॥ विधानं राष्ट्र-धर्मः ॥

COMMENDABLE 75 START-UPS FOR GRASSROOT DEVELOPMENT

Ideas to be implemented by MLAs & MLCs

Exhibitions / Information Dissemination

FOREWORD

As our world continues to evolve and face new challenges, the importance of social innovations has become more apparent than ever. Social innovations are new solutions to social problems that create positive social impact. Start-ups, with their agility and fresh ideas, are uniquely positioned to drive social innovations and create lasting change in our communities.

The compendium on 'Commendable Start-ups for Grassroot Development' explores social innovations through start-ups, highlighting the impact they have created and its future potentials. The compendium provides insights to start-ups who identified social needs to build sustainable business models. By working directly with communities, these start-ups developed solutions tailored to specific needs and challenges of those communities. Outcome of these innovations comprises a sense of ownership and empowerment that can help sustain the impact of their work overtime.

In this compendium, we showcase 75 commendable start-ups that are making a positive impact for grassroot development. From sustainable agriculture to healthcare to cleantech and education, these start-ups are using technology and innovation to create impactful solutions that are changing lives and communities.

We hope that this compendium will serve to connect entrepreneurs with legislators, to foster an ecosystem that inspires other entrepreneurs and start-ups to think creatively - leveraging the power of social innovation, to help create a more equitable, sustainable, and just society for all.

I take this opportunity to thank the eminent panel of experts comprising Dr. Rajendra Jagdale, Director General & CEO, Science and Technology Park, Department of Science and Technology Government of India who Chaired the jury along with members Shri. Kamlesh Thakkur, an eminent investment banker and Chairman, Prime Investrade Limited, Strutured Finance and Dr. Abhijit Sathe, Chief Executive Officer MIT Pune Technology Business Incubator for sparing their time to steer the selection process. I also complement the work done by Prof. Gopal Wamane and Ms. Sanika More from the MIT-WPU School of Public Policy in making this compendium a reality.

Rahul V Karad
Convener, NLC Bharat

INTRODUCTION

What is a Grassroot social innovation?

Grassroot social innovations refer to the development and implementation of novel ideas, projects, or initiatives that address social challenges at the local level. It involves individuals or communities coming together to identify and solve problems in their immediate surroundings using creative and sustainable approaches.

The term "grassroot" signifies that these innovations emerge from the bottom-up, driven by the needs and aspirations of the community members themselves. Rather than relying on top-down solutions imposed by governments or large organizations, grassroot social innovation emphasizes the active participation and empowerment of individuals or communities in finding solutions to their own problems.

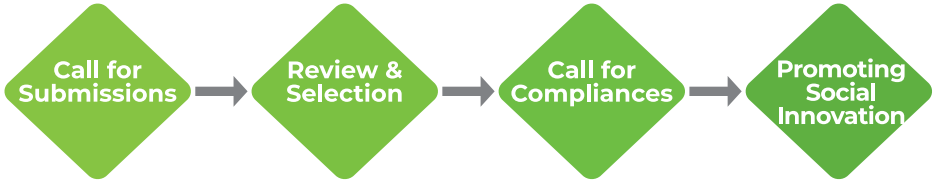
Grassroot social innovations can take various forms, including community-led initiatives, social enterprises, non-profit organizations, or informal networks. It often encompasses a wide range of social issues, such as poverty, education, healthcare, environmental sustainability, gender equality, and more.

What distinguishes grassroot social innovation is its focus on inclusivity, community engagement, and localized impact. It aims to address social challenges by leveraging the creativity, knowledge, and resources present within a community. Grassroot social innovations are often characterized by their ability to create positive social change, foster social cohesion, and build resilience within communities.

In summary, grassroot social innovation refers to community-driven efforts that tackle social challenges through creative, participatory, and locally-rooted approaches. It encourages individuals and communities to take ownership of the issues they face and actively work towards finding sustainable solutions.

PROCESS FOR SUBMISSION AT COMPENDIUM

The process outlined here focused on identifying and learning from social innovations that contribute to grassroots development.



Step 1: Call for Submissions

The first step involved issuing a call for submissions. The call invited submissions from individuals, organizations, state start-ups about their initiatives on grassroot development. These innovations could encompass a wide range of initiatives, projects, approaches aimed at addressing social, economic, or environmental challenges faced at the grassroots level.

Step 2: Review & Selection

On receiving the submissions, the review and selection committee scrutinised the submissions. The submissions were evaluated based on the predetermined criteria and their alignment with grassroots development objectives. The selection committee assessed the submissions and shortlisted the submissions based on the following criteria:

i. **Affordable:** The affordability criterion evaluates whether the grassroots innovation is economically accessible to the target population, particularly marginalized or low-income communities. It considers factors such as the cost of implementation, maintenance, and utilization. An affordable innovation ensures that it does not impose a significant financial burden on the users and can be sustained within the available resources of the communities.

ii. **Scalable:** Scalability refers to the potential of the grassroots innovation to be expanded, replicated, or adapted in different contexts and locations. Evaluating scalability involves assessing whether the innovation can be easily replicated without compromising its effectiveness or incurring excessive costs. A scalable innovation has the capacity to reach a larger number of beneficiaries, extend its impact to broader areas, and be replicated across various communities or regions.

iii. **Innovative:** The innovation criterion emphasizes the uniqueness and novelty of the grassroots solution. It examines whether the initiative introduces new ideas, approaches, or technologies to address social challenges effectively. An innovative grassroots solution demonstrates creative thinking, originality, and a fresh perspective in tackling societal issues, often by leveraging local resources, knowledge, and practices.

iv. **Indigenous:** The indigeneity criterion recognizes the importance of local context, cultural relevance, and community ownership in grassroots innovations. It examines whether the innovation is developed and led by the local community, taking into account their specific needs, traditions, knowledge systems, and cultural values. An indigenous grassroots innovation respects and integrates local practices and wisdom, ensuring that it aligns with the community's values and contributes to their empowerment.

v. **Impact:** The impact criterion evaluates the outcomes, changes, and effects of the grassroots innovation on individuals, communities, and the broader society. It assesses the extent to which the innovation has achieved its intended goals and resulted in positive transformations. Impact evaluation considers multiple dimensions, such as social, economic, environmental, and health impacts, to provide a comprehensive understanding of the initiative's effectiveness and its potential for sustainable change.

Step 3: Call for Compliances

Once the social innovations were selected, they were required to meet specific compliances or requirements. This step ensured that the selected initiatives complied with legal/financial regulations and any other relevant standards. This was mostly done through seeking self-declarations in prescribed formats.

Step 4: Promoting Social Innovation

The final step focused on promoting the selected social innovations to MLA's, MLC's, and various political leaders. Various strategies were employed to create awareness, generate interest, and encourage adoption or replication of these grassroots initiatives. This could have included showcasing the innovations at the National Legislative Conference, Bharat. The aim was to raise visibility, inspire others to adopt similar approaches, and mobilize support for grassroots development initiatives.

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Social Innovation & Agriculture

Social innovation in the agriculture category for grassroots start-ups refers to the development and implementation of innovative solutions that address agricultural challenges while creating positive social impact. These start-ups aim to transform and improve agricultural practices, promote sustainable farming methods, enhance food security, and uplift the livelihoods of farmers and rural communities. Grassroots start-ups focusing on social innovation in agriculture recognize the critical role of agriculture in addressing social, economic, and environmental challenges. They understand the need to develop sustainable and inclusive agricultural practices that improve food production, enhance farmer livelihoods, conserve natural resources, and promote food security for communities.

1. 365D Farms Farmers Producer Co. Ltd.

Shailesh Kishor Modak, Founder

Overview: 365Dfarms is Agri-tech startup, working in control environment agriculture sector with the help advanced technology and helping rural and urban farmers to increase their crop production in small area, 365days a year without impact of climate changes, using 90% less water, our expertise in to movable shipping container farming and indoor agriculture. our target customers are upcoming entrepreneurs, farmers, business owners, students with etc.

Solution:

We are come up with the solution in Control environment agriculture where we are using a used movable shipping containers and do soilless farming inside the container throughout 365Days a year by controlling all major farm operations through mobile applications and growing the crop vertically without using soil.

Impact on Grass root development:

With the help of advanced technology of control environment agriculture in (polyhouse/shednet) farming farmer gets higher crop yields, less water and land than traditional farming methods, minimized the use of pesticides and fertilizers, reduced the environmental impact on farming. it increases the profitability of grassroots farmers and help them generate more income.

hydroponic fodder production in control environment can provide a sustainable and profitable option for grassroots development, particularly in areas where feed is expensive or in short supply. It can also offer a means of diversifying income and increasing food security for farmers and their communities

Implementation and challenges:

Challenges our startup faced

1. Ist challenges was no farming background

- As we are from IT software engineering and medical background, we have no knowledge and experience of agriculture sector. so, we have taken training of apiculture and started our agriculture business journey by providing honeybees on rent to the farmers for their crop pollination. we provided this service to more than 500+ farmers in Maharashtra and learned the agriculture and crop cycle management in this a year long journey. Also done Agri-import export business which helped us to gained management knowledge in agriculture.

2. IInd challenge was to control all the environment parameters required to grow a plant?

- **In traditional agriculture major challenges like Climate change, limited space, Soil degradation, Water scarcity, Pests and diseases, Limited access to markets, Labor shortage etc**. so how to control all this was big challenge.

a) Challenge of climate change: Rising temperatures, changing rainfall patterns, and extreme weather events such as droughts, floods, and storms are all affecting crop yields.

Overcome - To tackle this climate change issue we come up with a control environment area like 8x40 square feet insulated moving shipping container. Where we can control all the parameter like temperature, light, co2, nutrient, humidity etc which is mandatory to grow the plants. As it's a farming inside insulated shipping container, outside climate changes like heavy rainfall, sunlight, storm etc. can't affect the indoor crops.

b) Challenge of Limited space – As Limited space in agriculture is available such as having only 1 or 2 acres of land due to farm partition in the family. Hence production was is limited.

Overcome - To overcome this We have used vertical farming technique so in 320 square feet we can grow around 3000 plants vertically. Small space more production.

c) Challenge of Soil degradation – Soil degradation is a major issue facing agriculture and the environment. It refers to the decline in soil quality due to various human activities, such as overuse, over-farming, deforestation, and pollution, as well as natural processes like erosion and climate change.

Overcome – We use soilless media to grow the crop by using hydroponic, aeroponic farming techniques.

d) Challenge Water scarcity – The country has a large population and high demand for water due to agricultural, industrial, and domestic use. more water goes to agriculture is wasted in soil .for.eg.to grow 4000 lettuce plants in soil farmer used more than ten thousands litres of water per day .

Overcome- As we are doing soilless farming so we required only 40 to 50 litters of water per day for 4000 plants.as we are reusing the same water by circulating it.

e) Challenge Pests and diseases - More pest and diseases in open field.

Overcomne – Due to control environment no or less pest issues.

f) Challenge Limited access to markets - Farming is at village and The market is available in city so transportation & freshness is an issue.

Overcomne – Farm is movable and can place near to market

g) Labour Shortage - Labours are not available to work in open field farm

Overcome – Only 1 Labour is required for and labour are more than happy to work inside the control environment like air-condition.

Performance:

1 In one 8x40 Square feet (i.e.in 320sqft) container we can grow more than 3000+ Leafy green plants in one cycle of 45 Days, without using soil.

2 In 365Days a year we can take 365/45 i.e., 8 Cycle of crop production which is 24000+ plants in a year which is equivalent to 1 acre of crop production. So, we can say that 320 square feet = 1 Acre of production in a year.

We can sale this plant for 100/Per plant in B2C market which is equal to 3 lakh per cycle of 45 days. so after we minus the operation cost of 70k, around 2.3lakh profit we can get in 45 days from 320 square feet.

