveraged from government agencies and donors. Increase in longevity of systems enables members to use the product for a long time and gain a positive view on the same. After -sales service is provided through regular service and complaint resolution.

Impact

Economically the significance of lighting is huge on the livelihood of informal economy worker. Due to the light there has been increase in working hours of women and study hours for children by at least 4 hours. There is reduction in usage of kerosene by 3 liters by each household every month. Expenditure on mobile charging has also been reduced. Women find it more convenient to conduct household work in the presence of light. There is reduction in indoor pollution and CO2 emission. Reach of government scheme and program has been enhanced by leveraging of resources from NABARD and Commercial banks.

Potential to Scale

The model can be replicated by organization which has strong community presence and network. Organizations, like SEWA Bharat, can bridge the gap between technology provider and end-user by creating adequate eco-system. SEWA Bharat has leveraged from existing government programs and similar approach can be adopted. Community contributions can be raised through financial mechanism tuned to capacity and resources of the user. Similar composite service of financing and after-sales can be used for addressing energy needs pertaining to cooking, agriculture, health and livelihood.

Education

Kakshaa

Organisation: Runira Educational and Allied Services Pvt. Ltd.

Challenge

Improving learning outcomes amongst students has proven to be a challenge mainly because 1) children lack access to engaging educational resources that are student friendly and developmentally and culturally appropriate 2) Teachers lack consistent training. 3) Too much time is spent in information dissemination because of lecture type teaching methods. Thus not much time left for child-centric teaching 4) Schools are scattered over geographically challenging areas where skilled teachers are hard to come by. 5) The system is devoid of a scalable solution that ensures uniformity and quality and reduces transmission loss during implementation. 6) Importance of implemetation and monitoring is underestimated leading to the failure of projects.

Solution

Consisting of a large repository (c 560 videos) of audio-visual lessons, Kakshaa is designed to engross students and enrich the classroom environment through the use of innovative teaching methods like activity based learning, muppetry, dramatization, songs, stories and inquiry based learning. Since the program has been made specially for rural schools, it is rife with contextual examples, is age appropriate and delivered in the local medium of instruction. Our content has been made keeping in mind the multiple intelligences of a child and hence has a variety of teaching methodologies used to impart competency based education to children. This ensures that HIGH QUALITY education is ACCESSIBLE to all students irrespective of their geographical or socio-economic location. The numerous teaching pedagogies used in Kakshaa also help in training local teachers. By viewing Kakshaa lessons on an on-going basis local teachers witness how master trainers teach. This provides demonstrative training that motivates teachers to use innovative strategies in their respective classrooms. Additionally, Kakshaa is a useful aid to the often cumbersome process of information dissemination. Since the virtual teacher handles a part of the teaching through the Kakshaa program, the local teacher has more free time to use for child-centric teaching. This concept (flipping the classroom) has been widely acclaimed and adopted in the charter schools of America.

Impact

The Kakshaa program was piloted in the districts of Kurukshetra and Kaithal in Haryana where after a year's exposure to the program, students and teachers showed significant improvements in learning levels. The program covered all subjects (English, Hindi and Mathematics) and skill sets such as reading, writing and listening (for languages) and mathematical skills like number operations, time, spatial understanding etc were tested for class. I-IV students. The impact study conducted at the end of the year gave the showed the following results: Improvement in English and Hindi skills; improvement in mathematical ability; introduction of effective teaching methodolgy; reduction in absenteeism.

Potential to Scale

Given that Kakshaa is a runs on technology it can reach far flung areas and can be scaled up easily with minimal transmission loss. With a carefully designed implementation and monitoring framework, we ensure that the program runs as desired.

Art in education

Organisation: Nalandaway foundation

Challenge

The absence of a well rounded arts curriculum in most of the schools in India often fails to engage students with their academic content and not only deprives them of a joyful learning experience but also fails to sustain enrolment ratios in schools leading to increased absenteeism and dropouts. The problem is further compounded in schools located in marginalized, rural and urban slum dwellings. Our interactions with teachers, educational officers, school authorities and the students have helped us understand that children studying in the above schools are often emotionally disturbed. Difficult home environments further limit their social efficacy and they often struggle to make successful transitions in the community. Given the above challenges, it is imperative that schools in India focus on a more structured approach towards art education, one which NalandaWay strives to achieve through the 'Art in Education' programme. Studies show that activity and arts based learning not only provide an outlet for creative expression but also provide opportunities for increased exposure and interest among students.

Solution

Through the proposed innovative project, NalandaWay would train 1000 primary school teachers in ten regions across the country through its partner organizations over 3 years on using fine arts, drawing, painting, craft and storytelling techniques in the classroom to engage students in their subjects better. Training would include a standardized teaching kit for fine arts consisting of trainers' manual, exercises and evaluation approach content to help teachers on:

- Using core art concepts, methods and techniques for effective teaching.
- Enhancing creativity, communication & critical thinking skills and aid self-development
- Sensitization in child-rights

At NalandaWay we have developed a well-researched and tested curriculum, audio/visual content, resource materials, teacher training manuals, mentoring tools and programme monitoring design. We would like to translate our existing curriculum and books in all major Indian languages, customise it to suit local needs, build partnerships across India with NGOs who run schools for the marginalised, and help them implement the 'Art in Education' programme.

Impact

Direct: (in short term and long term - how many):

The project will impact 1000 primary school teachers and 30000 children in the short term. The expected outcomes are: 1) Empowered teachers who are more child-friendly 2) Increase in attention levels of children inside classrooms 3) Inquiry based learning and learning with fun leading to happier classrooms

In the long term, the project will spread to impact 3000 primary school teachers and 90000 children. The expected long-term outcomes are: 1) Increase in attendance levels and decrease in drop-out rates in schools 2) Increase in confidence levels and class management skills of teachers across schools 3) Better reading, writing and listening skills for children in other academic subjects

Indirect: The project will indirectly impact the parents of children in the participating schools, the school managements and the wider community. The school management and parents will understand the benefits of arts-based education and support the project thus making it sustainable.

Potential to Scale

There is a clear visibility of a scale-up across the country thereby impacting thousands of schools and millions of children. We are also in talks to adapt this model in other countries in the sun-continent.




RIVER MGML Dissemination

Organisation: Rishi Valley Institute for Educational Resources, RVEC (Krishnamurti Foundation India)

Challenge

In most developing countries, there are a large number of mixed age/multi-level primary schools wherein there is no co-relation between student's age and competency levels. Restricted to age-specific textbooks, it is nearly impossible for teachers to address the literacy requirements of a roomful of students belonging to different levels of learning; hence eventually students become alienated and teachers demoralized. Ultimately millions of children suffer in these joyless schools leading to low levels of learning & high dropout rates.

Solution

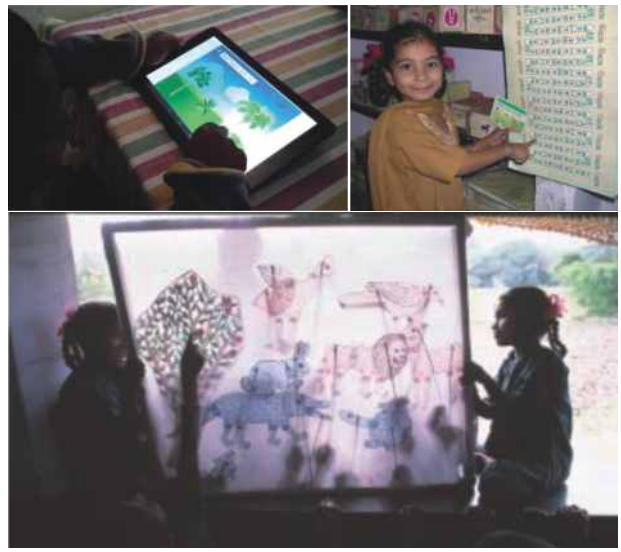
The RIVER model offers an Activity Based, Joyful Learning Approach that allows teachers to handle multigrade primary schools in a creative way. Government curricula are adapted for local context, and organised into smaller meaningful modules called 'RIVER LEARNING LADDERS' so learning is aligned with each student's ability. These ladders are linked with a series of graded fun activities such as language games, math's puzzles, science riddles, folk tales, theatre games etc., which enable students to learn from local examples, from things around them and from real life experiences. While students, working in groups and individually set their own pace for advancing through various levels of a subject learning ladder, the teacher facilitates the learning process. RIVER has a digital component also wherein the current material is made available through low cost tablet-based tools in an interactive format for students. The system has data storage and feedback tools, which will be used to continually monitor progress of students and test the efficacy of learning materials. In addition, the system includes collaboration tools that will enable teachers to communicate with each other, their coaches and the RIVER community.

Impact

RIVER model covers 'over 250,000 primary schools and more than 10 million children in over 13 states' (UNICEF Desk Report 2013). Evaluation of MGML's implementation in the state of Tamil Nadu revealed an increase of 25% to 29% in class II and IV students' proficiency with Mathematics, Tamil and English. A UNESCO – 2003 Report states "Offshoot programs of RIVER with the highest learning scores in language and math in the country"

Potential to Scale

RIVER had been awarded the first prize of the Global Development Network Award for the "Most Innovative Development Project 2004". This Award is given to the institution that holds the greatest degree of innovation and the potential for broad application of the project in other countries. According to 2006 UN ILO report, "No school improvement initiative has as successfully designed an operational model for scaling up its innovations, as RIVER".



The Classroom Library

Organisation: Akshara Foundation

Challenge

The ASER study reveals that Government schools in India are unable to provide quality education. The schools are poorly equipped and teachers wanting in skills that can transport children beyond the textbook and classroom strictures. Government-school children in rural schools are from deprived backgrounds, mostly first-generation learners, disadvantaged by the illiteracy of their parents and the dearth of stimulating educational resources at home and in school. Most government schools in Karnataka have dysfunctional libraries.

The Solution

The Classroom Library (TCL), an Akshara Foundation innovation, will go a long way in addressing the deficits in government schools and building the essential, cornerstone tool of reading in children.

TCL is a suite of innovations that include:

(a) Selecting age-appropriate, graded books in multiple Indian languages and English;

(b) Setting up infrastructure;

(c) Training teachers;

(d) Measuring the reading habits and outcomes of children using biannual assessments and the Reading Histogram; and

(e) Collaborating with government to work on change from within the system.

A TCL unit is a strategic asset in a classroom, supporting the curriculum, an aid and incentive to learning. The books range over many genres, drawn from a cross-section of reputed publishers. There are concepts in these books that the trained teacher-cum-librarians link to what is taught in the classroom. The books chosen also provide that rich, expansive, other dimension which government school children so sadly lack.

The grant from Millennium Alliance will help provide access to a TCL unit to around 35,000 children in grades 2- 7 in around 220 government primary schools in rural blocks of Kushtagi, Koppal district, in Karnataka.

Scale

The TCL has already brought the world of books to children, with a TCL unit in around 1800 individual classrooms in around 440 schools in Bangalore; Hoskote block, Bangalore Rural district and Mundargi block, Gadag district. So far,over 105,000 books have been distributed to these libraries.

Akshara believes that if children have to be liberated from a spiral of under-achievement and begin their learning ascent, a library is a necessary educational accessory in school. Through TCL, Akshara Foundation aims to ensure that every child in every government primary school in Kushtagi has access to library facilities to improve their learning skills, as they believe that books and reading impact children's learning outcomes in classrooms, by helping them become better readers. The library becomes a pillar that supports the curriculum in interesting and fun-filled ways, an aid and an incentive to learning.

Impact

TCL's were first set up in 87 schools in Bangalore in 2013-14. In these schools, 526 TCLs are set up with around 75,000 books. Over 550 teachers have been trained to become classroom libraries. During the current year, the effectiveness of the programme is being measured using Reading Histograms. Since the books are graded as levels, using the Histograms, we are able to track the book borrowing patterns of children which inturn helps us to ensure that children are reading well.

Based on the Histograms, we are able to infer that:

a. Out of around 12800 children in the 87 schools, around 12200 children have been borrowing books, which means that over 95% of the children are borrowing books.

b. We have seen an increasing trend in book borrowing rate every month. Through the year, on an average, the book borrowing rate increased from less than a book in August 2013 to around 1.5 books in September 2013, around 2.7 books in November 2013, 2.9 books in December 2013 and 3.2 books in January 2014.

c. It is also evident that the book borrowing rate has increased every month, across every class. On an average across 87 schools, in the month of January 2014, children between grades 4 and 7 have borrowed more than 4 books/month. Specifically, children of grade 5 and grade 7 have borrowed more than 4 books between November 2013 and January 2014.