4 We can use almost use same setup for saffron farming by adding one chiller unit and can take saffron production in a container. (POC is already done)

5 So if you can calculate the ROI its 1.7 – 2.0 years.

Sustainability and Future plans:

- 365Dfarm is planning to start biggest indoor farm at pune location.
- To grow Saffron and related plants in control environment.
- To do Saffron seed multiplication business.
- Tissue culture labs with R & D unit

Associations & Capacity Building:

- Associate with govt of Maharashtra ATMA , to take farm school and help farmers to know on this latest technologies in the agriculture.
- We Conducting training and awareness program for farmers, students, women house workers, entrepreneurs.

Awards & Photographs

Mr. Shailesh Modak awarded for 'Innovation in Agriculture Hi-tech Hydroponic Farming' by Zee 24 taas.

Contact Information:
S No. 108/1/B/1, Shop No. 4, Warje,Pune, Maharashtra,India,411058.
Email : **365dfarms@gmail.com**
shailesh@365dfarms.com
Contact : **+91 9107365365 / 9767589994**
Website : **www.365dfarms.com**

2. AgriVijay

Vimal Panjwani, Founder

Overview: AgriVijay is an ag-tech social enterprise & curated marketplace of Renewable & Green Energy products where we understand the energy & agricultural needs of the farmers, recommend, sell, finance & deploy the solution along with after-sales service support which is missing in the space. We are focused on working & impacting mainly the people at the Bottom of the Pyramid with our Renewable Energy Store Business Model which is also a Livelihood Generation Model aligned with Renewable & Green Energy & UN Sustainable Development Goals.

Social Challenge: Farmers suffer from post-harvest losses & most of them are also dependent on fossil fuels such as diesel to run their diesel gensets to run their electric water pumps, milking machines, etc. along with firewood for cooking by the rural women. They also have the availability of animal/food/agri waste which goes unharnessed in the form of energy but impacts Climate Change with GHG/CO2 emissions. We are the 3rd GHG emitter as a nation. Also, if a farmer wants to switch to Renewable Energy to solve these problems there is no dedicated marketplace or store in the village where his energy needs are understood & product is recommended based on his pocket. There is no Knowledge of insemination or education about various renewable energy products in solar, biogas, thermal, wind, and other green energy products such as electricity. These products are neither available at the village level nor accessible.

Solution:

AgriVijay is India's first Marketplace of Renewable Energy products for farmers & rural households bringing all products in solar, biogas, green energy – electric, Ag-tech innovations & organic range of products under one roof with an Energy Advisory approach where farmer's energy needs are understood coupled with waste availability at their end before products are recommended, sold and deployed along with abating GHG/CO2 emissions mitigating Climate Change aligned with United Nations SDG's becoming Energy Independent along with increased savings & income.

With the help of a dedicated Website, Call Centres in a local language, Field Sales, Technical Team & offline stores model at the village level known as Renewable Energy Stores, the knowledge and benefits of Renewable Energy products are disseminated providing high-quality and branded renewable energy products on rural grounds with benefits such as free solar insurance, long term warranty, assured after-sales service, EMI/Financing facility, etc. helping Farmers & Rural households to become Renewable Energy producers & consumers.

Impact on Grass root development:

We have a unique business model innovation of Renewable Energy Stores where any small rural retailer can set up a store and recommend, and sell 200+ Renewable & Green Energy products. Renewable & Green energy products make Farmers & Rural Households Energy Independent bringing increased savings & income along with contributing towards the Global Climate Action movement by abating CO2/ GHG emissions.

Implementation and challenges:

We have executed 2 Impact Projects, one with SELCO Foundation where we expanded our business model of Renewable Energy Stores

in Rajasthan; 2nd with Arpan Seva Sansthan where we installed Biogas Digesters at Rural Households providing access to Clean Cooking Fuel - Biogas replacing Firewood. We are looking for paid pilot project opportunities where we can bring Impact at scale by penetrating Renewable Energy Products to Farmers & Rural Households.

Sustainability:

As a tech social enterprise with a huge range of renewable energy products offerings, we have a massive social impact where we are not just helping farmers and rural households become energy independent but also treating wastes in the case of biogas digestors, giving clean cooking fuel to rural women replacing firewood in case of biogas, irrigates acres of field in case of solar water pumps also reduce GHG/CO2 emissions for all the products especially Electric Tractors and Electric tillers not only helping them increase their income but also savings to the household/family. Hence our social impact is massive. We have onboarded 250+ farmers in just 18 months despite being born in COVID and faced 2 lockdowns with renewable energy products such as Solar Water Pumps, Solar Inverters, Biogas digestors, Solar Water Heaters & Solar Dryers, etc. mitigating 7000 tons of GHG/CO2 emissions annually along with irrigated 500+ acres of land with solar, treated 1,64,250 kgs of animal waste, fertilized farmers with 3,28,500+ liters of organic digested slurry & impacted 1500 farmer families and saved 59,000 kg of Firewood as an impact.

Future Plans:

We have the ambitious goal to open 1000 RE Stores at the village level in the next 3 years and reach 1,00,000 farmers across India mitigating 1,00,000 tons of GHG/CO2 emissions as a climate action movement against the fight towards climate change generating massive savings and increasing income of Farmers and Rural households.

Associations & Capacity Building:

We have partnered with 40+ Renewable Energy Companies/ Startups to help penetrate their innovative products majorly in Rural India.

Awards & Photographs

- FICCI Awardee for Startup Awards 2021 - 'Top Agri Innovator in COVID times'.
- National Awardee of Indian Achievers Award for 2020 by Indian Achievers Forum.
- Selected as Top 100 Startups in the 6th Edition of South Asia Innopreneurs International Startup Contest organized by Lemon Ideas.
- Nominated at SAARC Global Startup Awards 2021 & GoGlobal Awards 2021.
- Listed as one of the Innovations in 'Climate Change' by WWF India Climate Solver hub and Agnii & Invest India on their web portals.

Contact Information:
C/O AIC IISER Pune SEED Foundation
IISER Pune Campus, Dr.Homi Bhabha Road, Pashan, Pune, Maharashtra – 411008
Email : **vpanjwani@agrivijay.com**
Contact : **+91 9503130037**
Website : **https://agrivijay.com**

3. AgroSonic Solutions Private Limited

Anil S Tatti, Founder

Overview: AgroSonic is engaged in the Development & Strengthening of a Sustainable Value Chain for LiveStock Goat & Sheep farmers and ensuring a secondary source of income for rural farmers.

Solution:

Several animals die because of diseases and many of the animals do not reach the desired growth because of parasitic infections. Expert advice and a proper strategy of vaccination and healthcare are required for the healthy breeding of goats. Farmers are unaware of the best practices to be followed while doing commercial goat farming for breeding, milk, or meat production. Lack of proper knowledge and fatality hasten losses and makes commercial goat farming unsuccessful.

The major technical constraints in developing commercial goat farms are supply and quality of breeding goats, feed resources, health, parasite management, marketing through strong producer organization, and technology application.

Most of the farmers are eager to adopt the improved technologies, but the absence of any technology system with a good support system to provide quick access to the latest information and technologies and a weak input delivery system resulted in poor adoption. As there are huge difficulties to maintain up-to-date farm records by manual procedure by using separate registers at farms, it is necessary to adopt Information Technology for record keeping.

GoatMate Web Based software & GoatDiary Android App developed by AgroSonic Solutions Private Limited Pune are designed to keep livestock records up to date and provide basic management reports.

Implementation and challenges:

Lack of access to international markets / Govt Grants & funds.

Not possible to connect to each farmer individually in the B2C model, hence need help in developing the B2G2C model.

Performance:

To date, we have covered more than 40000 livestock in India and international markets attaining a revenue of approx.35 lakhs for FY22-23

Sustainability and Future Plans:

We are constantly doing research and development to add value to our existing products (Muzzle recognition, Early Pregnancy detector). We are launching a Livestock bazaar to cater to all the needs of the farmer engaged in livestock farming. Also, we have extended our product to cater to all types of cattle.

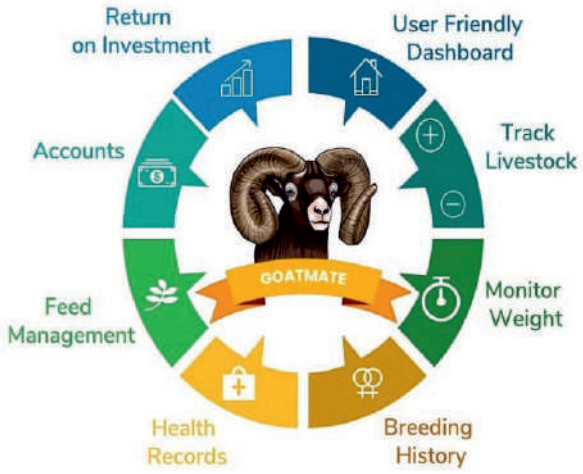
Associations & Capacity Building:

Looking for association with NGOs, FPO, s, Agri universities, Medicine suppliers, etc, and building a complete value chain.

Awards & Photographs

AgroSonic Solutions Pvt Ltd.'s potential was acknowledged very early and has been funded by AICMIT ADT under the Startup India Seed Fund Scheme (SISFS), by PONTAQ under STPI-Chunauti 3.0, and STPI FASAL COE which will help the company's growth to be meteoric with revenues expected to multiply many times. This timely influx of capital has helped the company in achieving many critical milestones necessary for business growth such as filing of IPR, converting prototype to an MVP, etc. We have been selected under the UNCDF program, have been selected as one of 75 best agri startups by AIM and honorable PM, have been selected for grants (not yet received) for 25 lakhs under the RKVY MANAGE program, have been selected under STPI FASAL COE program, selected as one of 100 best startups from Maharashtra.

Our Products



Contact Information:
102, Varija Apartments, Phattelal Marg,
Off Law College Road, Erandwane.
Pune 411004
Contact **: +91 9822400825**
Website **: https://www.linkedin.com/company/agrosonic/**

4. AgrowSure Products & Innovations Pvt. Ltd.

Akshay Kawale & Akshay Wairale, Founders

Overview: AgrowSure Products and Innovations Pvt Ltd is a DPIIT-recognized agriculture startup under the Startup India initiative, that designs and manufactures affordable and innovative Agriculture Equipment to help small and marginal farmers to increase productivity. We are passionate about solving social issues. We are helping the young generation of the farming community to adopt new technology to do farming. We ensure that farmers have access to and knowledge of appropriate machinery and tools for their farming practices.

Solution:

Agriculture is a labor-intensive sector and its shortage during peak season can derail growth. Also, considering the small size of farms across India, a greater impetus is needed to develop need-based and regionally differentiated farm machinery. The average Land size owned by Farmers in rural India is less than 1.5 Ha. So it is difficult to use heavy machinery and tractors in small lands as it has adverse effects on soil and also can damage crops. Small machinery which can be multi-crop and multi-use is the need of today's farmer. Machines should reduce the cost of labor, should not reduce the quality of the crop, and should help in productivity at the same time.

So, we are providing a complete farm mechanization solution to farmers under one roof. We design and manufacture innovative and affordable farm equipment for small farmers to large farmers.

We have designed and developed affordable innovative attachments for Power Weeder/ Tillers, which will help small and marginal farmers to perform various operations in the field. The uniqueness of our product is its multipurpose as well as versatile characteristics. Our product can be used for different crops irrespective of their planting pattern, soil conditions, crop dimensions, etc.

With these implements, we have tried to increase the utility of the existing Power Weeder/ Power Tiller available in the market. Existing Power Weeders/Tillers come only with a rotavator attachment, which makes them less useful for farmers. Even though these machines are available on Government subsidy, farmers need a multipurpose unit like a tractor, which can do maximum farm work. So, we built a solution for it!