Hamari Paathshala - Collective Action 4 Education

Organisation: Caritas India

As per Census 2011, India's literacy rate stands at 74.04 % and Bihar ranks last with the literacy rate of 54.1 % . Mushahars[1] community concentrated in many districts of Bihar have the lowest literacy rate among the SCs (6.88%), the lowest for women (1.43%), and the lowest attendance rate amongst SCs and non-SCs. Discrimination against Dalits in the educational system is a widespread problem in caste-affected countries, resulting in illiteracy and high drop-out rate among dalit children. While Right to Education Act in India provides free and compulsory education for all children, but falls short in addressing underlying causes such as gender disparities, geographic isolation, and disability, caste, and religion, ethnic and linguistic disadvantages. Reasons for the exclusion of Dalits from education includes their location, exposure to child labor, insufficient education facilities, poor teaching methods and discriminatory attitudes by teachers and children of other caste groups. Gender discrimination in addition to caste inequity multiplies disadvantages for dalit girls. Lack of female teachers, sanitation facilities at school, gender bias favoring boy child and the fear of sexual harassment hinders the girl child's access to education. Early marriage and child bearing, lack of education and essential life skills further add to her woes.

Solution

The proposed initiative "Hamari Pathshala – a Collective Action for Education" endeavors to promote education and learning opportunities for 3-19 years old girl children in the marginalized community of Mushahars in Bihar. This intervention forges a holistic approach to the education of dalit girl child -from early childhood education to elementary education, life skill development and vocational education. The intervention seeks to improve access to education and learning opportunity for girls' children and integrate them into mainstream education system; build conducive environment for education by sensitizing community and key stakeholders towards gender and caste equality and strengthen the implementation of education programmes and schemes especially for girl child education.

The girls in the age group of 3-6 years would be enrolled in the ICDS centers for early childhood education. Out-of-the school girls in the age group of 7-19 years would be grouped into clusters of informal school platform called Hamari Pathshala. These clusters would come together 5 days a week for 2 hours in their vicinity, to strengthen their literacy skills by trained facilitators. The clusters would be further constitute into a 'federation' and act as a pressure group to promote education and empowerment of girls in the community. This is an important strategy for providing ownership of the programme to community and also in the long-term sustainability of the change process. The progress of each child enrolled in the program would be tracked and attempt would be made to integrate them into the mainstream education system for continuing their education.

Impact

The project would be implemented in 12 villages[2] in Kochas block of Rohtas District. Selected villages have high concentration of Mushahar community. Musahar community lives in isolation from mainstream society and has poor access to livelihood, educational and employment opportunities. It is expected that proposed intervention will improved access to educational opportunities to girls from Mushahar community. The proportion of girls completing their elementary education and accessing higher education and vocational training opportunities will rise significantly. This would further contribute to empowerment and economic

[1]The Musahars are predominantly landless agricultural labourers. 'Musahar' means 'rat-eater', a label that stigmatizes this Scheduled Caste (SC); they are considered the 'dalits among dalits' even today.
[2]Selected villages for the intervention are - Harnathpur, Balathari, Dhanutta, Kapasiya, Sahawalia, Padumsidihira, Kuchila, Chittaw and Sadhaw.

independence of girls. The intervention in long run would also reduce the cases of early marriage in the community.

Scalability

Education of girls in marginalized communities has been a challenge in many underdeveloped regions. The inherent design of the intervention which is based on convergence of pre-school component with ongoing ICDS programme of the government and linking the participants of Hamari Pathshala in mainstream education system and making the National Open School system and vocational training linkages available for those who cannot enter the formal stream, offers the scope of scaling up the model. The intervention is designed to involve all the probable stakeholders and existing government structures to promote the education for dalit girls in the intervention area including strengthening the Village Education Committee, School Management Committees and Parents teachers associations to ensure quality of education and effective implementation of education services. We envision that our intervention would create a conducive environment where all the girls would be able to assess their right to education and an alternative platform like Hamari Pathshala would not be required.

Angel Xpress Foundation - Free learning centers that connect educated adults with slum children

Organisation: Angel Xpress Foundation

The Challenge

- Coexistence (slums, affluent communities and public areas are present across Mumbai)
- Over 50% of the 2 cr people in Mumbai lives in slums
- 4.5 lacs underprivileged children attend free municipal schools
- 90% of children in municipal system study in vernacular schools, with almost 0 exposure to English which is a life skill in a metro, less than 50% can do basic Math
- < 10% of children enrolled students clear class 10 board exams

Effect

- Decline in vernacular school enrolments
- Poor parents sending children to private schools
- For the rest - An unbroken circle of illiteracy.

The solution – Social change through large scale intervention

- Use effectively a scenario where slums coexist in close proximity to high-rises across Mumbai and large groups of the educated affluent exhibit an inclination to giving back and making a direct contribution
- Empower and evolve underprivileged children to reach their potential by connecting them their educated neighbours through free classes operated in easily accessible public spaces like parks and promenades.
- Appoint efficient and capable English teachers to support the vernacular public school system – effectively close the gap that makes poor parents send their children to private English medium schools they can ill afford while the facilities provided in the public school system go waste

Impact

- For Children - Exposure to build aspirations and realize potential, A happier childhood and raised self-esteem, Children find real people as mentors and role models for life
- For Empathetic Adults - Opportunities for direct contribution to their community and a feeling of satisfaction for having made a real difference.
- For the public school system - Better enrolments/takers for the service
- For parents - An opportunity to use the benefits of the public school system without fear that their child will not have the essential exposure to English which makes him more employable/better suited for higher education in metros

Scalability

Over 2 cr people living in Mumbai, large number are children who are first generation learners. Over 60% of Mumbai's affluent women are stay at home mums, there are a large number of retired and student communities who have time at hand. There is desire to give back displayed by the middle classes and there are plentiful gardens/community halls available across Mumbai.

There are over 4.5 lakh children studying in the municipal school system in Mumbai, there are over 1000 vernacular medium schools. Currently we are reaching out to a mere 8 schools through our teachers.

There is good potential for scalability for both projects.

Communityled solutions for girls education

Organisation: Educate Girls

Challenge

Over 3 million girls across India are out of school, the 3rd highest number in the world. More than 60% of out of school children in India are girls. In 2012, India was ranked as the worst of the G20 countries to be a woman in, and 4th worst in the world. This ranking reflects rigid social systems, limiting attitudes towards gender roles, neglect and lack of support by parents and community. Educate Girls (EG) has focused on Rajasthan because 9 of the 26 critical gender gap districts of India with the worst gender indicators are located in Rajasthan. The female literacy rate is 44% compared to 76% for males. In rural areas, only 40% of girls' complete class 5 and only 1% reaches class 12. Rajasthan also has the highest number of child marriage. 68% of girls are married before the legal age of 18 and 15% are forced into marriage before the age of 10.

Impact

EG's innovative "comprehensive model" for school reform and cluster approach creates depth of the program and allows EG to leverage its impact to enable grassroots change. By leveraging the government's existing investment in schools, EG delivers measurable results to a large number of beneficiaries at an extremely low cost and avoids duplication or parallel delivery of services. From a 50 schools pilot in 2007, EG has metamorphosed into a 7,500 schools program. Since inception, EG has enrolled over 80,000 girls and over 970,000 children have benefitted from improved education infrastructure.

The Solution

EG is focused on improving the Enrollment – Retention – Learning cycle of every girl child in the gender gap districts in which it operates. EG effectively involves and empowers various stakeholders to create a system that truly promotes and supports girls' education. The model includes the following strategies:

- *Increasing Girls Enrolment by conducting door-to-door & child tracking survey to identify all out-of-school girls.*
- *Reforming School Administration to execute school improvement plans.*
- *Improving Learning Outcomes by imparting Child-centric learning and teaching techniques.*
- *Creating Girl Leaders in schools and training them in life skills.*
- *Facilitating community ownership through Team Balikas who work as champions for girl child education.*

Potential to Scale

By 2018, EG aims to scale operations to 15 critical gender gap districts across India. Our goal is to improve access and quality of education for around 4 Million Children living in underserved communities in India by 2018.

Healthcare

Nurse centres electronically linked with city doctors to provide gynaecological and reproductive health services in rural Kenya

Organisation: World Health Partners (WHP)

Challenge

Rural areas, where 75% of the population resides, have very poor availability of doctors. With the availability of electronic opportunities, health conditions that can be treated with medicines are being dealt with through remote consultations from city doctors, but conditions that need skills and medicines (such as gynaecological examinations) need appropriate, often gender-sensitive arrangements close to the communities.

Solution

Using trained nurses at the village-end and enhancing their competency and utility by connecting them with city doctors through a highly stabilised technology platform will bring many currently unavailable services close to the doorstep of these communities. The electronic system, stabilised over 200,000 consultations and already being used in interior Kenya, works wherever a 2G cellphone does. Each case generates an electronic medical record, stored on the cloud for easy retrieval and to facilitate a continuum.

There are an estimated 20,000 un- or underemployed registered nurses in Kenya. Many are willing to work in rural areas. The electronic system enables the doctor to get a range of parameters and diagnostics. WHP seeks to set up 10 nurse centres, each close to a cluster of villages which will primarily focus on gynaecological, obstetric, reproductive and paediatric health. The network of rural entrepreneurs and Community Health Workers will be trained to counsel and refer cases to the Nurse Centres to earn an incentive. The Health Ministries of Homa Bay County and the adjacent Kisumu County in Western Kenya have officially supported this initiative. All services will be for a fee which will enable the centres to break even when the client load per day touches 15, expected in year 3. Services are provided for a nominal fee. With a client load averaging 15/day, the project will break even in Year 3.

Impact

WHP's electronic system has been stabilised over 200,000 consultations. The frontend providers treated 4.5 million cases of diarrhoea, 3.04 million pneumonia and 38,755 of tuberculosis last year. The programs also delivered, in collaboration with the public sector, family planning services, primarily long-term and permanent methods, amounting to 3,436,627 couple years of protection in 2014. Over 70% of pregnant women three ante-natal visits in the project area in UP versus less than one earlier. With the addition of nurses to the Kenyan operation, our ability to handle cases requiring haptic care increases manifold, ensuring project breakeven by Year 3, as planned.

Potential to Scale

Scalability is in-built into this model. The human and technological resources are already available. Only the capital and the initial start-up funds are needed. Each centre, handled as a profit centre, will break even by Year 3. If the centres make profits, venture capital or impact investment will be explored.

Empowering Women through Menstrual Hygiene Solutions

Organisation: Aakar Innovations

Challenge

Drop-out rates for female students across developing countries is a significant problem and often caused due to lack of access to adequate female hygiene products. Kenyan school girls miss 6 Learning weeks per year due to this issue. In rural India, 1 in 4 adolescent girls drops out after they attain puberty and those who stay in school miss about 5 days each month. Absenteeism lowers girls' academic performance, effects their self-esteem, and widens gender disparities in educational achievements. When girls drop out, they are also at greater risk for child marriage. Studies have shown that the use of sanitary napkins can decrease dropout rates by 90%. Moreover, lack of sanitary pads – and resorting to unhygienic solutions, such as leaves, cow dung, old cloth, sponges, soil, or feathers – leads to health issues, including urinary tract infections, reproductive tract infections and other long term reproductive health problems, including fatal toxic shock syndrome and infertility.

Solution

Aakar Innovation work to establish reach of affordable sanitary napkin in different part of India.We establish sanitary napkin manufacturing unit in the community which is run by the local women. They produce high quality affordable sanitary napkins. Two types of sanitary napkin are produced 100% Compostable Sanitary Napkins and Normal Sanitary Napkins.

The women take the ownership to run the unit. They design the strategy for production, sales and marketing. This unit makes the women socially and economically empowered at community level, they openly discuss about menstrual hygiene management at community level.

Impact

Providing employment opportunity of 400+ women through 25 Sanitary napkins manufacturing units in 14 states & in Uganda. The women have earned 15 Million INR. 150000+ consumers reached in rural and slum surrounding communities of the units.

Basic understanding of Menstruation Hygiene Management are being developed among the school going girls and community women as well as boys & men.

Potential to Scale

Aakar implements a "hub and spoke" model for developing its sanitary napkin business. Aakar Innovations set-up mini-factory in villages, blocks, urban slums which provide employment opportunity to 15-20 women per unit & another 20-30 women in sales. The unit can easily establish and operate anywhere with a capacity to produce 1500~2500 Sanitary Napkins per day. Aakar receives 150+ queries every month to set-up production unit from across India, Africa. We have setup a unit in Kenya, Unganda. We are also setting up our 1st pilot unit in USA in March 2016.

Mobile Partograph mLabour

Organisation: Dimagi

Challenge

Although the majority of maternal deaths are preventable, each year an estimated 287,000 mothers die during pregnancy, delivery, and the postpartum period (Hogan et al., 2010) with almost all of these deaths (99%) occurring in developing countries (WHO 2012). Despite renewed efforts to improve health outcomes, in 2012, India's maternal mortality rate (MMR) remained high at 178 maternal deaths per 100,000 live births. India's National Rural Health Mission has identified prolonged and obstructed labour as two primary causes for maternal mortality as, and both are key focus areas under the RMNCH+A initiative. While obstructed and prolonged labour are estimated to account for 5% of all maternal deaths in India, this is significantly underestimated since most obstructed labour-related deaths are documented as sepsis, a ruptured uterus, or haemorrhage, rather than the underlying cause.