Our multipurpose attachments can perform many operations like land preparation, planting, weeding, and spraying, simply by using our modular kit which hardly take 15-20 minutes for users to change. This simple and low-cost technique will reduce the dependency on labor and will help farmers to gain more profit from farming.

With the help of our product, now farmers can save more than 50% of cultivation cost and time as compared to traditional practices.

Apart from this, recently we have developed gender-friendly farm machines, especially for women farmers in India, which will empower women farmers by reducing drudgery.

Impact on Grass root development:

Since the day, we founded AgrowSure Products and Innovations Private Limited, our work has led to life-transforming solutions that have helped thousands of farmers. AgrowSure Products has direct (farmers) and indirect (those who rent) beneficiaries. Our product has been used by various departments of Agriculture University and KVK to carry out their field research. Farmers often rent our product to other nearby farmers to generate additional income.

Small and marginal farmers are impacted by our solution. Many farmers are discouraged to do farming due unavailability of labor during peak season. Our solution has helped in the conversion of uncultivable land to agricultural land through advanced tilling and shifting land used for feed and fodder cultivation.

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Small and marginal farmers are impacted by our solution. Many farmers are discouraged to do farming due unavailability of labor during peak season. Our solution has helped in the conversion of uncultivable land to agricultural land through advanced tilling and shifting land used for feed and fodder cultivation. Our solution is decreasing the workload on women as a direct consequence of the improved efficiency of labor and improvement in the safety of farm practices reducing dependency on labor (which is scarce and costly nowadays) thus saving cost and time.

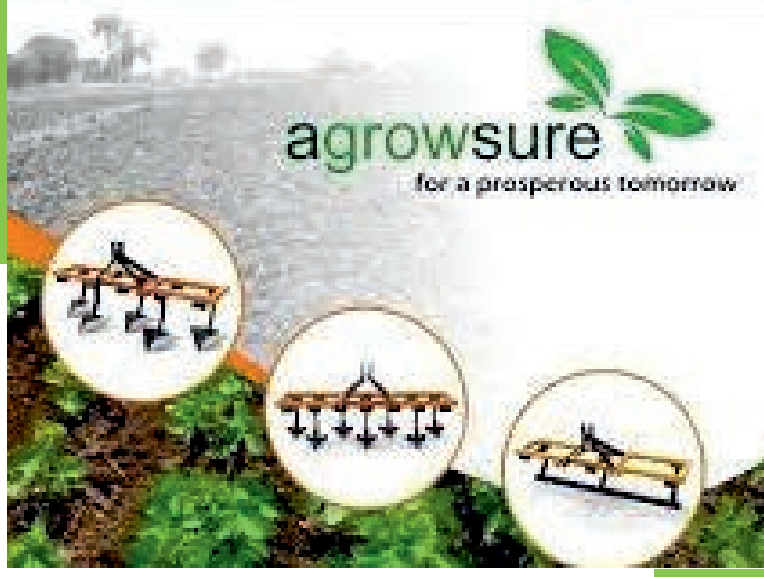
- Enhances productivity thus, increases profit. Another big advantage of using our product is fine enhancements in productivity. There are multiple uses of the product and each one is capable of bringing more and better productivity.
- Make them self-sufficient. The initial gradual profits by using our product will fetch more opportunity and generate the interest of the farmer. Farmers can lease out our products to other farmers to generate additional income.
- The income of the farmers can be doubled. It accounts for the unparalleled rise of national income and it creates much of the capital surplus on which modern economic progress is largely based.

Our product can service an acre in 1.5 hours which gives us the potential to service 150 acres in a season of 30 days.

- Considering the cost of fuel per acre is INR 150. If looked at from a revenue generation perspective, the farmer can rent his machine along with the implements at INR 1500 per acre with INR 1000 as pure profit. Also, the farmer can save more than 50% of the time and cost to cultivate his land over labor.

Breakeven can be achieved in max. 2-3 seasons excluding all drawbacks of labour.

- It Reduces Fodder Area and Enlarges Food Area: With the introduction of our mechanization solution in agriculture the surplus animal power would be reduced so that large areas of land required for producing fodder for it can be utilized for producing food for human consumption. The remaining cattle population would be better attended to and better fed under mechanized agriculture, for new and nourishing varieties of feeding stuff would be grown in cultural lands after reclaiming them for cultivation.



Implementation and challenges:

We faced the following barriers in bringing our technology to the market:

- Lack of technology awareness among farmers in drought-prone regions. Farmers do not easily believe in new technology coming into the market, unless and until some other farmer is using the same technology and getting good results out of it.
- Lack of skilled labor in Tier 3 cities for manufacturing our product.

Awards & Photographs

- Selected for Youth Co: Lab program by UNDP in collaboration with Atal Innovation Mission by Niti Aayog.
- Selected for Social Innovation Lab by CITI, IIT Kanpur, and T-Hub to receive grants and mentoring for our cutting-edge solutions, aimed at creating a positive impact on society.
- Selected for Startup Agribusiness Incubation Program (SAIP) under RKVY- RAFTAAR Scheme at National Institute of Agricultural Extension Management (MANAGE), Hyderabad.
- Winner of "Akola Startup Fest" organized by the Ministry of Skill Development and Entrepreneurship, GoI.

Contact Information:
Aasra Niwas, Balwant Colony, Mangrulpir Road, Akola – 444004, Maharashtra
Email : **agrowsure@gmail.com**
Contact : **+91 8208894563**
Website : **http://agrowsure.com**
LinkedIn : **akshay-kawale-baa48a9b**

5. Akshar Agro Innovation Pvt. Ltd.

Sanjaykumar Dhirajlal Tilva, Founders

Overview: The harvesting of groundnut, turmeric, and garlic crops is a very labor-intensive and time-consuming activity. Also, the cost of harvesting is high due to the shortage of labor and high labor costs. Many times, unseasonal rains during harvesting cause damage to the crop. The digger and automatic mobile harvester developed by Sanjaybhai are the right solution to this problem.

Solution:

Groundnut Digger

The digger is useful for multiple crops (groundnut, turmeric, and garlic) and is the one-stop solution for the labor shortage during the peak harvesting season and is also beneficial in ways such as minimizing waste, reducing time & harvesting costs. The newly developed automatic mobile thresher will also help to overcome the unavailability of laborers and especially in times of unseasonal rains when farmers have to thrash the produce as soon as possible.

We have been Awarded by our Ex. Honorable President Late. Pranab Mukherjee for our innovation in Groundnut digger. We kept this machine under patent and Design. (Patent No: 400893, Design No: 350694-001)

Automatic Groundnut Mobile Harvester

Taking forward our profound knowledge and proficiency in the groundnut agriculture field, we came across the thought that there is still so much labor and waste of time involved in lifting and drying groundnut shells and de-shell them with the help of a thresher. Groundnut harvesters can operate with the help of a tractor on the lines of lifted groundnut crops and it can lift the crop and can-do automatic threshing. There are separate storage compartments for groundnut shells and leaves of the crops, thus it can do threshing and keep the farm clean by storing everything in the different compartments. We have developed this machine (automatic harvester) for both groundnut and chickpea (chana) crops. The major advantage of the machine is that it requires almost no labor and it can save a lot of time.

Impact on Grass root development:

The main relief of the benefices is that the dependency on labor in the harvesting season is solved for them. Also, some of them made earnings by giving the machine on rent to other farmers. Loss of the groundnut is minimum in this machine so the final yield is high compared to the manual process.

Implementation and challenges:

The innovator made the prototype in 2006. He got an award from the former President late Shri Pranab Mukharji in 2013. He is in regular touch with the buyers of his machines and also implemented the feedback received from the users. He has a fabrication unit at Rajkot where he is doing the manufacturing of this machine. Over the period, the innovator has learned the whole process starting from procuring the raw material, manufacturing the machine, marketing, selling, and providing the after-sales service. He is currently selling the machines in Gujarat, has distributors in Tamil Nadu and Karnataka, and dealers in Telangana, Andhra Pradesh, Madhya Pradesh, and Uttar Pradesh. Also, he has supplied the machine to some of the government institutes.

Currently, he is trying to increase the presence of his machines in Andhra Pradesh, Tamil Nadu, Karnataka, Madhya Pradesh – Uttar Pradesh border area, and the local market in Gujarat. He is also looking for financial support for expanding his manufacturing facilities so that he can match the demand and supply and overall scale up.

Performance:

The above-mentioned data may vary depending on the soil type and the actual field condition

Sustainability and Future plans:

The innovator is receiving more numbers of orders for the machine than the manufacturing capacity he has. So the priority is increasing the production capacity and having some working capital so he can manufacture more units on time. Also, the innovator is now doing marketing through the YouTube videos that he shared has a website, and some orders he gets through the farmer-to-farmer network. So, a systematic approach to marketing needs to be taken so more orders may come. These machines have potential demand not only in India but also in other countries like the USA, China, Nigeria Sudan.

Associations & Capacity Building:

- Incubated at Gujarat Grassroot Innovation Augmentation Network (GIAN), Ahmedabad.
- In the process with tie up with UPL

Awards & Photographs

- First Innovator of India in Tractor Operated Groundnut Digger Cum Shaker.
- National Award by the hand of the Former President of India Mr. Pranab Mukharji in 2013.

Contact Information:
1Sr No-191, Plot No-7, B/H Orchev Pharma, Shantidham Society, Veraval (Shapar)-360024, Rajkot.
Email : **info@aksharagro.in**
Contact : **+91 9879011208**
Website : **www.aksharagro.in**
LinkedIn : **sanjay-tilva-006689140**

6. Aqua Exchange Agritech Pvt. Ltd.

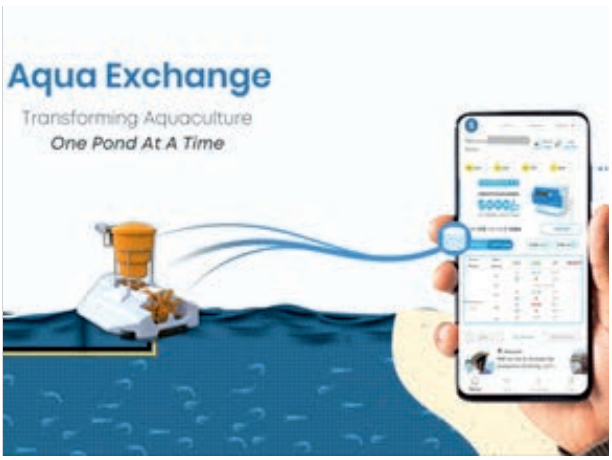
Pavan Kosaraju, Founder

Overview: AquaExchange (AquaX) is a full-stack, tech-driven solution which is solving key problems in India's multi-billion-dollar shrimp & fish ecosystem. AquaX's vision is to improve farmer productivity and livelihoods by ushering in AquaCulture 4.0 into India.

AquaX's purpose built solutions are delivering unrivaled convenience and peace of mind to Farmers , be it product range for Feed , Inputs or Power monitoring . With the ability to manage their practices of feedings and power consumption and all electrical equipment efficiency using AquaX's connected equipment , Mobile & TV Apps. Farmers are able to focus more on core farming issues and are able to scale up as well as a 360 degrees visibility on Farm operations . It's a Lifestyle change for Farmers.

Social Challenge: Technology Adoption in Indian Aquaculture has been very Low due to lack of Product availability that's purpose fit. Most of the Technology companies offered solutions which either had a learning curve for the farmers or farmers found it difficult to maintain the equipment regularly. Service support and hand holding the Farmers through this transition in remote areas was another gap which Technology companies couldn't bridge.

The Founders team made 180,000 Kms of road trip to meet 200 Farmers in person to understand the Indian Aquaculture landscape. All other technology companies were obsessed with online DO and pH sensors to sense pond issues and were miserably failing as the sensor tech wasn't (isn't yet) ready for Indian AquaCulture water. One farmer flipped the perspective in the journey, "Instead of informing them when DO fails. Detecting the cause/reason (Aerator / Power / Generator Failures) instead of consequence will save the crop", this proactive approach instead of reactive approach of DO issue sensing would solve the problems.



Solution: AquaExchange filled this gap by going to the core of the issues Indian Farmers are facing and built purpose fit solutions at an affordable cost with near to zero learning curve. The two best case studies are PowerMon and AquaBot. AquaX's IoT interventions bring in authenticity to data and would play a pivotal role in pre-populating the necessary data. Incentivizing Farmers for Premium quality of Shrimp would create massive value for both Farmers and NextAqua, now is the right time for adoption of technology.

Aerator motor failures are the biggest chunk of maintenance work in the farm and costs a dear to the farmer besides costing the downtime. Bearing and gearbox failures leads to Motor damage Power bills giving shocks to farmers due to low Power Factor and ACDs due to crossing of kVa limits. And Capacitor Failures is another thing ,Farmers end up paying 10 to 40% more monthly. Keeping a check on Generator usage is very critical, the Supervisor shouldn't switch on too late or leave it on even after power is restored.

AquaX uses IOT and machine Learning technologies to solve farmer problems such as Power Management and Feed Management. Its patented technology product called "PowerMon" continuously monitors the power consumption of the farms, analyzes the same and sends custom alerts to farmers to stop crop losses. The Power Factor management technology optimized the power usage and reduces electricity consumption up to 20%.

Impact on Grass root development:

AquaX uses IOT and machine Learning technologies to solve farmer problems such as Power Management and Feed Management. Its patented technology product called "PowerMon" continuously monitors the power consumption of the farms, analyzes the same and sends custom alerts to farmers to stop crop losses. The Power Factor management technology optimized the power usage and reduces electricity consumption up to 20%.

Implementation: Our mission to digitize 100000 acres of active shrimp farming area during 2023 in which we have successfully present reached now contracting 25000 acres.

All this can be achieved by farm automation R&D/Technology: AquaX designs, develops and manufactures in-house a range of patented, IOT powered, automation products for the global aquaculture industry

Challenges: Aerator faults: Aerator and Blower failures give nightmares to Farmers, it could be due to power failures or due to not switching on generator on time or motor failures or cable cuts Power Bills & Capacitor Faults: Power bills giving shocks to farmers due to low Power Factor and ACDs due to crossing of kVa limits. And Capacitor Failures is another thing.. Farmers end up paying 10 to 40% more monthly.

Generator Monitoring: Keeping a check on Generator usage is very critical, Supervisor shouldn't switch on too late or leave it ON even after power restores.

Sustainability: Farmer friendly app which shows the status of Aerators in a customized map View Get Alerts on Aerator and Blower Failure with local siren and Phone call Monitors and controls Power Factor Get Aeration history for last 24 Hours and entire crop duration Keep a check on Generator usage It helps you bring down electricity consumption and reduce bills by 1- to 40% It reduces risk of operational Issues and Power Loss It provides consistent Power Factor Correction even under fluctuating power loads User Friendly Interface, Simple configuration with Mobile Application Continuously monitors capacitor banks and gives alarm for defective capacitors Manage power usage and avoid paying huge penalties along with ACD (Advanced consumption demand) Charges.Complete farm power and Aeration Monitoring through App Needs only one PowerMon per Meter/Transformer.

Future Plans: Digitizing 100000+ acres of active shrimp farming area during 2023 using PowerMON, AquaExchnage offers production cost optimization to Farmers and helps them to produce and harvest high quality shrimp. It also gives the industry the much needed authentic traceability of high quality shrimp. It requires one PowerMon for every 10 Acre Farm (Average), Hence requires to produce 7500 devices as we already installed and real time monitoring 25000 Acres using 2500+ devices.

Performance and Sustainability: Aqua Exchange's activities have benefitted shrimp and fish farmers in the following ways: More than 25,000 acres of farms have been automated Farmers purchased more than 40 million seed, 300 tonnes of feed, 1000+ aerators, 2000+ IoT devices at the most optimal prices. AquaX also helped farmers sell 3000+ tons of shrimp and fish and helped them receive the payment for the same immediately AquaX has helped reduce the Electricity expenses of the farmers by more than 20% compared to their previous electricity bills AquaX has helped reduce the labour cost (for feeding) by at least 30% for the farmers by providing automating feeding devices at a fraction of the corresponding human cost ü AquaX is facilitating the process of direct crop loans to the farmers and in the process helping them to procure inputs with credit costs at 1/3rd of their present credit costs.

Associations & Capacity Building: Associations: Right now we have tied up with Samunnati &Prayaan Capital for instant settlement to farmers to ensure they realize the immediate benefit.

Awards & Photographs

- Selected as TGS100 Emerging Startup by TiE Global Summit 2022
- Niti Aayog selected AquaX as a startup to be featured in the compendium on "Transformative and Innovative Agriculture"
- Selected as a speaker at the Fintech for Inclusion Summit at "The Hague" in Nov 2022.

Contact Information:
Veeravalli, Bapulapadu, Hanuman Junction-521105, AP.
Email : **arjunk@aquaexchange.com**
Contact : **+91 7702710555**
Website : **aquaexchange.com**

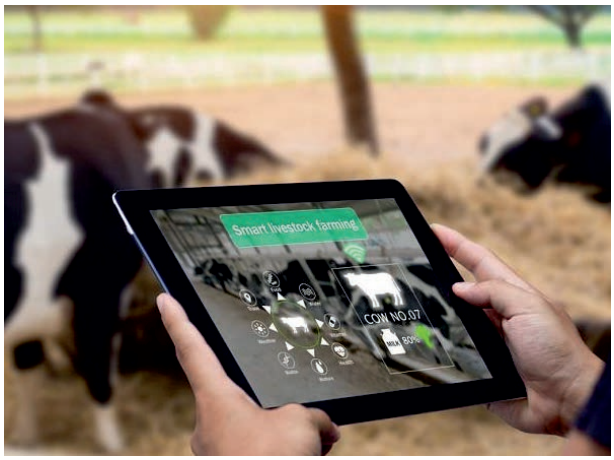
7. Areete Business Solutions Pvt. Ltd.

Srinivas Subramanian, Founder

Overview: In India, the dairy farming sector faces several challenges that hinder the productivity, profitability, and sustainable growth of the industry. These challenges include Inefficient Breeding Practices, Limited Access to Technology, and Low milk yield. CowFit aims to tackle these problems by providing innovative solutions such as IoT devices for cattle health monitoring, and improved breeding practices. By leveraging technology, strengthening market linkages, and addressing accessibility issues, CowFit strives to empower dairy farmers, improve their productivity, enhance animal welfare, and contribute to the overall advancement of the dairy industry in India. We are an Agritech organization that provides a variety of high-quality products backed by excellent service to cattle farmers in India. We follow the principle of "सुख स्वस्थ समृद्धि" for all.

Social Challenge: In India, the dairy farming sector faces several challenges that hinder the productivity, profitability, and sustainable growth of the industry. These challenges include Inefficient Breeding Practices, Limited Access to Technology, and Low milk yield.

Solution: Ayushman Cowfit is a cattle health monitoring IoT solution that helps farmers to improve the health and productivity of their cattle. The solution uses sensors to collect data on the cattle's health, such as temperature, activity, and feeding patterns. This data is then sent to a cloud-based platform, where it is analyzed by AI algorithms. The algorithms identify any potential health problems and generate alerts for the farmer. This allows farmers to take early action to prevent diseases and improve the health of their cattle. Overall, Cowfit is a valuable tool for farmers who want to improve the health and productivity of their cattle. The solution can help farmers to save money on veterinary costs, increase milk production, and improve the overall welfare of their cattle.



Impact on Grass root development:

We at Cowfit believe our social innovation practice has had a significant positive impact on the lives of cattle farmers and their livestock. By providing an IoT device for cattle health and heat monitoring, as well as an e-commerce portal for cow supplies, we have revolutionized the way farmers care for their cattle and manage their operations.

- Our IoT device for cattle health monitoring collects real-time data on vital signs, allowing farmers to closely monitor the well-being of each cow.
- Early detection of illness or distress through the device has reduced the risk of diseases spreading within the herd and decreased livestock mortality rates.
- The device also incorporates heat monitoring technology, optimizing breeding practices and improving the success rates of artificial insemination.
- Farmers receive timely notifications when a cow is in heat, eliminating the need for constant observation and manual tracking.

Ultimately, CowFit has positively contributed to the well-being, productivity, and livelihoods of cattle farmers, advancing the sustainable growth of the agriculture industry.

Implementation: During the implementation of our innovation in India, CowFit faced several challenges. However, through innovative approaches and strategic problem-solving, we were able to overcome these obstacles and achieve successful implementation. Some of the challenges we encountered include:

- Limited connectivity: In rural areas of India, where many cattle farms are located, there is often limited access to reliable internet connectivity. This posed a challenge for the real-time transmission of data from our IoT devices. To address this, we developed a system that allowed the devices to store data locally and transmit it once a stable internet connection was available. This innovative approach ensured that data was not lost and farmers could still access the information when connectivity was restored.

• Technical literacy and language barriers: Many cattle farmers in India have limited technical literacy, which presents a barrier to adopting and effectively utilizing our IoT devices and e-commerce portal. Additionally, language barriers existed as farmers primarily spoke regional languages. To address this, we developed user-friendly interfaces with intuitive designs and incorporated local language options. We also conducted training sessions in regional languages to educate farmers about the technology and its benefits. This approach helped bridge the gap and empower farmers to embrace and utilize our innovations effectively.

These experiences have taught us the importance of understanding the local context, being flexible and adaptable, and leveraging partnerships and technology to overcome challenges and drive positive impact in the agricultural sector

Future Plans: 5-year plan

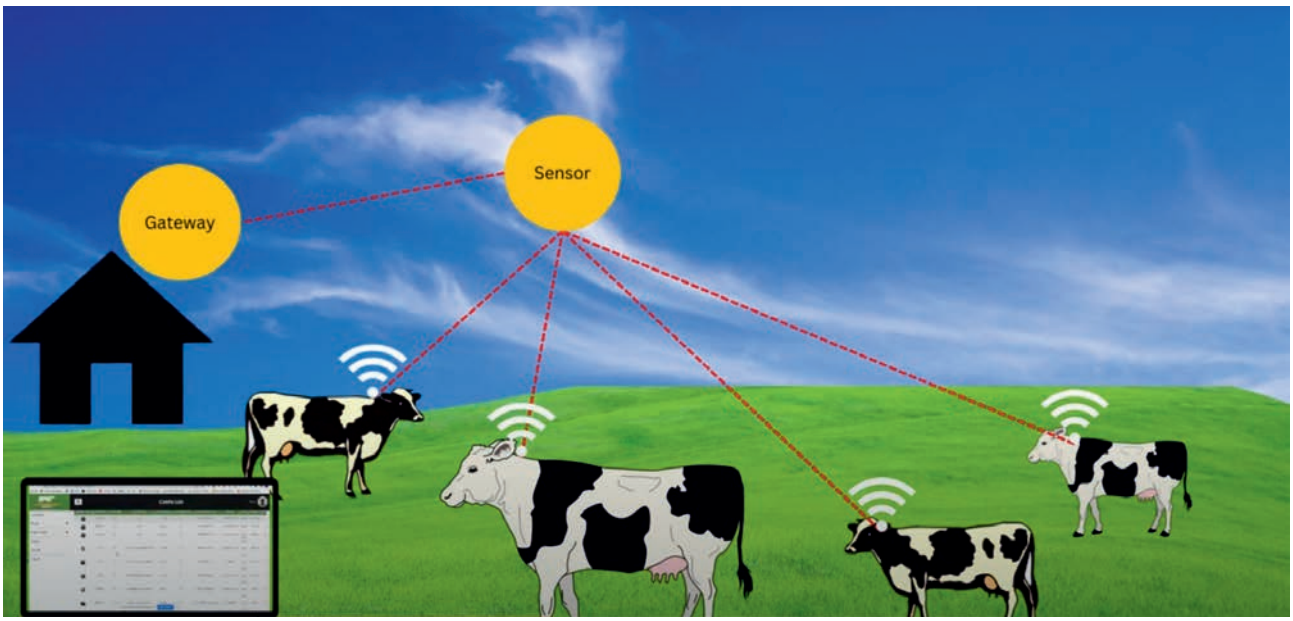
1. Focus on improving the overall health and well-being of cattle
2. Improving milk productivity
3. Onboarding 1 million+ cattle
4. 30% gross margin
5. Deliver ROI of up to 10x to farmers
6. Positivity effect of the dairy industry in India

Associations & Capacity Building: CowFit has forged strategic partnerships with several civil society organizations, women's self-help groups, and farmer producer organizations (FPOs) to drive social transformation and grassroots development. These partnerships have been instrumental in achieving our goals and making a positive impact on the lives of farmers and rural communities. Here are some of our key associations: BAIF (Bhartiya Agro Industries Foundation), Pashu Sakhis, PDFA (Punjab Dairy Farmers Association).