Solution

Working in collaboration with local and international design consultants and content experts, this past year Dimagi developed a prototype of the mLabour application in India through funding from Grand Challenges Canada Rising Stars. mLabour is a simple mobile application that provides real-time graphing and decision support to healthcare providers in order to assess the course of labour and carry out appropriate interventions if and when necessary. The mLabour prototype has built-in WHO protocols and incorporates Indian specific workflows observed during the formative research. To address the challenges and complexity in the healthcare system that have resulted in the low usage of the partograph to date, Dimagi has built a mobile phone and tablet-based partograph tool called mLabour.

Impact

Individuals who will directly benefit from the innovation include:

- Expectant mothers: The use of mLabour by healthcare providers will help in preventing maternal mortality from obstructed and prolonged labour and serious complications, including ruptured uterus and obstetric fistula.

- Infants: Correct use of the partograph can help prevent stillbirth, identify dangerous foetal heart sounds, and other complications that arise from obstructed and prolonged labour.

Individuals who will indirectly benefit from the innovation include:

Intrapartum Care Providers (nurses and OBGYNs): mLabour will allow real-time decision support to nurses in order to assess the course of labour and carryout appropriate interventions if and when necessary, and will integrate doctor's support through SMS alerts.

Potential to Scale

After developing and finalizing a standardized mobile partograph and incorporating feedback from various levels in the Indian healthcare system, Dimagi will work in partnership with hospitals, NGOs, and the government to deploy the tool across labour wards in India.

Device for Lab Diagnostics at the Doorsteps

Organisation: XXX

Challenge

Access to lab diagnostics in rural and remote areas is a huge challenge. Almost all of the 100,000 diagnostic labs in India are urban. Patients have to travel tens of kilometers for diagnostics. Sample pick-up costs are high. Availability of qualified Pathologists and Lab-Technicians is an issue. Stringent storage conditions for liquid reagents is an issue for most clinical tests: Lipid, kidney, Liver profiles, Electrolytes, Hematology. Present diagnostic solutions do not offer a wide range of tests, and are very expensive. The challenge is to make available a complete point-of-care diagnostic lab, which will cover almost all the tests required in the primary care scenario, requiring low skill-set, no special storage, and affordable.

Solution

Device for Lab Diagnostics at the Doorsteps (DLDD) will cater to about 80-85% of the primary care diagnostic requirements, with physiology sensors. It combines "Motorized Microscopy" for Whole Slide Image (WSI) scanning, "Multi-Wavelength Dry Chemistry Colorimetry" and "Optical Reader" for POC rapid tests into a single platform. These Components have been indigenously developed with support from Grand Challenges Canada (GCC). This proposal is to further develop the Platform for market readiness. The Project brings together Partners and Consultants with specific expertise –M/s Bhat Biotech (BBI) for dry chemistry, optics & microscopy expert from National Centre for Biological Sciences (NCBS), SJRI for Clinical Validations and Product Design & Certification expertise.

Impact

It has potential to create huge disruption in the diagnostics industry, democratizing access. Patients will get direct affordable diagnostic services in rural areas. This Platform shall be placed on general physicians' desktop, telemedicine, as well as health workers for carrying to the patients' homes. Immediate access, early disease detection, significantly reduced transportation time & costs for patients would be the outcomes. An estimated 1 Million patients will benefit directly from this in the 3rd year alone.

Potential to Scale

This platform has a potential to scale Globally. Developing countries would find use for this device due to access, skill-set and affordability issues. Developed countries would find several use-cases in Geriatric, Home care and tele-care requirements. DLDD is planned to be deployed at thousands of ReMeDi® enabled village e-health centres already in operation. Further, in India alone, there are close to 12 Lakh (1,200,000) General Practitioners. A good interest is expected in the semi-urban / towns for this platform. Neurosynaptic, along with its partners will also make this platform available to 35 countries through its existing distribution channels.

Test: Creatinine micro -albumin | Optical Reader with GUI | Slide Scanner with Image | Liquid Colorimetry result

An automated and affordable Point of sample collection screening tool for Cervical Cancer

Organisation: Aindra Systems Pvt. Ltd

Challenge

Cervical Cancer is the largest killer cancer for women in India, making India the Cervical Cancer capital of the world. A 2012 report by GLOBOCAN, International Agency for Research on Cancer, indicates that India has more than a quarter of the global incidences (~125,000) as well as mortalities (~68,000). This number indicates that one woman dies every 7.5 minutes in India due to a disease that is completely curable, if only detected early. But early detection can happen only through a Screening program, something that has currently failed in India as

reflected by the above statistics. Screening has been shown to be effective as proven by developed western countries.

Solution

We are developing an affordable and portable, 'point-of-care' Cervical Cancer Screening tool to automate the analysis of the Pap smear slides. The slides are stained, scanned, digitized and then analyzed using computer algorithms to triage them into normal, suspect and abnormal samples, all at the 'point-of-care'. The images are then sent over a Telepathology medium to pathologists for further confirmations and recommendations.

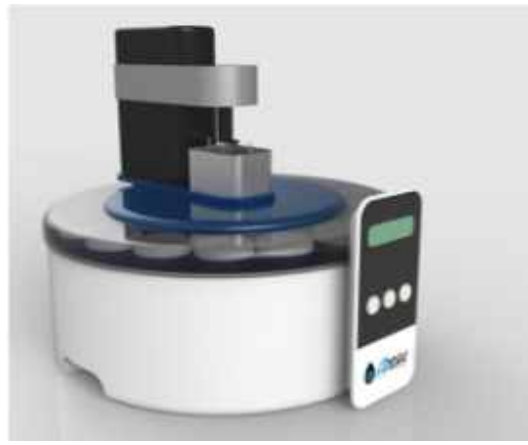
Added to this, our solution utilizes the gold standard of cervical cancer screening, i.e, Pap Smear and uses Artificial Intelligence to be able to provide a high quality screening outcome at an affordable price point.

Impact

With about 350 million women in India who are at risk of Cervical Cancer, the impact of our solution is in helping augment the existing capacity in a country and help screen for such large numbers of women, giving an indication of the impact of our solution.

Potential to Scale

With a large population that has to be screened in India alone, we have a large potential to scale. In addition to this, the other geographical locations like Nepal, Bangladesh, Africa, etc ... that share the same kind of demographic challenges as India, demonstrates that the CaCx Detect© solution has a huge potential to scale.



Auto Stainer

Image Acquisition Device

Computing Unit

"Saans" - A device to keep, lungs of neonates with RDS open while transferring them from a low resource setting to an NICU

Organisation: Coeo Labs Pvt. Ltd.

Challenge

The transition from intrauterine life requires major changes to the respiratory and circulatory systems of the neonate to maintain adequate respiratory gas exchange without the benefits of the placental circulation. In most instances, this complex series of events goes quite smoothly. However, some babies develop respiratory distress, necessitating evaluation and possible neonatal intensive care. As per WHO, the incidence of respiratory distress in the newborn period ranges from 2.9% to 7.6%, also 4.3% of all newborns may require supplemental oxygen therapy. A recent study suggests that around 15 million babies are born premature every year, and around 1.14 million of these die because of Respiratory distress.

In India alone we lose around 162000 babies annually of which around 32 per cent die while they are being transported to a tertiary care hospital from the rural PHCs.

Solution

Saans is a low cost and easy to use CPAP (Continuous Positive Airway Pressure) device, used to maintain a pre-set constant pressure, constant air flow in the lungs of neonates and infants (to prevent collapse of the alveoli) while they are being transferred to a higher centre for advanced care. The product being of an entirely mechanical assembly operates without any power and could be used by a minimally trained person (ASHA workers/ ANMs/parents/relatives) without any external supervision from a trained medical professional unlike the other CPAP's available in the market.

Impact

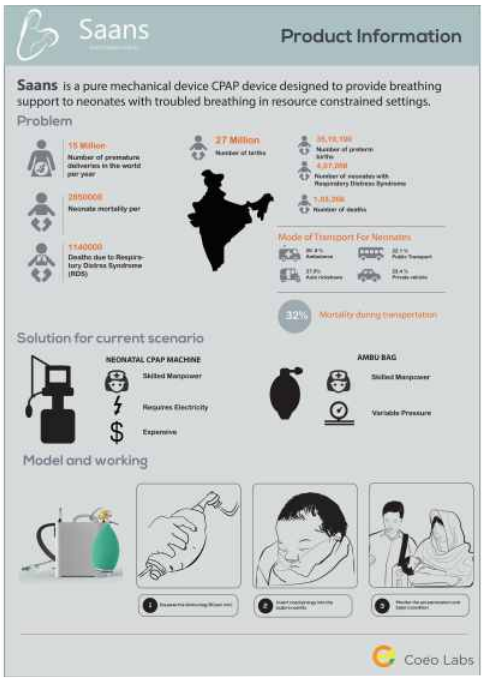
Saans device will be deployed in all PHCs, CHCs, and private nursing homes in rural areas, to be used during transportation of neonates with troubled breathing. Use of the device will drastically reduce the mortality rates associated with RDS. The functional prototype of the device has been validated with 36 Clinicians (11 general physicians, 6 paediatricians, 5 neonatologists, 2 gynaecologists, 2 medical officers, 2 medical college professors, 7 staff nurses, 2 ASHA workers)

Many organisations working in the social sector like WISH foundation, Acumen fund have shown early stage interest in adopting this technology and piloting the project.

Project Saans has also won many awards and competitions including FICCI Healthcare excellence award, TATA social entrepreneurship challenge, IIM A Masterplan business plan contest, Empresario, Global Business Model Competition IIT kharagpur.

Potential to Scale

The project will be piloted in the state of Karnataka and after proving efficacy, it will be scaled to 5 states and later pan India within a plan of 2 years. We will start operation in Africa simultaneously in collaboration with Mbrara University (MUST), where we have already established connections, to get access to African markets.



Affordable Smartphone Integrated Non Invasive Fetal electrogardiogram Monitor

Organisation: XX

Challenge

Around 300,000 annual perinatal deaths, related to fetal asphyxia, fetal acidosis, meconium aspiration and other underlying causes of fetal distress are reported in India every year. With proper monitoring and timely care, these deaths are avoidable. The current standard of care for fetal monitoring in India is the Non-Stress Test and Cardiotocography. This device is bulky, and requires an uninterrupted power supply. It is unreliable and prone to false positives. A skilled Obstetrician is needed to operate, interpret and make decisions. The device is also expensive. It has severe usability issues and requires a lot of maintenance. It is unviable for India's healthcare setting where 70% deliveries are non-institutional and are conducted by midwives and ANMs. This rural market remains under serviced.

Solution

Sattva Fetal Lite - a affordable, smartphone integrated, non-invasive, fetal ECG monitor - which detects Fetal ECG, Maternal ECG and Uterine contractions. The device is a wearable which connects to a tablet/smartphone application which has advanced machine learning algorithms to co-relate changes in FHR with Uterine contractions and give indications of distress. The system is a plug and play system and does not require a skilled operator. An ANM can place the belt on the abdomen and turn on the smartphone application. No-repositioning of the belt is required with fetal movement. The device is light-weight, portable, has a 24hour battery power and is USB re-chargeable. The product design accounts for the extreme movement of the mother during labor and the device is designed to be sturdy to survive rough usage and sub-optimal operating conditions in rural India. Remote monitoring can be enabled with an added module which allows tracking of various mothers under an ANM and guidance to the ANM from a Gynaecologist.

Impact

We have completed an observational study in St.John's Medical College, Bangalore under IERB. The Sattva Fetal Lite has been tested on 40 patients and we have identified 2 definite fetal distress cases. Sattva MedTech has won several awards and accolades - Top 10 innovator in the DST-Lockheed Martin India Innovation Growth Programme, YourStory Tech 30 startup 2015 and among the 40 startups which presented at the Indo-US startup Konnect during PM Narendra Modi's Silicon Valley visit in 2015. Sattva MedTech has also raised seed funding from InnAccel, Bangalore and a grant from the BITS 75 charitable trust. We aim to launch a CE certified Sattva Fetal Lite in early 2017.

Potential to Scale

India will have 60,000 institutions by 2018, which will conduct high-risk deliveries. Each of these institutions will require between 1-10 devices. Beyond these, each ANM and mid-wife can potentially be equipped with a Sattva Fetal Lite device and we plan to develop innovative business models like pay-per use to make our device accessible for these health care providers. For high risk mothers home monitoring is a opportunity. This represents a requirement of 1,80,000 to 1,90,000 devices in 2018. This will grow to a requirement of 2,50,000 devices per annum by 2023! Post 2020, we will target other developing markets like South-East Asia, Bangaldesh, Nepal and some African countries through liscencing deals and distribution partnerships. The total global requirement by 2023 is estimated to be for 8,00,000 devices.

A cost efficient and portable point of care complete blood count (CBC) device from capillary or venous blood based on patented Lab on a Chip platform technologies

Organisation: Micro X Labs

Complete Blood Count (CBC) tests are critical in monitoring maternal, antenatal and neonatal health and often the primary diagnostic indicator of multiple life threatening disease states in both mother and the newborn such as anaemia, thrombocytopenia, hepatitis, thalassemia, sepsis/ pneumonia etc.

Opportunity

For most of the diagnostics tests (Hemoglobin,TLC,DLC etc) ASHAs have to assist expecting mothers to nearest PHCs or CHCs thereby travelling tens of Kms to reach nearest PHCs/CHCs just for a HB test and there they have to wait for hours. Similar is situation for many others living in resource limited setting. Besides the health delivery e.g. PHCs use traditional methods microscope to perform the test. Consequently, add on costs of tests accompanied by unavailability of trained practioners deprives quality health care services.

We, at MicroX Labs believe that such primary blood tests should be performed at point of care and diagnosis results should be sent to nearest PHCs/CHCs with ICT applications.

MicroX Labs is developing a cost-efficient fully automatic and portable medical device for 14 parameters Complete Blood Cell Count Test, which can work in the remotest village of India. It can be operated by minimal trained worker. Accurate diagnostics have the potential to affect health care decisions to a degree well out of proportion to their cost. It has been estimated that diagnostics account for only 2% of the cost of health care, but affect 60-70% of treatment decisions. 7&8

Technological innovation and Product stage

MicroX Labs is currently completing early stage prototyping of a cost efficient, battery powered, portable, ICT enabled and regulatory grade 14 parameter (with 3 part white blood cells diff.) CBC device for point of care use by non laboratory trained personnel based on lab on a Chip (LoC) Microfluidic Impedance Cytometry (MIC) techniques, at a target cost of < Rs 25/test.

The device consists of single use disposable polymer microfluidic cartridges with pre-loaded reagents to which capillary blood sample is injected; and a portable bioelectronics reader with test results display storage & print capability and enabled ICT peripherals. The disposable microfluidic cartridge design for the multiplexed sample preparation (dilution, lysis, quenching, fluid metering, focusing etc) with pre-loaded reagents is based on patent pending [1,2] rapid mixing in soft micro channels technology developed by its scientific advisers at Indian Institute of Science, Bangalore. The subsequent counting and enumeration of constituent blood cell types is based on patent pending [3-5] Microfluidic Impedance Cytometry techniques developed at the Centre for Hybrid Biodevices, University of Southampton, UK.

Blood cells have been traditionally identified, counted and enumerated by laboratory based hematology analyzers using optical (light scatter) or electrical (Coulter) methods, or a combination of both. Electrical detection methods readily lend themselves to cost efficient miniaturisation. Microfluidic impedance cytometry is an evolution of the micro-Coulter counter where bioMEMS fabricated micro-electrode arrays are integrated into the walls of the micro-channel and cell impedance properties are measured over a range of frequencies, with demonstrated concordance with lab scale haematology analyzers. [3] The platform technique has already been extended to incorporate fluorescent and large angle side scatter detection techniques for CD4+ T cells [6] and can be extended to lab on chip detection schemes for malaria, dengue etc.

MicroX Labs is incubated and seed funded by the IISc Bangalore; raised grants from Govt. of India and the Millennium Alliance awards 2014. MicroX is also the winner's of the TATA Social Enterprise Challenge 2013-14,

Jagriti-Google India for Entrepreneurs 2014 and the IndiAfrica 2014 Business Venture event, Ministry of External Affairs, India and held at Accra, Ghana.

Referances

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2. Integrated systems for rapid point of care (PoC) blood cell analysis, Cees van Berkel, James D. Gwyer, Steve Deane, Nicolas Green, Judith Holloway, Veronica Hollis and Hywel Morgan "Lab on a Chip" 2011, p1249.
3. Patent Pending: CT/GB2014/000147, Filed 15th April 2014.
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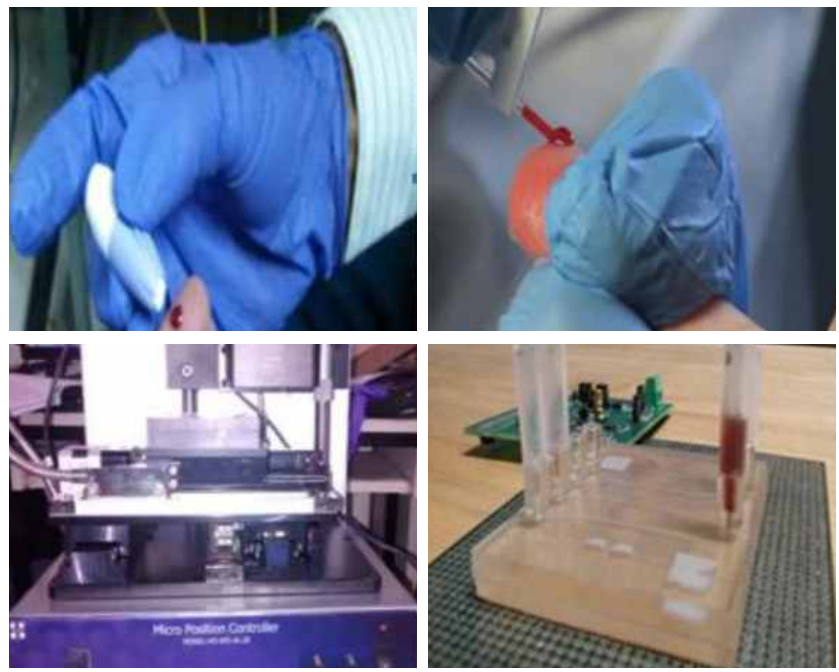
5. A sheath-less combined optical and impedence micro-cytomer, D. Spencer, G. Elliot and H. Morgan, "Lab on a Chip" 2014, p3064.
6. A multifold reduction in the transition Reynolds number, and ultra-fast mixing, in a micro-channel due to a dynamical instability induced by a soft wall, MKS Verma and V Kumaran, "Journal of Fluid Mechanics"



(dockvise) (1) Finger prick (2) Collect in a reservoir (3) Mountres ervoir (4) Mount tje reservoir Note that the above images are from early prototype

Adapting and piloting MIRA (Women Mobile Lifeline Channel) project from India to Uganda and Afghanistan

Organisation: ZMQ Development

Challenge

India has a high maternal mortality rate of 190/100,000 live births and infant mortality rate of 44/1,000 live births. 51.1% of women opt for traditional method of home-based delivery and only 48.8% of births are assisted by skilled health workers in India, which puts both mother and child health in high risk. MIRA is an integrated mobile phone channel which provides total communication, information, management and service delivery for Maternal and Child health in the rural India. The project won the Millennium Alliance award in 2013.

Impact

MIRA is operational in Haryana. In Mewat district (Haryana), MIRA is reaching to over 266,000 women, has been rolled out with SHG Federations and Haryana Livelihood Mission with 130,000 women. MIRA is also distributed through telcos, recharge kiosks, OEMs and CR stations. A set of dedicated 50 MIRA workers are working in over 80 villages covering almost 67,000 people. In the intervention area, there is an increase in ANC visits by 59%, institutional deliveries by 49% and immunization rates by 41%. MIRA PHC connect model is piloted in Haryana state and is being scaled to 180 ASHAs and 25 ANMs reaching to 63,000 women. Prompt action has been taken by ANMs in 84% of the High Risk Pregnancy (HRPs) queries raised by ASHAs. Live data produced by the platform enables the state to take timely action.

Solution

MIRA is an integrated mobile phone channel which provides health communication and information tools to rural women through mobile phones in low-resource settings. It has multiple components on issues related to Pre-natal care, Child immunization, Newborn care, Family planning and Adolescent health using RMNCH+A approach. Information is delivered through interactive tools by creating awareness on critical health issues, building knowledge & timely connecting with the public

health services. MIRA uses iconic language with audio support making it interactive 'Talking toolkit' designed for millions of semiliterate women. In addition, it also has numerous VAS tools like stimulating social mobile games and decision-making stories to motivate communities adopt new behaviors.

1) MIRA Individual App is available on mobile phones of individual women for self management of health. It has multiple registration facility on a single handset which allows group of women sharing a common phone in the communities.

2) MIRA Worker Toolkit is used by set of health workers who go from house-to-house to do household registrations, register pregnant women and under 5-year children for RI. MIRA workers deliver weekly iconic information to these communities using mobile.

3) MIRA-PHC Connect is a communication and service delivery platform in sync with public health system which connects ASHAs and ANMs and enable them take timely action on high risk pregnancies. The platform generates Live-Data for the state to take decisions.

Scaling / Global Transfer

MIRA aims to reach to over two million people in next one year. Success of MIRA program in Haryana triggers its adoption in other states in India. MIRA is expanding in Africa, Asia & is currently exploring partnerships.

Building an Evidence based Scalable & Sustainable eye care model for Ethiopia

Organisation: Forus Healthcare

Challenge

App. 12 million classified blind people are in India (25% of 45 million worldwide) and over 80% is needless. Cataract, Diabetic Retina, glaucoma, cornea issues and Refraction problems constitute 90% of blindness. They do not show any early signs and is often too late for treatment. This combined with illiteracy, scalability, rural reach magnifies the problem multifold. Only 18000 ophthalmologists practice in India and a mere 800 ophthalmologists graduate every year. Ophthalmologist to patient ratio is approximately 1: 70000. It is much worse in rural India. Identification of problem is the biggest bottleneck even for bigger hospitals to direct appropriate treatment. Only around 7% of people at various stages of blindness are screened and treated as of today. Current system needs expensive diagnostic devices for screening (single device for every problem) coupled with the availability of high skilled ophthalmologist/technologist. Rural market remains grossly underserviced. Single device easily usable in remote environment operated by minimally technicians is not available.

Impact

Our areas of impact include globally reputed eye Institutions like Aravind Eye Care, L.V.Prasad Eye Institute, Sankara Nethralaya, International Agencies like Sight Savers, Orbis International, large private sector chains like, Dr. Agarwal Eye Hospital and several Individual Ophthalmologists, Diabetologists & Telemedicine Service providers. The product has also been deployed in remote locations in the Indian States of Orissa, Uttar Pradesh, Andhra Pradesh, Assam and connected to the main hospitals through telemedicine. We estimate to have touched over 800,000 lives till date. Forus Health has won several awards and accolades. Piramal Prize winner 2010 of technologies that democratize Healthcare, Top Innovation in DST-Lockheed

Martin India Innovation Growth Program 2011, Samsung Innovation Quotient Winner 2011, NASSCOM emerge "League of 10" for year 2011. OEM –Enterprise organization in Start-up category by India Semiconductor Association, MIT's Technology Review India's Grand Challenges (TRGC) awardee, CNBC-TV18 & Mercedez-Benz Young Turks Awards – Change Maker of the year, Frost & Sullivan Award 2012, 5th Annual India Leadership Awards 2014- India's Most Promising Company in Healthcare Innovations, Pride of India Award '2014 by IDG Ventures-Exceptional Business growth and Successful Fundraising.

The Solution

1) 3nethra - A Single, portable, Intelligent, non-invasive, non- mydriatic eye pre-screening device, detects 5 major ailments of eye automatically – cataract, glaucoma, diabetic retina, cornea problems and provides refractive error measurements. Indicative the device through Automatic Screening algorithms and provides "OK-See a Doctor" Report for the above problems. Telemedicine Connectivity is enabled through communication infrastructure including mobile and broadband for remote diagnosis. "Foruscare", our unique telemedicine solution using the cloud is already deployed in over 30 locations connects needy patients in the remote areas to the specialists in cities.

2) 3nethra is designed and developed by Forus Health Pvt. Ltd., a Bangalore based innovation led social enterprise. Forus as the name stands for means "For us" - me and my community. Forus Health vision is

"To address Health issues of emerging world through innovative products and solutions combined with innovation in deployment in an inclusive environment". Forus Health strongly believes that healthcare solutions for emerging countries have to be different both in terms of the development as well as deployment.

Potential to Scale/ Global

Transfer

Our Innovative solutions integrated with complete end to end deployment (that includes the community) will enable reach thereby democratizing healthcare. We strongly believe that by "Democratizing healthcare", we can play an active role in the addressing Global healthcare issues. 3nethra is already clinically validated and CE compliant. Today we have more than 450+ installations in India with 60+ installations outside India.

Water & Sanitation

Desolenator

Organisation: XX

Challenge

DESIGN

(a). Large number of water filtration systems either run on-grid or have filters, which require constant maintenance, thus, increasing costs and reducing adoption rate.