Awards & Photographs

• Winner Maharashtra Startup Week 2022

Contact Information:
Veeravalli, Bapulapadu, Hanuman Junction-521105, AP.
Email : **arjunk@aquaexchange.com**
Contact : **+91 7702710555**
Website : **aquaexchange.com**



8. Bee Himalayans Product Pvt. Ltd.

Ruchi Malhotra, Founder

Overview: India is the 6th largest producer of honey, accounting for 3.5% of global production. The global market size of natural honey is US$ 8.4 billion and it is projected to reach US$ 10.3 billion by 2025, with an expected CAGR of around 4.8%.

Globally 1,779.6 metric tons of honey is produced. China produces almost 28% of the world's honey, followed by Turkey (5.9%), Iran (4.5%), and the US (4.1%). India is the 6th largest producer of honey, accounting for 3.5% of global production.

During the last decade, India's exports of honey proliferated from US$ 56.2 million to US$ 100.8 million, experiencing a growth rate of 6.5% per annum, higher than the world's export growth. Additionally, India's imports are almost negligible at US$ 1.9 million in 2019. Major export destinations of Indian honey are the USA, Saudi Arabia, and UAE.

As per the Bibek Debroy-led beekeeping development committee report released last year, India has a potential of about 200 million bee colonies as against 3.4 million bee colonies presently.

Beekeeping, which is also one of the oldest professions dating back many centuries, has been becoming extinct due particularly in India due for many reasons. In this case of cultivation checking up on hives is difficult because beekeepers must wear dedicated suites to protect them from stings.

Solution: We at BeeHimalayans aid beekeepers to ensure that their farm is safe!

This is where our monitoring technology comes into a highlight. Beekeepers should not perform regular surveillance of hives it may cause cultivation issues and in the worst case reduced the level of honey production. Because of these issues, some keepers have to travel long distances for their bee farms.

This surveillance device is fixed to the bottom of beehive replicas so that it can send a notification to keepers regarding the status of nests. Weight monitoring of the hive is done by this device continuously. This information will be sent to the owner's device at regular intervals of time.

Bee Himalayans is on a mission to technify the beekeeping industry in India by building a global network of beekeepers and identifying causes and solutions for colony health deterioration. This mission is founded on the principles of citizen science, open data, and collaboration between beekeepers.

Impact on Grass root development:

As a socially responsible organization, our company is guided by the pursuit of meaningful goals. Our team identified five problem statements that we use to focus on our long-term strategy. These goals serve as a reminder that our work is important and impactful.

- Bee Conservation: Since bees are essential to protect biodiversity in nature, we need to save and conserve the bee population.
- Supporting Beekeepers: By helping beekeepers measure & effectively communicate, we aim to create a transparent marketplace that rewards beekeepers.
- Pollination Awareness: In the US, pollination has become one of the 3 most expensive inputs to produce almonds & other crops.
- Safeguarding Food Security: We protect food security by helping growers understand how to manage a critical output: Organic Honey.
- Women's Empowerment: We focus on women's empowerment to achieve sustainable development.

Implementation and Challenges: Our areas of focus are as follows:

- Skilling the farmers with the latest techniques of BeeKeeping.
- Creating jobs in rural areas through beekeeping and also through the processing of products derived from beekeeping such as honey, bee wax, bee propolis, pollen, bee venom, royal jelly, honeydew, etc.
- Creating women empowerment by providing more jobs to women.
- Helping beekeepers measure & effectively communicate, we aim to create a transparent marketplace that rewards beekeepers.
- Reducing the price parity in the honey market as the bigger players do not provide the right price to the beekeepers
- Encouraging ethical harvesting of honey
- Discouraging the use of fertilizers, insecticides, etc. which is harmful to both bees and human consumption
- Importance of pollination and spreading its awareness
- As ESG investing accelerates in demand, several key trends are emerging – from climate change to social unrest. Beekeeping

and the innovations in the agri-tech sector of beekeeping including IoT-embedded beehive boxes have contributed to exploring new mindsets and strategies to help deliver value and meet client needs.

While the biggest players in the honey business have not focused on safeguarding the interest of beekeepers or improving beekeeping technology.

We at BeeHimalayans have identified that large honey pasture areas are overcrowded while others are being wasted, having as a consequence a considerable amount of honey not being gathered and crops not being pollinated. BeeHimalayans has also designed an algorithm that optimizes the arrangement of beehives that beekeepers want to move near the fields. In that way, the application helps match migratory beekeepers and honey pastures, but also migratory keepers and transporters. The main idea is to make every available bee pasture visible to beekeepers. That results in more efficient crop pollination, richer yield, fewer expenses for beekeepers, and a significantly greater amount of honey. Yields would get bigger by 30%. All that is thanks to web technologies.

Performance: With our IoT device and cloud solution based on data provided by BeeHimalayans IoT device, the beekeeper will know when is the right moment to check out his beehives, and with that, he will be able to save bees with his actions. Being powered by solar energy, this device could measure temperature, humidity, audio signals in the hive, its weight, and GPS location. For example, if the food in the hive is running low, the user gets a notification on his cell phone so he can react adequately. Again, significant assistance of technology.

Our IoT devices would not only be of significant use to BeeHimalayans but also to the entire beekeeping industry and shall have a huge demand as they would be very economical to use.

Sustainability and Future plans: Our successful business model shall follow the following things:

- Manufacture the best products be it the IoT solutions or beekeeping products and also offer prices that our distributors or retailers can sell with ample profit /margin.
- We would create consistency in delivering our products or services to custom audiences.
- We would be providing great customer service.

Our Go-to-Market Strategy includes:

- Increase pollination awareness and train the farmers
- Skilling the beekeepers
- Aggregating the beekeepers and honey produce
- Increase awareness of the uses and advantages of using honey
- Increase sales through online e-commerce
- Contribute to the increasing exports of honey from the country

Association with FASAL, Software Technology Parks of India (STPI), Pune - Ministry of Electronics & IT (MeitY), Govt. of India

Awards & Photographs

- Award for Startup creating Social Impact by FICCI Agri Startup Awards - 2022

Associations & Capacity Building:

- Association with FPOs in the various districts of Uttarakhand
- Association with Startup India
- BeeHimalayans was also the gifting partner with Startup India for their initiative SuperStree in the year 2022-23
- Association with Uttarakhand Horticulture Board
- Association with FASAL, Software Technology Parks of India (STPI), Pune - Ministry of Electronics & IT (MeitY), Govt. of India

Contact Information:
Address : Khasra No. 271, Village Mustafabad, Laksar Road Haridwar Haridwar UR 249404
Email : **ruchi.omyaa.iraj@gmail.com**
Contact : **+91 9910887000**
Website : **beehimalayans.co.in**
Instagram: **beehimalayans**

9. Bio Blessings

Jai Chauhan, Founder

Overview: Our start-up, Bio Blessings, is established to promote natural skincare while creating employment opportunities in the country, especially for donkey owners & farmers.

Social Challenge: A study conducted by Brooke India (an animal welfare organization) shows that there has been a drastic decrease in the donkey population in India, accounting for an overall 61.23% of the downfall between the years 2012 and 2019. This sharp decline has resulted in the unemployment of numerous donkey farmers, causing a serious concern to livelihood for many marginalized urban and rural

Solution: With our start-up, we envision providing solutions to this very problem by opening opportunities for the community. We yearn to save the donkey population and utilize their untapped potential, ultimately, benefitting the donkey owners.

Impact on Grass root development:
Our start-up is working to solve this problem on the ground level. We look forward to providing occupational opportunities to the donkey owners & farmers through our start-up. We are aware that to create employment, there has to be a promising structure, product, and distribution channel, and hence, we are dedicatedly working on all levels to facilitate the same.

Implementation and Challenges: In our case, the main ingredient that we are focusing on is- Donkey Milk. Although its benefits are still unknown to the majority, this potent milk is known to have many medicinal values and has roots in Ayurveda and even Egyptian beauty regimes. Its benefits can be highlighted by the fact that it closely resembles human breast milk.

Our startup which aims to produce luxury cosmetic products with donkey milk as its main ingredient will open up opportunities for donkey farmers and ultimately help in enhancing their income. We shall also pay due focus on the welfare of community women and provide them a special share and preference in the production process of our natural skincare products.

Performance: The main challenge we are facing is funding.

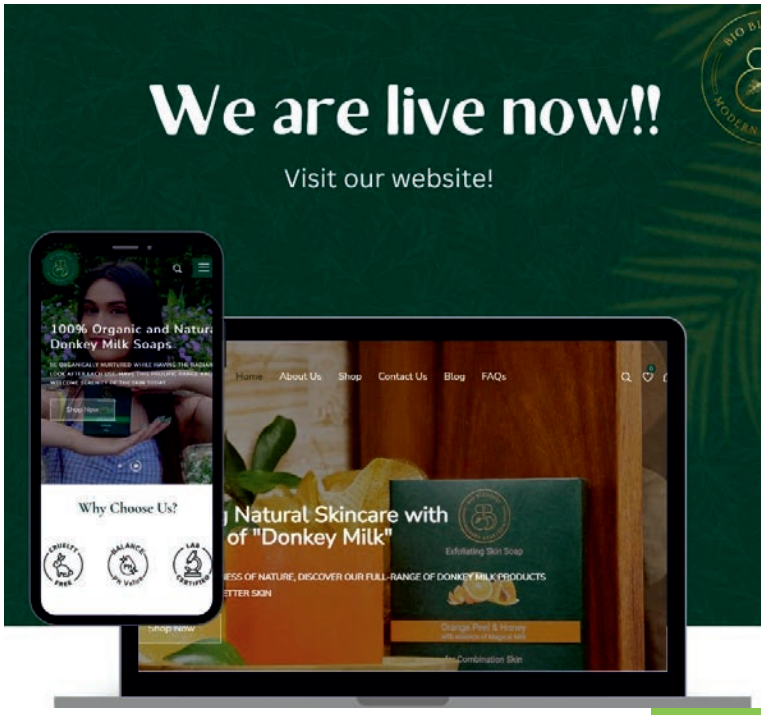
Sustainability: Our start-up aims to provide luxurious chemical-free cosmetics to consumers across the country at affordable prices by utilizing this untapped yet potent resource of donkey milk.