ENVIRONMENTAL

(a). Poor quality of water and improper filtration practices at household level

INFRASTRUCTURAL

(a). 30-40% of rural water systems are unsustainable due to continous wear and tear.

HEALTH

(a). High influx of water-borne disease due to consumption of dirty and unfiltered water.

DISTRIBUTION

(a). Lack of a well-knit distribution channel to reach the households/community

Solution

Water Independece for life by using the power of sun!

Desolenator is a patented device that uses sunlight to convert any source of brackish or impure water in to clean, drinkable water.

Desolenator will be distributed through a network of micro-entrepreneurs, set-up by eKutir to engage, market, and train the households. eKutir's micro-entrepreneruship model is a proven, awarded, and well-recognized model to yield personal customer touch points and drive economic sustainability in the process for BoP markets.

Impact

The outcome of wide spread availability of clean drinking water through this unique approach will create compounded social impact on the household level and at a broader systemic level.

The populations that will benefit from these pilot projects directly are:

(a). Women in Self Help Groups and members of their household. The impact is both in the reduction of time spent fetching water, the increased productivity as a result and the health implications of drinking from a reliable clean water source on a daily basis.

(b). Children under the age of five will have reduced risk of cognitive development disorders as a result of drinking poor quality water and suffering from diarrhea and water borne diseases.

(c). Micro entrepreneurs (female and male) between the ages of 18 – 35will benefit from education, training and engaging in income-generating activities by providing water to local communities.

The indirect impact of our proposed project affects:

(a). Partner organizations; such as MFIs, local government and commercial partners that benefit from increased productivity and incomes at a community / village level.

(b). The community at large will benefit from a healthier ecosystem and increased standard of living through access to clean water from a renewable energy source.

Potential to Scale

Globally, Desolenator units have already been ordered from 24 countries around the world; and have proved to be highly effective in energy deprived Indian states with proximity to the coast - once the units are rolled out globally it will be possible to analyse exactly if there is a technological limitation to expand beyond India.

Within India, eKutir Svadha has a current customer base of 15,000 households and counting, which will be scaled-up to 24,000 by April 2016 with plans to ramp-up to 300,000 households by 2019. This will be the customer base with safe sanitation systems installed through its ongoing partnerships with Unilever, Kimberly Clark, Toilet Board Coalition, Acumen Fund, Asian Development Bank, and World Toilet Organization.

Post this project, which will deploy 200 units, Desolenator will have a customer base of 300,000 households or 1.5 million people to impact their health and livelihoods through clean energy, clean water system. The idea is to showcase efficacy of the current partnership with eKutir Svadha and based upon evidence gathered of impact through the project, tap in to the Svadha's customer base of 1.5 million people in India, post 2019 onwards.

And in parallel, explore local distribution partners, global partnerships, and local governmental schemes to distribute Desolenator units across India.

Samagra

Organisation: Samagra Waste Management PVt Ltd

Challenge

India accounts for 600 million of the nearly 1.1 billion people worldwide who regularly defecate in the open due to lack of proper sanitation facilities. The problem is especially acute in India's dense urban environments, where women and children bear a disproportionate burden of the negative effects stemming from poor sanitation. Despite the great need that exists and the transformative effect that community toilet facilities can have on the poor, few organizations have been able to address this issue effectively. Most sanitation programs fail or have limited impact because they fail to realize that solving these issues is not just about technology or infrastructure, it is also about user engagement and behaviour change.

Solution

Samagra's holistic model incorporates the "change framework" into its DNA. Samagra is the first social enterprise in India that is dedicated to providing access to clean, safe, and reliable community toilets for the urban slum-dwelling poor. What makes the model innovative is the seamless bundling of other value-added services along with the toilet block: ? Access to digital goods (mobile Top Ups and TV subscription) ? Access to Financial services (including savings accounts, bill payments) Samagra effectively partners with municipal agencies and re-designs community toilet infrastructure to create a "one stop community center" for slum residents. The model has proven its ability to attract and retain users to the toilet facility, promote hygienic behavior and still achieve sustainability. By providing access to clean facilities that are available 24 hours a day, 7 days a week – that also doubles as a center of commerce and other activity – Samagra has proven it can reduce rates of open defecation and effect improved health and security for its members.

Impact

10,000+ daily users; 320 toiled seats under operation; 4500+ female users; 500+ first time toilet users; 50% increase in toilet usage; 600% increase in people paying for toilets; 92% customer satisfaction

Potential to Scale

Samagra attacks head-on the urgent sanitation crisis in India through a unique and highly effective solution that creates "win-win" alignment of incentives amongst all stakeholders involved. That is why Pune Municipal Corporation has already given permission to Samagra to manage 100 toilets this year and many others ULBs are interested in implementing Samagra's Model. As it expands, Samagra has the opportunity to put city of Pune on the map as a model city for India that has perfected the community toilet block for its citizens, and also to create a "demonstration effect" that inspires other large cities across India to adopt Samagra's Model.

Creating Green Jobs Turning Trash to Treasure for Farmers

Organisation: Waste Ventures India

Challenge

The current options for managing the countries waste are insufficient: only ~60% of waste is collected and just 10 – 20% of waste is recycled. The rest festers on streets and in dumpsites, releasing toxic emissions in the air. In megacities, bulk generators, such as apartment complexes, produce 40% of the waste, but lack a green, professional, and single-point option. Small cities, meanwhile, produce low waste volumes and lack the capacity to properly process it.

Solution

Waste Ventures India's 'Total Waste Solution' is a one-point waste collection and processing solution for all waste types across varied clients, thereby dramatically reducing waste that is dumped by up to 90%. This service is broken into two components:

1) Total Waste Management (TWM) for bulk waste generators (e.g. corporate campuses, manufacturing plants, waste pickers) in megacities

   We provide Hyderabad's first professional Total Waste Management solution. We scientifically compost the organic waste on-site, leveraging 3+ years of experience, and collect all recyclables including low/negative value recyclables. Compost generated is sold on Amazon, Flipkart and local retailers at a premium under brand name Sanjeevini Compost. Recyclables are sold in bulk to our network of green recyclers, which includes partnerships with large packaging and FMCG companies such as Tetra Pak and ITC's Wellbeing Out of Waste.

2) Trash2Treasure Parks (T2T Parks) for small municipalities

   Our Trash2Treasure Parks establishes processing facilities in partnership with municipalities in a city-cluster approach (1 processing facility for 2 – 4 cities). WVI's T2T Parks convert the received mixed and segregated waste into RDF, compost, and marketable recyclables. We have experience managing organic waste for two municipalities in Telangana and have a request from the state of Telangana to scale to 40 municipalities.

Impact

To date we have averted 1,500+ tons of waste from dumpsites, produced 120+ tons of organic compost, and generated income increases of up to 15% for 400+ waste pickers. In the next five years, we intend to scale to two new megacities, averting over 28,000 tons of waste from dumpsites, 43,000 tons of CO_2, and channelling >14 lakh to waste pickers.

Potential to Scale

The market for recyclables collection market alone in urban India is USD 1.1 billion and growing by >4% annually. Additionally, as seen in Bangalore and Pune, regulation is getting increasingly supportive.

Solar Powered Water Purification Centers for Urban and Rural Regions with Poor Grid Access and Water Quality

Organisation: Swajal Water Pvt Ltd

Challenge

Lack of clean drinking water has reached calamitous proportions in thousands of habitations across nations . Also, in poor water, the associated costs in the form of medical bills, loss of jobs (in case of prolonged illness) etc further promote poverty.

Solution

Swajal addresses the need to provide safe drinking water to communities that have poor water quality and no access to grid electricity by using solar power for energy efficient, automated and remotely controlled systems.

Impact

A typical swajal community system impacts by providing water to more than 2000 people, mitigates 5 tons of carbon, generates employment for 4-5 people and considerably reduces bottle/pouch pollution.

Our beneficiaries range varies from urban to rural, from aggregated slums in peri-urban cities to individual households in rural regions. Swajal machines have been installed in regions that have a fairly consistent grid electricity supply to regions that do not have electricity at all. Further Swajal civil structures use environment friendly local biodegradable materials and water harvesting is built into the designs.

Potential to Scale

Ministry of drinking water and Sanitation has declared 78000 villages to have unsafe drinking water. This does not take into account bacteria infested regions. The challenge lies in accessing these areas and designing appropriate systems.

Waste Picker Franchise Model

Organisation: Hasiru Dala Innovations Private Limited

Challenge

Social Need: There are over 30,000+ wastepickers in Bangalore city struggling to make ends meet in difficult conditions, with no social security benefits.

Problem of city: Breakdown of local municipal corporation processes and systems in dealing with over 4500 tons of waste per day in Bangalore city, has citizens crying for a reliable and predictable waste management service.

Solution

Marry the need and problem to start a social enterprise offering Total Waste Management Services to bulk generators who are the paying customers. The beneficiaries are the wastepickers who are the service providers through a franchisee model. The service includes the collection of segregated-at-source municipal solid waste and transportation to appropriate destinations for further processing into compost, bio-gas or recycled materials. Nearly 90% of total waste generated is diverted away from landfills. The service is offered through wastepicker/scrap dealer franchisees who employ at least 4 wastepickers to do the collection, transportation and sorting/grading of the waste.

Impact

The pilot program since 2014 started by the non-profit Hasiru Dala has generated employment for over 60 wastepickers and currently provides services to over 16000 households across 80+ apartment and villa complexes.

Potential to Scale

Hasiru Dala Innovations Private Limited was set up in Nov 2015 to scale the business, attract investment to the sector, and bring financial and operational rigour to the model. Bangalore has 4508 apartment complexes with unit prices over Rs.50 lakh comprising of nearly 3 lakh households. The projected 3 year impact of just operating in Bangalore is:

FIGURES REFLECTING GROWTH YEAR ON YEAR	YEAR 1	YEAR 2	YEAR 3	TOTAL
Cumulative number of franchises	16	35	64	64
Cumulative number of households served	24,862	61,262	110,962	110,962
Cumulative number waste pickers employed	80	175	320	320
Annual collective income for all waste pickers	$117,414	$363,908	$756,304	$1,237,625
Annual volume of waste collected (tons)	5133	15,565	31,630	52,329
% of waste diverted from the dump	89%	89%	89%	89%

The model can be replicated in other cities pan India as well as in other developing countries. The potential to scale is substantial.

The Women for WASH Initiative

Organisation: The Global Interfaith WASH Alliance

Challenge

Reports the World Bank, the equivalent of 6.4% of India's GDP is lost each year due to the premature deaths and lost wages associated with our nation's poor water, sanitation and hygiene (WASH) conditions. Yet, sanitation and hygiene, simply donating toilets and clean water systems to communities in need does not necessarily mean they will be used. Instead, far too often, such facilities fall into quick neglect, are shuttered completely or are used as storage facilities by communities that don't understand their importance. The challenge for delivering improved WASH is not just one that can be solved by simply gifting communities with toilets and water systems. Instead, communities must be motivated to fully accept the importance of WASH, and to embrace the use of toilets and improved WASH as must-haves for their every-day life.

Solution

The Women for WASH Initiative will be a first to address WASH by enabling women to scale new WASH innovations while also inspiring behaviour change within their communities. This unique model has been carefully developed after extensive consultations, including through GIWA's historic Women for WASH Summit, held at our Secretariat in collaboration with UNICEF.

Impact

The Women for WASH model will enable women to organize as cooperative WASH producers, suppliers and beneficiaries, so that they may earn sustainable livelihoods while propagating healthier, cleaner lives. As their incomes rise and community health improves, a new paradigm will be demonstrated for which:

- WASH technologies will be more-widely scaled
- Healthy WASH behaviours, such as using toilets, will be implemented into daily life
- Community health will improve
- And women will be enabled to graduate from poverty to prosperity

Potential to Scale

To progressively build scale in response to the Swachh Bharat Mission's historic call for toilets and other WASH provisions, the Women for WASH model will be packaged as a Social Franchise, which will include marketing assistance, materials and extensive training for women at the BoP. In addition, other agencies, communities and NGOs will be empowered to carry-forth their own Women for WASH programmes in other regions across India through training and technical support.

Water for All

Organisation: Watsan Envirotech Private Limited

Challenge

The non availability of affordable water solutions. The available alternatives in 2009 were:

1. Bubble top / canned. bottled water – whose source of water is not known
2. The dispensers – Mostly run by electricity and have replacements often.
3. The available microfiltration products have not reached the majority of the users- the rural Indian villages – 72 % of the Indian population

Solution

We started to do affordable and electricity free water filters, approved by the country's premier institutes CSIR, DST and CIPET; now since 2013 we have joined hands with Inno Nano Research private Limited, a company incubated in the Nano technology department of IIT Madras for making arsenic filters. So this was the idea in which we built brick by brick and have catered to almost 80,000 users till now across the country.

We are now working with IISC Bengaluru for 100% removal of bacterial contamination removal, and with another US based science lab for removal of fluoride in water, both without using electricity.