Future Plans: We are aware that for any business to ensure its scalability, it is vital to pay due attention to improving the profitability and efficiency of its products and/or services; and this can come only from the core of the business' vision and structure. Hence, we are making all necessary arrangements to increase production or accommodate more products as well as customers when necessary.

Associations & Capacity Building: We have a small team of 5 members dedicatedly to working at the grassroots level, and have also partnered with a few third-party manufacturers for the development of our upcoming products.

Awards & Photographs

- We are aware that for any business to ensure its scalability, it is vital to pay due attention to improving the profitability and efficiency of its products and/ or services; and this can come only from the core of the business' vision and structure. Hence, we are making all necessary arrangements to increase production or accommodate more products as well as customers when necessary.
- To ensure our scalability, we shall focus on market research, our sales insights, and technological advancements to expand our domain and increase the efficiency of doing business. We are also ensuring easy, smooth, and timely communication to our partners/ distributors/ customers with digital media to ensure that all their preferences & opinions can be heard and worked upon for better facilitation of our services.



Contact Information:
Address: G-75, Sector-22, Noida-201301 U.P.,
Email **: jai.chauhan@bioblessings.com**
Contact **: +91 8700197022**
Website **: bioblessings.com**

10. Deroi Tea by Deroi Innovation Pvt. Ltd.

Surjya Prakash Borthakur, Founder

Overview: Deroi Tea is the first start-up from NE India to manufacture Carbon-Free Tea and work towards eliminating the use of coal and gas in tea manufacturing through technological intervention. Assam is the largest producer of tea in India, producing an impressive 700 million kg per year. However, to reach that figure the industry is also utilizing nearly 40 million kg of coal and gas. Using carbon-based fuels directly in manufacturing tea has an immediate environmental impact as well as it may have a harmful health impact due to the formation of a layer of carbon on the tea caused by the carbon emissions resulting from burning coal and gas. Since tea is consumed regularly in India, even the slightest carbon contamination must be considered and eliminated.

Solution: After 3 years of rigorous R&D, Deroi Tea has been successful in developing a patent-pending dryer and steaming apparatus that is used for processing tea and operates entirely on electricity. The technology is completely indigenous and is currently being used in Deroi Tea's Carbon-Free factory that manufactures a new kind of clean, carbon-free dried Green Tea.

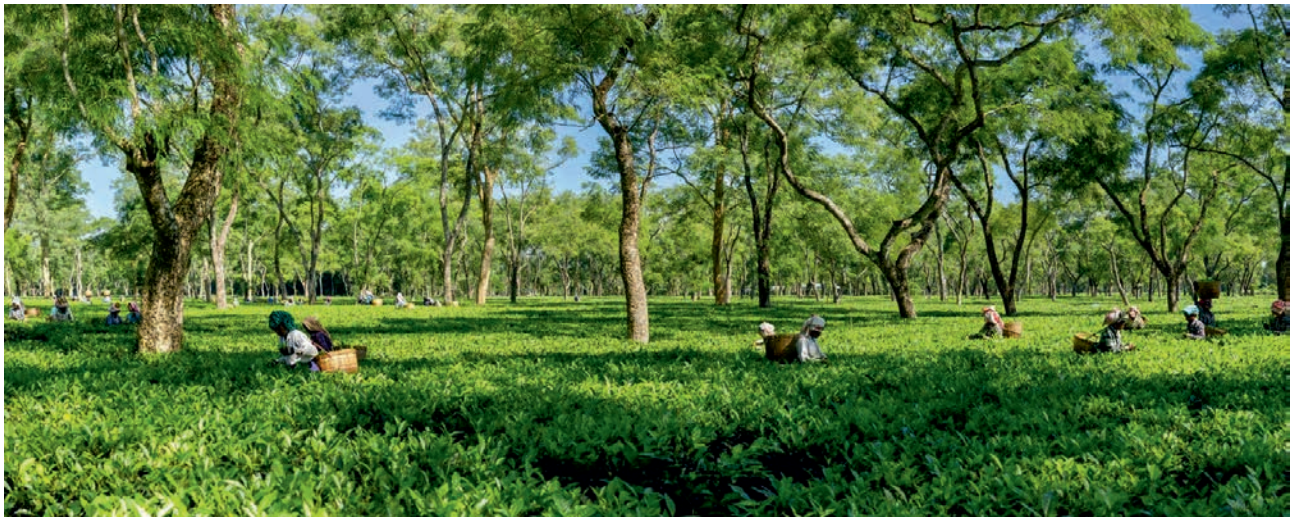
Impact on Grass root development:

Since its launch in November 2022, Deroi Tea has been tried and accepted by +1500 customers. Deroi Tea's factory is engaging 5 workers who were surprised by the nature of the machines used. They were expecting a loud environment with constant manual intervention similar to a conventional tea factory. However, Deroi Tea's factory is silent, and emission-free, and the machines are semi-automated thus benefitting the workers.

Implementation and Challenges: The greatest challenge was to manufacture Carbon-free dried and brand it as the same. Conventional factories in Assam sell their tea in bulk which is later white-labeled under various brands. Retail brands purchase from several factories and blend the tea to keep a consistent taste and reduce cost. To prevent our tea from being mixed with conventional tea, we developed a homegrown brand by the name of Deroi Tea that sells tea made only through our proprietary carbon-free method at Deroi Tea's Factory. Assam has very few brands that manufacture and market their tea like Deroi Tea. We are taking a full-stack approach to tea manufacturing, developing the technology, product, and brand.

Performance: Since November 2022 Deroi Tea has organically generated Rs 3.5L in revenue with a total ad spend of Rs 30k. Deroi Tea has been selected as a Startup to represent Assam at various National and International Stages such as IITF 22, New Delhi.

Sustainability and Future Plans: Deroi Tea has embarked on the mission to make Assam's tea industry sustainable with carbon-free manufacturing technology. Deroi Tea wants to emerge as a homegrown tea brand from Assam as well as a tech pioneer. A primary objective for Deroi Tea at present is to promote the concept of carbon-free dried tea and increase its awareness of benefits among domestic consumers. Another objective of



Deroi Tea is to establish a technology hub for the tea industry in Assam, presently over 90% of the machines used by the tea industry are made outside Assam. Deroi Tea aims to manufacture its machinery indigenously.

Associations & Capacity Building: Deroi Tea is working with Small Tea Growers in Assam for the supply of very high-quality raw materials at 3 times the market price. This is motivating small tea growers to focus on the quality of raw materials more than the quantity. Conventionally tea leaves are sold to large

·Awards & Photographs

- Received awards from Numaligarh Refinery Limited, a public enterprise, the Government of Assam, IIMCIP, and Maruti Suzuki.

Contact Information:
Address **:** Khasra No. 271, Village Mustafabad, Laksar Road Haridwar Haridwar UR 249404.
Email **: reach@deroitea.com**
Contact **: +91 86383 74308**
Website **: deroitea.com**
LinkedIn **: deroitea**

11. Dharambir Food Processing Technologies Pvt. Ltd.

Dharambir Singh, Founder

Overview: Innovation is a portable machine capable of processing various fruits, vegetables , herbs and seeds. It can also work as a big pressure cooker with temperature control and auto cut-off facility. It also has a condensation mechanism that helps in extraction of essence from flowers and medicinal plants.

Solution: Now the farmers can also process the crop that in their fields and do value addition, and can make finished good, to sale the final product ,good packaging and send it to the market and many people are doing so , The perfect example of this is the cultivation of aloe Vera . There is not any market to sale this and we process that through this machine and make many products and send them to the market

Impact on Grass root development:
Customers: 138% increase in gross margin from higher value added through processing (compared to selling raw produce) ; Average payback period 14 months
Workers: Average 24% increase in household income of women workers employed by households
Community: Reduced migration away from villages to cities due to local opportunities created
Environment: Reduction in use of soil-damaging chemicals and improvement in conservation of soil systems
- Access to safe and nutritious food for all
- Nature-positive production
- Resilience to vulnerabilities, shocks & stress

Implementation and Challenges: Dharambir Kamboj, an innovator who encountered many hurdles on his road to success, life is all about winning over your weaknesses and continuing hard work. This multifaceted innovator wears many hats. Kamboj is best known for his multipurpose processing machine that enables farmers to process various farm products on a domestic level.
After spending a year as a cycle rickshaw puller in Delhi, Dharambir found solace in a public library near the Old Delhi railway station. During his free time, he would read up on farming-related subjects like growing different types of exotic crops like broccoli, asparagus, lettuce, and bell peppers. According to him, “Delhi was a learning experience for him.” But after an accident in Delhi, he moved back to his native village in Haryana.

Once he recovered from his accident injuries, he decided to stay back in his village. He attended a training program in the village development society to learn more about improving agricultural practices for six months. In 2004, he got an opportunity to visit Rajasthan through the Horticulture Department of Haryana. During the visit, Dharambir interacted with farmers to learn about the Aloe Vera crop & its extracts for obtaining medicinal value products. The pricing of the machine was exorbitant but, I didn't give up on the thought of developing machine-in-house. After an investment of Rs 25,000 & an effort of over eight months, my first prototype of Multipurpose Processing Machine was out".

Performance: Multi Pro is a portable food processing machine that is used to process all kinds of fruits, herbs and seeds. The cylindrical container is made of food grade stainless steel, which gives them a chine a broad applicability.

Sustainability and Future plans: Dharambir Kamboj sells these machines across 15 countries like the United States, Italy, Nepal, Australia, Kenya, Nigeria, Zimbabwe and Uganda.The company plans to export its foo processing machines to around 100 countries in the next five years, with a revenue target of Rs 2 crore this fiscal year and around Rs 10 crore by FY27. So far, Kamboj has sold approximately 900 machines, employing approximately 8,000 people.

For his innovation of the multipurpose processing machine, NIF gave him the Haryana State award in its Fifth National Biennial Awards function in 2009. Dharambir once said, "When I started my experiments, people used to tease me. They never took me seriously. Even my father thought that I was just wasting my time when I was working hard and carrying out various experiments."

Awards & Photographs

- National Award by PRESIDENT of India -2014
- HBNCRIIA 2020 International Award by GIAN –2020
- State award by national innovation foundation In 2009 for MPP machine innovation.
- Indian council for agriculture research farmer scientist award in 2010 for MPP machine innovation

Contact Information:
Address : VPO. Damla District Yamunanagar, Haryana Near Polytechnic Hostel.
Email : **kissandharambir@gmail.com**
Contact : **+91 9812646563, 9896054925**
Website : **kissandharambir.com**
LinkedIn : **kissan-dharambir-77001245**

12. EF Polymer Pvt. Ltd.

Narayan Lal Gurjar, Co-Founder

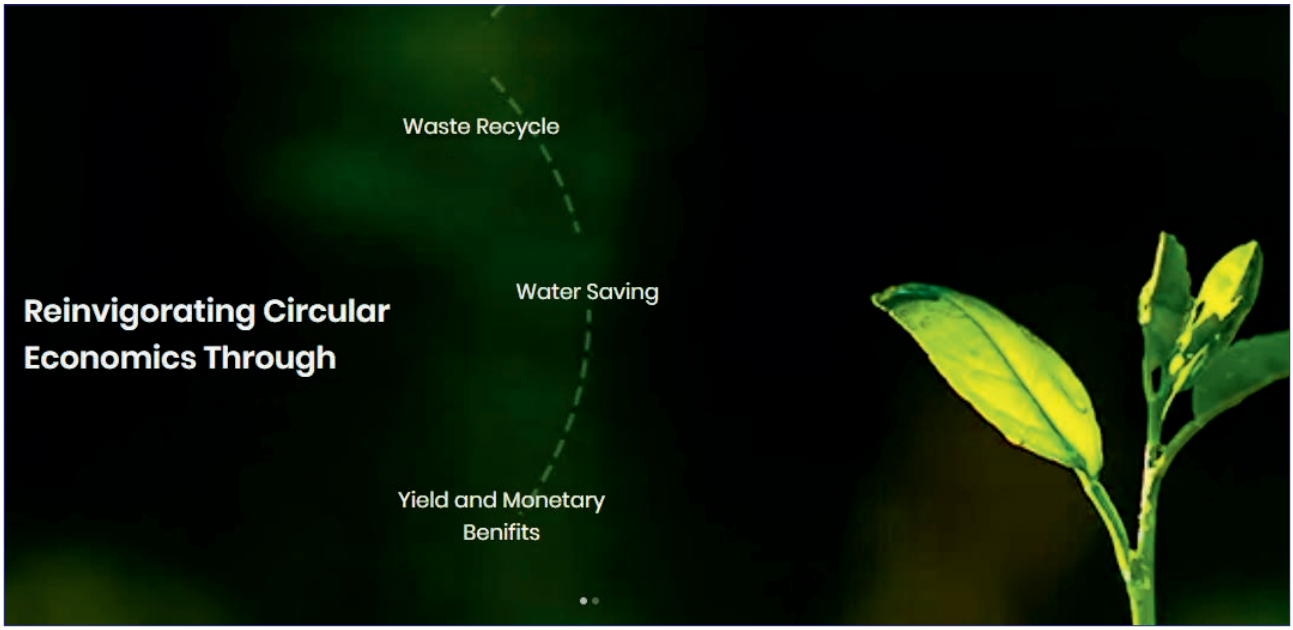
Overview: EF Polymer Pvt. Ltd. is a startup that was founded in 2015 by a group of engineers and polymer experts in Chennai, India. The startup is focused on developing and manufacturing eco-friendly and sustainable polymer products for a range of industries, including packaging, agriculture, construction, and automotive.

The startup has gained recognition for its innovative approach to polymer development and its commitment to environmental sustainability. EF Polymer Pvt. Ltd. has received several awards, including the National Award for Research and Development Efforts in Chemical Sciences in 2018.

Solution: EF Polymer Pvt. Ltd. offers a range of eco-friendly and sustainable polymer products that are designed to reduce the environmental impact of traditional polymer products. The startup's products are made using renewable and biodegradable materials, such as corn starch, potato starch, and sugarcane bagasse. The startup's flagship product is a range of biodegradable and compostable bags that can be used for a range of applications, including packaging, waste management, and agriculture. The bags are made using a blend of natural materials that are non-toxic and safe for the environment. EF Polymer Pvt. Ltd. also offers a range of sustainable polymer products for the construction industry, including insulation panels, roofing sheets, and flooring tiles. These products are made using recycled and renewable materials, such as plastic waste and bamboo.

Impact on Grass root development:

EF Polymer Pvt. Ltd.'s eco-friendly and sustainable polymer products have had a significant impact on grassroots development in India. The startup's products have helped to reduce the environmental impact of traditional polymer products, which often end up in landfills and contribute to pollution. The startup's biodegradable bags have also helped to address the issue of plastic waste in India. Plastic waste is a significant problem in India, and it is estimated that the country generates over 26,000 tonnes of plastic waste every day. The startup's biodegradable bags offer a sustainable alternative to traditional plastic bags and can help to reduce the amount of plastic waste in the environment.



Implementation and Challenges: The implementation of EF Polymer Pvt. Ltd.'s eco-friendly and sustainable polymer products has been challenging due to various factors. One of the biggest challenges has been the lack of awareness and demand for sustainable products in India. The startup has had to conduct extensive awareness campaigns and marketing efforts to promote its products. Another challenge has been the lack of infrastructure and support for sustainable products in India. The startup has had to rely on private funding and partnerships to establish a manufacturing facility and distribution network. The lack of government support has also led to regulatory hurdles, which have slowed down the implementation process..

Performance: EF Polymer Pvt. Ltd.'s eco-friendly and sustainable polymer products have been highly successful in reducing the environmental impact of traditional polymer products. The startup has established a manufacturing facility in Chennai, and it has a distribution network that covers various parts of India.

The startup's biodegradable bags have been well-received by consumers and businesses alike, and they have helped to reduce the amount of plastic waste in the environment. The startup's sustainable polymer products for the construction industry have also gained traction, and they offer a sustainable alternative to traditional construction materials.

Sustainability and Future plans: EF Polymer Pvt. Ltd. is committed to promoting sustainability and reducing the environmental impact of polymer products. The startup's long-term goal is to establish itself as a leading manufacturer of eco-friendly and sustainable polymer products in India and beyond. To achieve this goal, the startup is focusing on expanding its product line and increasing its production capacity. The startup is also exploring the use of new and innovative materials to develop sustainable polymer products for a range of industries. The startup is also investing in research and development to improve the performance and sustainability of its products.

Awards & Photographs

- Selected for a Startup Accelerator Program from Okinawa Institute of Science and Technology, Japan
- Winner of Carbon Tech Award

Contact Information:
Address **:** Kerdi, Boraj ka Khera, Boraj, Rajsamand, Rajasthan, India 313324
Email **: support@efpolymer.com**
Contact **: +91 2943554300**
Website **: efpolymer.com**

13. Farmers Family (Satoguni Swadeshi Utpaad Pvt. Ltd.)

Vikal Kulshreshtha & Mayank Kulshrestha, Founder

Overview: Farmers Family is a mission to increase wealth for farmers and to ensure health for consumers. Farmers Family is an agritech supply chain platform creating solutions for multiple pain points right from farming till consumption, both at pre harvest and post harvest stage. The company is currently focussed on post-harvest management of agro products with special focus on health of consumers, market linkages and establishing robust end to end supply chain. Our target customers are both end consumers and businesses consuming the product or reselling the product.

Solution: Farmers Family is about providing healthy produce to consumers and providing right price for to the Farmers. Our motto is 'We Farm, you eat!'. We have kept things simple and are currently focused on post-harvest management of agro products, thereby managing supply chains, ensuring traceability of produce and adopting our farm cycles as per needs of consumers with the integration of technology.

Performance: We have achieved more than 100% growth in terms of revenue and customers during last 2 years. For FY 2021-22 our revenue was INR 2.82 Cr which increased to INR 7 Cr in FY 2022-23 and now we are achieving monthly revenue of INR 1 Cr + Further, the company has achieved profitability from FY 2022-23.

Sustainability and Future plans: The company has already started delivering to consumers and businesses. Farmers are also customers for agri inputs which will be added as a revenue stream within next 1 year. Consumers App is running and live. Farmers App, B2B App and Technology aggregation app are under development and expected to launch with initial version soon.

Associations & Capacity Building: We are working on ground with more than 2000 farmers and working with several FPO's and apart from buying their products, our engagement programme includes working on their education, health, skill development and other neglected areas.

Awards & Photographs

- We were selected by 'Start in UP' mission of Uttar Pradesh Government amongst very few startups to showcase our startup in 'India Innovation Hub Bus' at Dubai Expo.

Further, we are being incubated by globally reputed institutions viz.

1) IIM Lucknow Enterprise Incubation Centre
2) Indian Council for Agricultural Research (ICAR), Lucknow
3 National Institute of Agricultural Marketing (CCS-NIAM)

Contact Information:

Address : B-101, Sector-63, Noida, U.P-201301
Email : vikal@farmersfamily.in
: mayank@farmersfamily.in
Contact : **+91 9311674666, 9311673666**
Website : **farmersfamily.in**
LinkedIn : **vikal-kulshreshtha-64557523**
: **mayank-kulshrestha-87b4bbb7**

14. Foodmed Nutrients

Munu Mani Das, Founder

Overview: An initiative to revive Assam's age-old traditional food habits by bringing seasonal indigenous herbs, spices, fruits, and vegetables to the people around the year in a ready-to-cook form.
In addition, encourages farmers for contract farming to cultivate seasonal herbs, vulnerable fruits, and vegetables, assuring them of buyback at the right prices.
Target customer segment: B2C- Residents of Assam residing within/ outside this state- Housewives, Working Class people
B2B model – Hoteliers, Resorts, Food industry, and Nutraceutical companies

Solution: Use of appropriate technology (Dehydration) to increase the shelf life of perishable herbs/ fruits, thereby making the products available all around the year.

Impact on Grassroot development: Indirect beneficiaries - the local farmers in the production of raw materials, and engagement of local community women in the all-women-run food processing unit.
The direct beneficiaries: Availability of seasonal herbs, fruits, and vegetables all around the year in a ready-to-cook form- saves time and effort.

Implementation and Challenges: The biggest challenge was the availability of raw materials- Addressed the need by encouraging the local farmers and introducing them to contract farming.
The next challenge was to seek for the right market to place our products. Went first to the local departmental stores to know the demand and market study. Then visited various govt agencies like NERAMAC, and NEDFI who gave market linkage and guidance.

B2B model:

- Hotels and resorts- as ingredients of multiple cuisines.
- Planning to sell our finished products to a company that is working on nutritional component extraction.
- Planning to collaborate with companies dealing with Ayurvedic medications.

Sustainability: Product innovation is like a fortification. R&D in association with NIPER, Guwahati for newer product formulation. To ensure sustainability, we have partnered with local farmers to have an uninterrupted supply of raw materials. Signed MoU with organizations like NERAMAC, and NEDFI.

Future Plans: In the future, we plan to scale up our production capacity and bring innovative ideas like product fortification, and formulation of nutraceutical products. An MoU has been signed with the National Institute of Pharmaceutical Education and Research (NIPER), Guwahati as an incubator to take further guidance in this regard.

Associations & Capacity Building:

- Joined as Joint Secretary in Assam Women Association which is aiming for setting up an all-women market in Tezpur, Assam.
- Hold meetings with the Village head of Parbatia gaon, Tezpur to encourage community farming of vulnerable fruits and herbs.
- Employment of local women in the all women-run food processing unit, thereby contributing towards creating livelihood for women.

Awards & Photographs

- Attended various food shows/exhibitions in Assam and outside like UDYAM Sammelan, NorthEast Food show, Shillong, NORTHEAST Festival New Delhi, Dec 2022.
- Selected in Assam start-up
- Selected as Incubatee in the North Eastern Entrepreneurship Development program (NEEDP) under IIMCalcutta Innovation Park.

Contact Information:

Address : Dambar Sing Gurung Path, Chandmari, Tezpur. Assam. Pin 784001
Email : foodmednutrients@gmail.com
Contact : **+91 9401996764**
Website : **foodmednutrients.com**
LinkedIn : **Foodmed Nutrients**

15. Freshokartz Agri Products Pvt. Ltd.

Rajendra Lora, Founder

Overview: Freshokartz Agri Products Pvt. Ltd. is a startup that was founded in 2016 by a group of agricultural experts and entrepreneurs in Pune, India. The startup is focused on revolutionizing the Indian agriculture sector by providing farmers with a technology-driven platform that enables them to sell their produce directly to consumers and businesses.

Freshokartz's platform uses artificial intelligence (AI) and machine learning (ML) algorithms to match farmers with buyers based on their location, product quality, and other parameters. The startup's platform also provides farmers with access to logistics and marketing services, enabling them to reach a wider audience and improve their profitability.

Solution: Freshokartz's platform offers a range of solutions that are designed to address the challenges faced by farmers in India. The startup's platform enables farmers to sell their produce directly to consumers and businesses, eliminating the need for intermediaries and reducing transportation costs. The platform uses AI and ML algorithms to match farmers with buyers based on their location, product quality, and other parameters. This enables farmers to get better prices for their produce and reduces wastage due to overproduction. Freshokartz's platform also provides farmers with access to logistics and marketing services, enabling them to reach a wider audience and improve their profitability. The startup's logistics services include transportation, warehousing, and packaging, while its marketing services include branding, advertising, and market research.