Impact

Considering a focussed marketing and scaling up to reach all villages of India in next 10 years, we would be giving water almost free of cost (amortization cost of filter `.900/10 years - life of candles for giving 164250 litres of water per family), intangible benefit would be reduction in payment to hospitals and doctors as the filtered water stops water borne diseases.

Potential to Scale

We We are making 1, 50,000 candles a year manually. With the grant fund we will automate the plant to make 10 times the volume. Once the automation is successful, we can replicate the candle making plant in any other part of the country/ world, wherever need arises!

Community Drinking Water Systems from India to Rwanda

Organisation: Waterlife India

Challenge

More than 60% of people in Rwanda do not have access to safe water and bottled water is out of reach for most poor people. Rwanda has one of the highest incidence of infant mortality and waterborne diseases globally.

Solution

Provide sustainable and affordable safe drinking water thru Community Water Systems. A family can get 20 litres of safe water at less than 20 cents.

Impact

Poor and marginalised people can get access to safe water- resulting in reduced diseases like diareah, typhoid, jaundice, reduced infant mortality, increased savings, girl child being able to go to school etc. A $1 investment in water results in $ 4-32 economic returns as per UN

Potential to Scale

Huge potential for scale and providing access to safe water to the BOP. The model has successfully scaled up in India and we expect same results in Rwanda and Africa.

Low income India states can scale it up like other successful states.

Jeevandhara Handpumps with filtration system for rural areas

Organisation: Transerve Technologies

Challenge

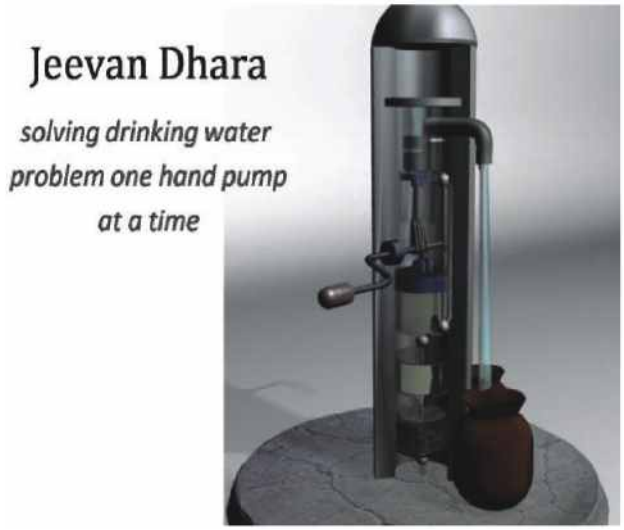
In India, around 883 million people live in rural areas and majority of habitations are affected by chemical and bacteriological contaminants. Around 56 % of our rural population depend on tube wells/bore wells for drinking water but unfortunately majority of these water sources are heavily contaminated.

Impact

Jeevan Dhara, a hand pump with RO filtration system aimed at catering the needs of rural India in providing clean drinking water to the masses. The Technology is a modified community water hand pump which filters water. Jeevan Dhara uses the combination of muscular power and solar energy to pump and filter water. The design of the hand pump is such that it provides RO grade drinking water for a whole community of 100 people thus eliminating the need for a point of use filtration system in rural, semi-urban and slum areas. We realize that there are three constrains which needs to be dealt simultaneously; high level of water contamination, lack of electricity supply and low affordability of the rural population. We need to tackle all these three constraints together, then only we can successfully reach masses."

Solution

The solution proposed is a low cost affordable, community based device which runs without the need of grid electricity and removes all water contamination. The technology is a patented uniquely developed community water hand pump called JEEVANDHARA, which simultaneously filters water as it is pumped out. Water quality is ensured by a monitoring system round the year.



- Requires No Electricity
- Removes all type of Chemical and Bacteriological Contamination
- Lower cost per household (20 families per unit)
- Can be fitted in existing bore wells and the present hand pump heads
- GSM based monitoring system to ensure optimum water quality

We believe that at Transerve Technologies Pvt. Ltd. they will able to create better social impact through technological innovations in Water Sector. The real innovation is in making simple yet efficient and sustainable solution such that it gets adopted on its own and reaches masses.

Installation of pressurized recharge wells for creating fresh water pockets in saline ground water areas to make water available for drinking and sanitation purposes in water scarce schools of Mewat Haryana

Organisation: S.M.Sehgal Foundation

Challenge

Semi-arid regions have limited surface water resources. The groundwater in these areas is saline with freshwater found in small pockets. Many people collect water from distant sources. Some depend on tanker supply from freshwater areas, which is expensive and time consuming. Erratic electricity supply, low maintenance and high set up costs make solutions like reverse osmosis unfit for poor villages.

Solution

S M Sehgal Foundation innovated pressurized recharge wells as a solution. The well has raised height above the ground and also extends below the groundwater table. It holds enough water that creates hydrostatic pressure pushing aside the existing saline groundwater. This forms a pocket of harvested rainwater within the saline aquifer. The pressure exerted by the saline groundwater keeps the freshwater pocket intact.

The harvested rainwater is then extracted from the freshwater pocket through a hand pump. Further, a bio-sand filter removes biological contaminants, making the water fit for drinking.

Impact

The solution improves health and hygiene of communities. It ensures water for drinking and sanitation, which leads to reduction in water borne diseases. Girls also get an opportunity to study when water is available.

Potential to Scale/Global Transfer

Sehgal Foundation has implemented this in a few schools of Mewat, Haryana. The structure serves about 500 children in one school. It can be replicated at household level across semi-arid and inland salinity affected areas in India. It can address drinking water problems and mitigate salinity in many Asian and African countries facing similar issues. These countries include Thailand, Fiji, Vietnam, Guam, Kiribati, Iran, Afghanistan, and Australia.

JALDOOT Safe drinking water delivery model

Organisation: Swayamsiddha Mahila Utkarsh Foundation




Challenge

- In India, 600 million people do not have access to improved and safe drinking water. Resulting in avoidable healthcare-related expenses, productivity-linked losses and even morbidity & mortality
- Local governments incur huge costs reaching far and deep to meet the water demand gap.
- Proximity to and Reliability of available water resources is also a big question mark in rural areas
- Sustainability and operating efficiency of existing solutions remains uncertain in most cases leading to a near-despair situation
- Private sector efforts more aligned to Profit maximization than service optimization hence often neglecting needs of low-income communities in rural and small towns AND Quality remains a?
- Focused Demand generation efforts and Use of Technology & Automation still at a Low Key in the current scenario

Opportunity to Address

JALDOOT Model has emerged as one of the preferred solutions to overcome the above mentioned challenges and serve the community at Bottom of Pyramid (BoP) by providing safe drinking water via:

- Expanding Access – `Jaldoot' being a mobile as well as stationary water filtration and distribution model, it provides a better solution by filtering water at one location and delivering it within 10 to 15Kms reach.
- Last Mile Reach – `Jaldoot' provides safe filtered drinking water at Door steps of the rural community, thus reduces the physical and mental stress of women and children of walking far away to fetch water from the source.
- Current Technology – `Jaldoot' uses indigenously-developed, robust Ultra Filtration (UF) & Reverse Osmosis (RO) based customized solutions to treat source water at different locations. Uniqueness of mobile filtration unit is that it does not require Electricity and works on vehicle engine's power itself. [Jaldoot works with NCL (National Chemical Laboratory) & US patented technology licensed under CSIR (Council of Scientific and Industrial Research)]
- Affordability - `Jaldoot' delivers filtered water at very affordable price of just Rs. 0.50 to 0.80 per liter as against the cost of Rs.15 to 20 per liter of bottled water.
- Operations Support - `Jaldoot' provides a continual O&M support to Entrepreneurs for up keeping the units and to establish it as a sustainable business model.

Jaldoot Impact

Jaldoot with 20+ units and 2 distribution centers has ensured direct coverage of more than 30 villages and serving more than 50,000 clients like rural households, small shop keepers, MSME within 15 to 20 Kms periphery since last 4 years, resulting into reduced expenses on health-care - related waterborne diseases, Improved productivity and enhanced savings via a uniquely designed mobile, women-entrepreneurs driven model

Towards Community as Customer

Jaldoot target customers segments that are rural users at BoP (Bottom of pyramid) and the LISDISC (Low Income and Socially disadvantaged Community), resulting in:

- The community now getting safe & clean drinking water at their door-steps, with especially women are saving at least 1 to 3 hours per day which was spent in fetching water wherein such time saved can be better utilized for other productive work and can generate additional source of income to family.
- Families are saving @ Rs. 1500 to 2000/ annum on medicinal expenses as a result of reduced expenses on health issues whereby also improving human productivity
- It is recognized as an Inclusive model for Lower Income Groups and LISDISC
- An innovative model where Users can get drinking water anytime (24x7), without any operator dependency

Towards Employment as Service Provider

`Jaldoot' as a Social Entrepreneurship model generates local opportunity of employment as Entrepreneurs, operators, drivers and support staff.

- Promotes rural women to become an Entrepreneur and generate local employment, can earn Rs.10000 to 15000/month as regular income.
- Promotes rural women to work as driver and operator, can earn Rs. 5000 to 6000 as regular income.
- Improves financial status of people at local level without rushing to urban and semi urban areas in search of job/livelihood
- Provides social recognition in community and encourages others for involvement.
- Provides additional source of income by adding other daily essential consumer products at affordable price.
- Also Reduces Health burden on Government bodies as well as improves social equity

Potential to Scale

Since low-access to safe drinking water is a wide-spread issue in India, `Jalddot' has a good potential for scaling up in Maharashtra as well as in other states in India.

- Jaldoot is currently planning to scale its project activities in rural Maharashtra in next three to four years with atleast 200 to 300 units operating in rural and small town areas.
- With 200 units in action it has potential to generate @2000 new rural & local employments in the form of Entrepreneurs, operators, drivers, support service providers etc.
- Have plan to expand its reach in other affected states like Bihar, Rajasthan, Orissa, Karnataka, Uttar Pradesh, Andhra Pradesh, Jammu & Kashmir etc.
- Is actively looking for partnerships and alliances with Government, Private, NGO, International agencies , Individuals for expanding social, health and economic impact of Jaldoot Project.




Low cost Odour Trap for Waterless Urinals

Organisation: Ekam Eco Solutions Pvt. Ltd.

Challenge

Around 1100 Million (= 18 % of world population) people in the world do not have access to safe drinking water

Polluted water is estimated to affect the health of 1.2 billion people worldwide and contributes to the death of 15 million children each year.

1.5 million annual U5 diarrhoeal deaths and of these 16% deaths are attributed to diarrhea. Of these 1.5 million, 80% were under 2 yrs age (WHO 2009). In India alone, total number of annual child deaths approach 400,000. 38 % of global child deaths due to diarroea take place in India. One of the major reasons for this situation is unsafe & unscientific sanitation practices. The issue is not only about child mortality but about rampant contamination of water bodies & ground water resulting in high concentration of disease causing pathogens in drinking water.

Impact

One water flushing urinal wastes around 50,000 to 1,50,000 ltrs of water each year for flushing which if avoided, can result in millions of ltrs of water saving and subsequently give access to safe drinking water to millions of people. Also the pure urine recovered, can be utilized for farming and N,P,K salts can be recovered using a separate reactor.

The Solution

Waterless Urinals do not require water for flushing and can be promoted at homes, institutions and public places to save water, energy and to harvest urine as a resource. Reduction in infrastructure required for water supply and waste water treatment is also a spinoff arising from installing waterless urinals. The concept, founded on the principles of ecological sanitation helps in preventing environmental damage caused by conventional flush sanitation systems.

The technology Zerodor – Waterless Urinal, does not uses any chemical or any consumable and is a onetime fitment which can be retrofitted in to the existing urinals and does not demand the change of Urinal Pans.

Normally, in a water flushing urinal, the water and urine are mixed together and is being drained through the drain pipe into the main sewer line and it ultimately lands up into the water bodies.

This is a very low cost technology with no recurring costs involved which aims to reach the Urban, Peri- Urban and Rural areas. This technology not only saves water but, opens possibility of harvesting urine and extracting the nutrient present in the urine.

Potential to Scale/ Global Transfer

Ekam Eco Solutions aims to install 100 K Waterless Urinals which can save upto 15 bn ltrs in a year.

Others

Financial Deepening and Economic Inclusion @ Tapping the Unbanked billions

Organisation: FIA Technology Services Private Ltd.

FIA is a services company founded by a team of students from MIT to provide inclusion services in underserved geo-settings.

Company Highlights

- Full spectrum of Services - Banking, Asset protection and diversification products
- Clients - 19Banks, 1 Life Insurance, 7 telcos and 9 utility providers in India
- Operating in 25 states servicing 20,000 villages and suburban pockets in India

Awards

- o Winner, India Development Marketplace, grant by World Bank 2014
- o DST-Lockheed Martin Gold Medal for Top 30 Innovations, India 2012
- o Runners-up, Emerging markets, MIT $100K Entrepreneurship contest, 2011.

Innovation

Our comprehensive mobility-based financial inclusion software has been deployed in leading banks in India. One component of the financial inclusion software, which has seen rapid adoption and growth,is the domestic remittance solution. It is designed to meet the remittance needs of migrant laborers in cities, who can send money instantly to accounts maintained in 68 banks anywhere in the country. We are currently offering this service in 150 cities, covering all states including the DMIC (Delhi-Mumbai Industrial Corridor) and other major industrial corridors.

Low cost technology to distribute financial services across the country

Organisation: Eko India Financial Services Private Limited

Problem

In India itself, more than 40% households do not avail banking services. The lack of availability is visible in a simple ratio that RBI tracks; In India, a single bank branch caters to a population of 12,500 as compared to 1000 in some European countries like Spain.

Despite the support from the regulators and permitting intermediaries, Business Correspondents, to provide financial services outside of a typical Bank branch, there has been limited success. Small islands of financial inclusion have emerged, not able to inter-operate.

One of the major limitation of this model is that it has not been able to include relevant last mile partners like MFIs (Micro-finance Institutions), NGOs, NBFCs (Non-Banking Financial Company), etc., particularly in rural areas, that already offer financial services to a significant mass of unbanked customers.

Solution

Eko intends to extend its technology platform "Connect" to MFIs and other financial intermediaries, through an on-the-cloud platform such that the capital expenditure for these organizations to plug into the platform is minimal.

The inter-operability in the network will ensure customers, agents and entities are able to benefit from the growing network with access to more customers, agents and as well as products and services without geographical and regional limitation.

Eko believes that this will strengthen the financial inclusion initiative and will allow the institutions to offer a more inclusive offering to the customers in both urban and rural geographies with agility.

Using "Connect", MFIs, NGOs and other financial intermediaries will be able to access the platform with the following features and advantages:

1. Minimal capital cost, pay on per-use basis.
2. Offer products offered by Eko partners on the network like – Savings/ RD/ FD accounts, remittances
3. with interoperability across all network agents and customers
4. Real-time transactions on the platform
5. Extra income on account of new products and a better offering for the customer

Impact

Customers in the BoP segment will be empowered through a direct as well as a mediated access to financial services.

Customers would be in control of their accounts and transactions using their mobile phones. This will enable them to save, spend and send electronically and securely.

Inducing savings behavior, especially while empowering the women in the family would have a strong positive effect by providing an additional source of funds for the families to bank upon in times of emergency and for special needs.

Potential to scale

The problem of lack of banking infrastructure persists in other parts of the world as well. These problems are more prevalent across Africa and South-East Asia. Eko's solution can be easily customized to the needs in Africa & South-East Asia

Impact till date

Number of local mom-and-pop shops working as banking agent	1,300
Number of feet-onstreet agents working as banking agent	1,500
Accounts opened	4.5 Lakhs
Value of transactions processed	4,000 Crore
Banking partners	SBI, ICICI Bank, Yes Bank & IndusInd Bank
Number of customers	40 Lakhs

Round 1 Awardees

Haldi Tech

Organisation: Science for Society

Challenge

Turmeric originates from South or Southeast Asia, from western India. India is a leading producer (90%) and exporter of turmeric in the world. The primary processing is carried out with traditional methods which implicates a number of hygienic problems which can pose tremendous risks for farmers, producers and consumers. Furthermore, turmeric quality may also be adversely affected. No alternate solutions are available in the market, only traditional method is practiced. Traditional method of turmeric processing is very laborious and requires 30 days at the cost of Rs. 30,000 for 10,000kg (produce of 1 acre). HaldiTech technology developed by Science for Society (S4S) requires 1 day for the same quantity at the cost of Rs. 15,000 with the minimum handling of labours. HaldiTech suggests organized and compressed supply chain, proposing value at each stage

Impact

HaldiTech targets Rs. 15 billion annual market of turmeric processing. With this technology we will provide one point turmeric processing service to farmers. Farmers can bring their raw material to processing unit in their region and process 10,000kg of raw turmeric to till its powder in only 1 day.

For this service they will charge Rs 15,000 which is 50% less compared to traditional method. Apart from this, HaldiTech retains 45% more curcumin (key ingredient that adds colour and medicinal value to turmeric) than traditional process. Currently technology is running successfully with 1000kg/day capacity.

Value proposition

For Farmers:

- One point processing unit
- 1 month time saving and 37% rise in profit
- Early arrival of product with better market price

For Processor:

- Better ROI than traditional process
- Minimal handling and labour
- A scalable business model, opportunity to be a trader

For Trader and Company:

- Hygienic and better quality product
- High curcumin content (50% more): A niche for market

For Consumers

- High curcumin: Better health
- Lower price

The Solution

HaldiTech is a unique system which requires very less electricity or can run on small generators where washing, cleaning, peeling, drying and pulverization took place in a single system and farmer will get turmeric powder from fresh turmeric rhizomes in a day. Halditech requires very less maintenance and two unskilled people can operate a whole system.

Potential to Scale / Global Transfer

HaldiTech will replace traditionally done open sun drying by men and women in farms for 25-30 days. It will also save the biomass used for boiling and pollution created in traditional process. Halditech can be scaled to any quantity as required.

On demand electricity generation using waste heat generated during cooking for rural households using thermoelectric generators

Organisation: Greenway Grameen Infra

Project Description

To cater to the need for 'energy on demand' and clean cooking, Greenway has developed two distinct solutions based on low cost thermoelectric modules that generate electricity from widely used biomass stoves during cooking. These generators have been integrated into the following two products- Greenway Magic (GrM) – a thermoelectric power generation device that uses any heat source to generate electricity and is optimized for biomass based cooking. Greenway Power Stove (GrPS) - a clean biomass cookstove that employs thermoelectrics to power a fan to provide cleaner combustion for healthier cooking and excess electricity for household needs.

The project aims to prototype 20 units of each product and user trials across 6 -8 geographies. It also involves components on value engineering for the two products, as well as manufacturing & test marketing 1000 units of each product.

About the Organization

Greenway Grameen Infra (GGI) is a collaborative effort between enterprising individuals, institutions and NGOs to create and satisfy rural markets and infrastructure needs in a sustainable manner. GGI aims to develop and deploy technological solutions that create value for society at large.

More on Greenway Grameen Infra:
http://greenwaygrameen.com/

CLT e-Patashale Low-cost Innovative e-content for STEM K-12

Organisation: CLT India

Challenges

Education is the single most important factor to address socio-economic problems. Even though India has achieved almost 100 percent access to school for its children at the primary level, it still has a high 40 per cent drop-out rate at the elementary level, getting more dismal as they come to the last year of High-school. That being so, to bring a focus on STEM education for children in rural government schools is highly challenging and children miss out on the learning opportunities for STEM education and career opportunities. One of the main reasons is due to the shortage of teachers that have subject expertise in Science, Mathematics, Technology and English in rural schools. This apart, with limited learning resources both at school and at home, kids lag behind their expected learning curve by many years, till it becomes too difficult to catch up in higher grades, thus leading to dropping out of schools.

Development Innovation/Solution

Create a world of opportunities for quality education for every child anywhere by bringing together pedagogy experts and resource people with expertise in STEM to design and develop curriculum-aligned low-cost, localized digital courseware for K-12. CLTe-Patashale is both a product and service for- practitioners and learners- providing resources for teachers' mediation in remote schools. Good pedagogy and innovative methodologies and engaging learning resources are transferred to remote schools in DVDs, android mini-PCs and low-cost Tablets. It can facilitate teacher-mediation, self-learning and collaborative learning. The content is in different formats to give flexibility to the needs of each classroom. Ex.: Flash slides without voice-over, short videos with voice-over and e-books. It can be accessible in non-connectivity environment and online environment as course-ware videos and e-books.

Impact

High-caliber teachers are still essential to good instruction and remain core to our approach. Nevertheless, by using digital technology for its strengths in replication and scaling and reach, CLT e-Patashale is able to provide a cost-effective model of high-quality instruction, with a special focus on Mathematics and Science with live experiments and activity-based demonstrations with step-by-step constructivist approach. This brings about a new shift in the way teachers and children transact in classrooms, with engagement rather than teacher delivery, leading to better learning outcomes. Preliminary evaluations show gains in learning and changes in improved teaching style among local teachers. We have licensed our content at very low-cost to other Technology partners, NGOs and government schools and within a year, we are in more than 1,200 rural classrooms with close to 150,000 children.

Potential to Scale / Global Transfer

CLTe-Patashale content is modular and designed to be replicated easily. The Master content modules are in English and in our R & D center we have a complete eco-system for replication and up gradation. We have started the replication to regional languages. Kannada (Karnataka State) is almost complete and Hindi has begun. We are able to scale our program if we have support to replicate content into other State languages, like Marathi, Bengali, Oriya and other South Indian language. One partner was interested in replication of our content to Chilean schools, while another one showed interest for Cambodia. In the next 3 years, we aim to increase our reach by ten-fold for the schools and by manifold to students and parents on Mobile phones. Our solutions are for base of the pyramid population and hence our content delivery is based on low-cost solutions - A television / screen and an Android mini PC ($100) can enable a poor school across the globe to set up an e-learning classroom with high-quality content. Other schools in developing countries with similar challenges of recruiting high-quality teachers in remote areas should be able to access quality courseware on cloud or low-cost Tablets.



I Love Reading

Organisation: Katha

Challenge

The 2013 Annual Status of Education Report (ASER), states that over 96% of children in the age group 6–14 years are enrolled in school. However, 47% of children in Standard V still cannot read a Standard II level text and 40% of children in Standard III cannot read a Standard I level text. What worries most educators and teachers is the fact that many children do not attend class regularly. And those who do are not learning enough. "Reading is the foundation for all other learning activities in the classroom. Children who do not learn to read in primary grades are less likely to perform well in higher grades, limiting their future economic and development opportunities." - The Abdul Lateef Poverty Lab, Massachusetts Institute of Technology

Impact

In Delhi, over the course of the 5 year MOU we have with government till 2017, we expect to cumulatively reach approximately 300,000 children (direct beneficiaries) across 500 MCD primary schools and 500 slum communities. We estimate this based on our previous experience of being able to reaching about 600 children per slum community.

Every year during the 2-year intervention, ILR directly benefits an estimated 160,000 children (45,000 of whom are students enrolled in MCD primary schools), 20,000 women and 1,000 teachers. Indirectly, approximately 500,000 family members, parents or siblings of the children benefit from the intervention.

The Solution

I Love Reading! (ILR) is an innovative reading and school transformation program that Katha currently runs in Delhi's municipal government primary schools and surrounding slum communities. ILR is based on Katha's proven education and teacher training methods that Katha has developed, tested and refined over the last 25 years. ILR is a holistic model that engages all key stakeholders by:

- Helping children improve their reading skills, in school and in slum communities using stories that provide a culturally rich environment;
- Training teachers to use Katha's Story Pedagogy to engage children in learn-ing, manage large class sizes, develop interesting curriculum, and linking learning to community is-sues to ensure education is relevant
- Creating forums for school principals to share best practices
- Empowering parents to take action on community issues such as access to safe drinking water, sanitation and healthcare to remove obstacles to regular school attendance; and
- Engaging government to give Katha access to schools and demonstrate the model's successes.

POTENTIAL TO SCALE / GLOBAL TRANSFER

ILR is currently being scaled-up and holds significant potential for widespread adoption within the next few years. Katha aims to achieve this by on one hand partnering with other NGOs to run ILR and, on the other hand, partnering with state governments for access to their primary schools.

Technology based solution, with a strong educational core, in improving reading levels of primary schools students in Hindi Language in India

Organisation: Education Initiatives

Innovation

Technology based solution, with a strong educational core, in improving reading levels of primary schools students in Hindi Language in India

Challenge

The solution directly addresses the problem of reading and language acquisition difficulties in India and thereby also addressing the problem of early drop-outs from the schools to some extent. Since a technology platform is used, this solution also becomes a strong tool for teacher capacity building by using data driven insights from the students.

The Solution

Mindspark Bhasha is a teacher-supporting but non-teacher-dependent, personalized, engaging and scalable computer-based audio-visual solution for developing language reading skills among students. It is an internet based adaptive learning program that helps students learn at their own pace. The complexities of the process of student learning are such that one has to rely on computer technology if one really wants every student to learn with understanding. This ensures consistency in providing high quality instruction and learning tailored to the needs of each student. Students are able to sufficiently practice problems that interest, excite and challenge them thereby causing long term retention of the knowledge.

Mindspark complements what the teacher is teaching in the class and closes the shortcoming of a teacher to provide individual attention because of the large class size. Mindspark believes that students learn when they have to think – either to answer a question, or do an activity on the computer and hence provides interesting problems for students to practice that is aimed at their current level of understanding.

Impact

The pilot directly impacts around 500 students and 15 teachers from classes 2 to 6 in the implemented school.

The technology based reading pilot saw a 9 to 10 percentage point improvement in Hindi learning levels over a 4 month period of intervention, with a significant effect size ranging from 0.48 to 0.69. Students are showing visible improvement in reading skills and vocabulary. Teachers have pointed out examples of students whose language skills are strengthened post Mindspark sessions. Students are feeling more confident about their reading and language skills.

Potential To Scale / Global Transfer

The delivery/implementation of the reading solution can be immediately scaled across multiple Hindi speaking states in order to reach out to students in rural areas as well as urban. (30% of the 1.2 billion strong Indian population speak Hindi). More language modules can be developed for further scale up.

Partners / Resources Used

Support from The Department of Education, Delhi for rolling out the programme in one govt. school in Shaktinagar, New Delhi.

Mobile-technology driven family planning model - An ecosystem to achieve high contraceptive prevalence rates among rural and tribal communities – Project Vikalp ("Options")

Organisation: U-Respect Foundation

U-Respect Foundation is an evidence-based, not-for-profit organization working in the areas of health, education, water and sanitation in rural/tribal areas and urban slums, reaching out to the BoP population. Headquartered in Mumbai, U-Respect is currently implementing a Millennium Alliance (MA) supported project (Project Vikalp) in the tribal block of Shahapur, Thane district as one of the nine awardees of the prestigious first round MA innovation grants. MA is a consortium of USAID, FICCI and Department of Science and Technology, GOI.

Challenge/problem being addressed

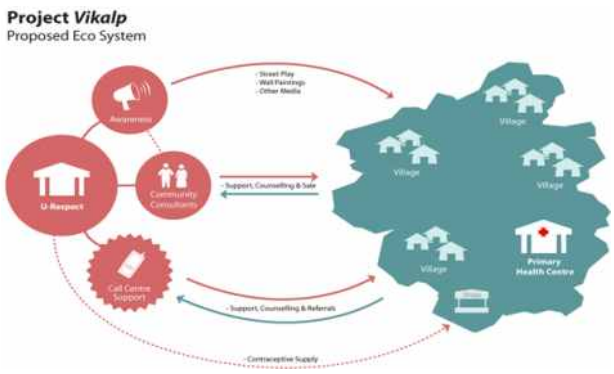
With the world's second largest, 1.2 billion population, India has the oldest family planning program; its contraceptive prevalence rate (CPR) today is around 56%, of which 38% are sterilisation users, mainly female sterilization (male sterilisation is to the extent of 1%)(NFHS, 2005). Over the last two decades, the government of India has been promoting the use of reversible contraceptives (condoms, oral pills, and intra-uterine devices (IUDs)). However, the prevalence of reversible methods is still very low in India (all reversible contraceptives together constitute only about 10% of CPR). Couples are still hesitant to talk about contraceptives or purchase a pack of condoms or a strip of oral contraceptive pills. Women still face many barriers to contraceptive access and use and male involvement in family planning is still not evident. The situation is worse among tribal population living in remote areas. In our intervention area, the unmet need for family planning is as high as 25%, necessitating an innovative and effective intervention.

Solution

The innovation is based on a triangulation methodology – services through a toll-free helpline (information, counseling and linkages to services), products (contraceptives) in place, and the use of local health care providers/on-field community consultants effectively for support functions.

Mobile phones are increasingly affordable and accessible even among the poorest and youth. We hence believe that mobile technology needs to be leveraged to achieve better healthcare, specifically family planning and reproductive health services in this case. The project therefore works towards achieving the following objectives -

- To implement a system based on widespread mobile phone use, and link it up with a toll-free number to provide rural/tribal couples, both men and women, as well as young unmarried people access to information and linkages to easily accessible service providers with total confidentiality (for relevant information pertaining to sexual and reproductive health, including family planning)
- To link communities to a network of health providers, both government and private, to render sexual and reproductive health services to communities
- To ensure easy access, availability and affordability of a range of temporary contraceptives, mainly condoms and oral pills
- To implement relevant Information, Education and Communication (IEC) activities in rural areas and normalise discussion on family planning in the community
- To monitor the contraceptive usage in the area and analyse the data by types of method used



Impact

- Fully functional toll free mobile-based call centre providing 24x7 sexual and reproductive health and family planning counseling, and linking communities to available services as mapped out initially. In 13 months since project launch, a total of 2,580 calls have been recorded in the call centre
- Over seventy percent callers to the toll free call centre are male. Since most of the health functionaries target women for sexual and reproductive health services, men see the call centre as an excellent platform to resolve their sexual health concerns and get directed to relevant services
- Total no. of new rural contraceptive outlets created - mainly non-traditional outlets: 204 (out of 391 mapped outlets)
- The project has been able to reach over half the targeted population (150,000 people) through various mid-media and IPCs over 13 months, as well as through the mobile technology, that has proven to be very successful
- A steady increase in the number of men buying a condom (a shift from the free distribution from government centres), as well as women buying oral contraceptive pills through newly opened outlets (both traditional and non-traditional outlets)
- Direct sales through U-Respect community consultants in 13 months: condoms: 2452 pieces, oral pills: 310 cycles, besides sales from non-traditional and traditional outlets
- A contraceptive prevalence rate increase of 2 to 4 % at the end of three years of the project cycle is envisaged, mainly through increased acceptance and use of reversible contraceptive methods. Increased reach and enhanced quality of services is also evidenced through stringent project monitoring and evaluation
- Monthly call centre recordings available for on-going quality check on the counseling being given over the phone line

Potential to scale/global transfer

The current innovative model will show greater impact if taken to scale. Since the toll free call centre is already set up and operational, the model is easily scalable in states within India. Our simple innovation using mobile technology to reach out to masses for family planning and reproductive health services, supported by a limited IEC (Information, Education and Communication) campaign, can easily be implemented in any country where wide-spread and reliable mobile connectivity is in place. This can be implemented along with partners operating in similar functional areas in those countries. The objective of our intervention is "Full Access, Full Choice". Our model has enormous benefits for the target audience and therefore our focus is on leveraging the benefit of this model for the betterment of larger numbers of BoP populations across countries.

Mira: Mobile Channel on Rmnch+A for Rural Women

Organisation: ZMQ Development

Challenges

Like any under-developed and developing country, India also has a high maternal mortality rate of 212/100,000 live births and infant mortality rate of 52/1,000 live births. Also, 51.1% of women opt for traditional method of home-based delivery and only 48.8% of births are assisted by skilled health workers in India, which puts both mother and child health in high risk. MIRA or Women Mobile Lifeline Channel is an integrated mobile phone channel which provides total communication, information, management and service delivery for Maternal and Child health in the rural India. The project won the Millennium Alliance award in 2013.

Impact

MIRA is operational in Haryana and Rajasthan. In Mewat district (Haryana), MIRA has been rolled out with 6 SHG Federations with 130,000 women. MIRA is also distributed through telcos, OEMs, re-charge kiosks and CR stations. Set of MIRA workers are working in 43 villages covering almost 47,000 people. In the area of intervention, there has been an increase in ANC visits by 73%, institutional deliveries increased by 63% and immunization rates by 87%. MIRA PHC connect model is piloted in Haryana state and is being scaled to 180 ASHAs and 25 ANMs. Prompt action has been taken by ANMs in 84% of the HRP tickets raised by ASHAs. Live data produced by the platform enables the state to take timely action.

The Solution

MIRA is an integrated mobile phone channel which provides health communication and information tools to rural women through mobile phones in low-resource settings. It has multiple components on issues related to Pre-natal care, Child immunization, Newborn care, Family planning and Adolescent health using RMNCH+A approach. Information is delivered through interactive

tools by creating awareness on critical health issues, building knowledge & timely connecting with the public health services.

MIRA uses iconic language with audio support making it interactive 'Talking toolkit' designed for millions of semi-literate women. In addition, it also has numerous VAS tools like stimulating social mobile games and decision-making stories to motivate communities adopt new behaviors.

1) MIRA Individual App is available on mobile phones of individual women for self-management of health. It has multiple registration facility on a single handset which allows group of women sharing a common phone in the communities.

2) MIRA Worker Toolkit is used by set of health workers who go from house-to-house to do household registrations, register pregnant women and under 5-year children for RI. MIRA workers deliver weekly iconic information to these communities using mobile.

3) MIRA-PHC Connect is a communication and service delivery platform in sync with public health system which connects ASHAs and ANMs and enable them take timely action on high risk pregnancies. The platform generates Live-Data for the state to take decisions.

Potential to Scale / Global Transfer

MIRA aims to reach to over two million people in next one year. Success of MIRA program in Haryana triggers its adoption in other states in India. MIRA plans to expand in Africa and is presently exploring partnerships.

Waterlife

Organisation: Waterlife India

Project Description

Waterlife aims to set up community water plants in the most drinking water-scarce areas of Orissa and Jharkhand, in a manner that ensures both the immediate and continuous availability of safe drinking water, and the long-term sustainability of the project. These community water plants shall employ technologies appropriate to the particular location. In case only ground water is available and it is contaminated beyond acceptable limits, an RO (Reverse Osmosis) plant might be required. If chemical contamination is within limits, then simple chlorination or other technologies might suffice. Similarly, these plants will be equipped with solar panels so that they can function even in the absence of grid electricity.

About the Organization

Waterlife provides customized and specific drinking water solutions by working with communities and local governments. Waterlife provides Community Water Purification Systems that provide relevant purification solutions at a reasonable cost. Waterlife also provides Operation and Maintenance for long term periods & Annual Maintenance Contracts for the Water Systems.

Waterlife brings in the purification technology that is specific to the water contamination in the area it is working in.

More on Waterlife India: http://www.waterlifeindia.com

Rang De

Organisation: Rang De

Challenge

Rang De is trying to address the problem of poverty by focusing on making microcredit affordable for the people who really need it the most. According to a World Bank report, only 35% of Indians (above the age of 15) have a bank account at a formal institution. Despite the Reserve Bank of India making financial inclusion a priority, large sections of the Indian population still do not have access to affordable credit. The poor in India are usually landless (or owners of small tracts of land) who usually have multiple sources of income, depending on what kind of work is available and where. And while the middle and upper classes are courted by banks and credit institutions and given loans at competitive interest rates, the poor often pay anywhere between 60-100% interest rates on their loans. While addressing poverty means more than just providing loans, affordable microcredit can enable families to plan ahead and be prepared for financial or health emergencies that typically prevent families from overcoming poverty.

Solution

Rang De uses technology and the Internet to crowd source funds from social investors and corporate to provide low cost, collateral free microloans to borrowers across India. The organization uses the term "social investors" to describe individuals who invest funds not with the objective of maximizing their financial return but to create social impact. Our aim is to fight poverty by enabling our borrowers to escape the vicious poverty trap by capitalizing on their own abilities and honing their skills. We try and reach out to first time borrowers (who have never taken a loan from a formal financial institution before).

In order to keep our interest rates low we

a) use crowd-funding to reduce the cost of capital

b) partner with local NGOs and MFIs to not only reduce our transactional and operational expenses but also to identify and serve better communities in need. Rang De uses technology, marketing and social media to connect borrowers and social investors. Rang De's Impact and Finance team identify field partners and work closely with them to ensure timely disbursements and repayments, proper borrower identification and documentation etc.

Impact

Raising Social Investments One of the most important indicators that Rang De's impact assessment focuses on is the number of first time borrowers that the organization reaches out to. We define first time borrowers as individuals who haven't taken a loan from a formal financial institution (banks, MFIs, cooperative banks etc). Another indicator is the increase in productive assets of the borrower's household. At the same time, we are experimenting with other tools such as Grameen Foundation's Progress out of Poverty Index to quantify our impact. Data pertaining to borrower's history (previous loans, assets, household details) are collected by the field partners and submitted to Rang De. Impact assessment is primarily carried out by the Rang De team members through regular field audits. Occasionally Rang De's social investors also assist in carrying out audits through audio interaction with borrowers or through independent field visits.

Rang De's social accounts report for the year 2012-13 was also audited by Centre forSocial Innovation and Management.

Potential to Scale

The impact that a not for profit organization like Rang De has is a direct function of the amount of funding it receives and the loan capital it raises.

To scale its operations and impact Rang De aims to create a middle ground which combines the best of both worlds - the doggedness of a mission oriented organization and the focus on metrics and performance of a for-profit social enterprise. With this view, Rang De proposes to raise equity for its Section 25 company, Rang De India Micro Capital Foundation, from social investors who are passionate about maximizing impact in a sustainable fashion. The total amount the company is seeking to raise is Rs 5 crore which represents 10% of its total valuation of 50 crores. The funds raised will be utilized to enhance our technology, marketing and fundraising team, invest in building processes and systems so that we can fulfill our mission to fight poverty in India more effectively.

NOTES

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