Impact on Grassroot development: Freshokartz's platform has had a significant impact on grassroots development in India. The startup's platform has helped to improve the profitability of small and marginal farmers by eliminating intermediaries and enabling them to sell their produce directly to consumers and businesses.

The startup's platform has also helped to reduce the wastage of agricultural produce by matching farmers with buyers based on demand. This has led to a reduction in food waste and has helped to increase the availability of fresh produce in the market.

Freshokartz's platform has also provided farmers with access to logistics and marketing services, enabling them to improve their competitiveness and reach a wider audience. This has helped to create employment opportunities in rural areas and has contributed to the overall development of the agriculture sector in India.

Implementation and Challenges: The implementation of Freshokartz's platform has been challenging due to various factors. One of the biggest challenges has been the lack of technological infrastructure and awareness among farmers in India. The startup has had to conduct extensive awareness campaigns and training programs to educate farmers about the benefits of its platform.

Another challenge has been the lack of investment and funding for startups in the agriculture sector in India. The startup has had to rely on private funding and partnerships to establish its platform and expand its operations.

The startup has also faced regulatory hurdles, including licensing and compliance requirements, which have slowed down the implementation process.

Performance: Freshokartz's platform has been highly successful in improving the profitability of small and marginal farmers in India. The startup has established a strong network of farmers and buyers on its platform, and it has enabled thousands of farmers to sell their produce directly to consumers and businesses. The startup's logistics and marketing services have also been well-received by farmers, and they have helped to improve the competitiveness of small and marginal farmers in the market. Freshokartz's platform has also contributed to the overall development of the agriculture sector in India by creating employment opportunities in rural areas and reducing the wastage of agricultural produce.

Sustainability and Future plans: Freshokartz Agri Products Pvt. Ltd. is committed to promoting sustainability and reducing the environmental impact of the fresh produce supply chain. The startup's long-term goal is to establish itself as a leading agri-tech startup in India and expand its operations to other countries. To achieve this goal, the startup is focusing on expanding its product line and increasing its production capacity. The startup is also exploring the use of new and innovative technologies to improve efficiency.

Awards & Photographs

- Recognised in Freshokartz in Tech 30 High Potenital Startups
- Freshokartz supported by Bhamashah Techno Fund

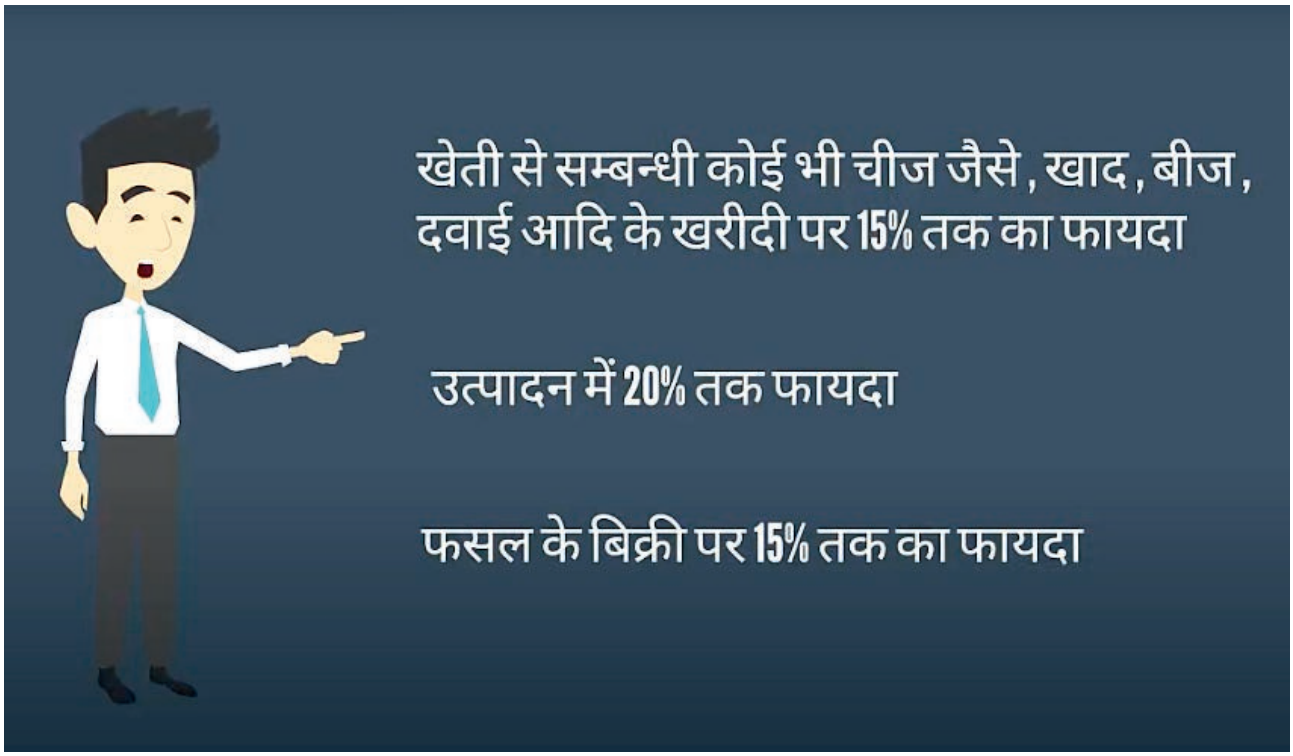
Contact Information:

Address : 716, 7th Floor, Elements mall DCM, Ajmer Road, Jaipur Rajasthan 302021

Email : info@freshokartz.com

Contact : **+91 9610776707**

Website : **freshokartz.com**



16. KisanSaathi

Prem Rathod, Founder

Overview: We are Kisan Saathi – one of the prominent players in F.P.O model engagement established in 2015, we aim at bringing an integrated Ecosystem in Agriculture to benefit the farming community. We do it by any means right from enabling farmers, and F.P.O's to buy quality inputs directly from manufacturers to Post-harvest Farm produce Marketing- involving good agriculture practices, technology transfer, value addition, and value chain creation. We majorly work with Farmer Producer Organizations thus involving all the small and marginal farmers to come together and uplift their community/cluster, creating entrepreneurship/ business opportunities. We are passionate about driving positive impact in the lives of farmers, sustainable F.P.O's, addressing the needs geo specifically, maximizing farmer benefits.

Social Challenge: The government of India has taken the initiative to launch 10,000+ making clusters in many parts of India thus bringing all the small and medium landholders to grow as a community. After the formation of F.P.O's, they need hand-holding support, and capacity building to grow and establish. To become sustainable they need networking, marketing, and awareness of the F.P.O and its F.P.O's. The challenge is to make use of F.P.O potential, generate business, have a sustainable business model, and trusted partners, introduction to new technology, F.P.O management, capital, and infrastructure.

Solution: Kisansaathi's approach to these F.P.O's intervenes at various stages based on the year of formation, annual revenue, F.P.O involvement. We take a swot analysis of F.P.O and develop a business model for input (seeds, pesticides, fertilizers.) to post-harvest management (marketing, sorting, and grading.) Connecting buyers, we interlink farmers, F.P.O's, buyers, manufacturers, and service providers at our platform and bring all the players together to grow and develop F.P.O's. We engage with F.P.O's over 2-3 years of strong capacity building and hand-holding support and thrive to bring F.P.O stand on their own.

Impact on Grassroot development:

Social Impact:

- Self-sustainability of F.P.O's and farmers increases
- Improved standard of living of Farmers
- Empowered Farmers

Economic Impact:

- Overall higher income per acre
- Better price realization to Farmers
- Adopting Modern AgTech Solutions
- F.P.O's profitability increases compared to a conventional model
- A step towards reduced multiple handling & wastage etc.

Environmental Impact:

- Sustainability in Agriculture Production
- Reduced Food Wastage & cost of cultivation
- An increased percentage of Eco-friendly ways of farming
- Effective change in conventional supply chain system

Implementation: We have a series of modules and patterns for implementing the F.P.O development at various stages over a while and seasons.

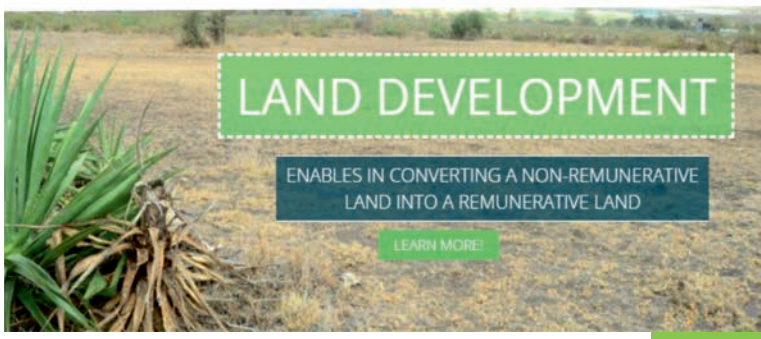
1. **First quarter:** Capacity Building> F.P.O SWOT Analysis> Awareness of F.P.O Model Potential > Awareness of Collectivisation approach > Importance of F.P.O leadership Managemen > Adopting digital > Technologies > Adopting Institutional Mechanism

2. **Second quarter:** Post Harvest Training > Fruits & Vegetables Harvest Index > Proper Harvesting Methods Proper Grading & Sorting adoption > Packaging Training > Proper & Effective Transportation Training >
3. **Third quarter:** GAP (Good Agriculture Practices) > Optimum and effective seeds quality usage> Optimum utilization of Fertilizers & Manures > Adopting Integrated pest management > Introduction to new Tech/Innovation > Recommending Integrated Nutrient Management
4. **Fourth quarter:** Market Linkage > Market-related advisory > Identifying Buyers > Exposure to HoReCa / Arbitrage/ Export / Processors segments > Price Forecast & Production Estimate advisory
5. **Challenges:** Working with bod, local challenges, the criteria of formation of F.P.O, ngo that took leadership in building F.P.O, F.P.O involvement, awareness, time taking, capital infrastructure to name a few.

Sustainability: Throughout capacity building and F.P.O development the practices and groundwork during the implementation period the steps that we follow and adopt bring the institutional reach, approach, and model that will create a sustainable business and run the F.P.O. Through input business, output business, technology adoption, primary processing, secondary processing, and other services

Future Plans: To make the best-performing F.P.O's to reach better positions create employment locally, bring value and value chain creation, bring new products, cluster-based approach, better financial planning, and growth, commitment as a group help realize their potential of F.P.O's. Make a viable platform for all F.P.O's to work and build on their own with all our possible support to expand from south to north all over India. Reach the best engagement services with F.P.O's from 100 - 1000 having 1000000 farmers.

Performance and sustainability: Our pilot engagement in Karnataka with giz Germany has given fruitful results and is sustainable themselves after realizing their potential and doing input and output business



Associations & Capacity Building: Associated with 55 buyers across India and overseas, 5+ implementation agencies supply partners from F.P.O's

Awards & Photographs

- Kisansaathi was selected and funded under the idea2poc grant scheme of Karnataka start up Policy 2017
- Contributed marketing guidebook to F.P.O's to strengthen farm produce marketing business
- Incubated at atal innovation center Rambhau Mhalgi Prabodhini Mumbai a Niti Aayog initiative
- Our company venture model story was published by Forbes International magazine in 2019
- Ecosystem partner to smart Village movement Andhra Pradesh Winner of Samunati manage awards Hyderabad 2021
- Winner of techtonic innovation grant - social alpha

Contact Information:

Address : Sr No 184/3, Kalaburagi Road,sulepeth, Gulbarga, Karnataka-585324

Email : ananth@kisansaathi.com

Contact : **+91 7676462363**

Website : **kisansaathi.com**

17. Occamy BioScience Pvt. Ltd.

Dr. Milind Niphadkar and Ms. Saloni Godbole
Founder

Overview: Occamy Bioscience Private Limited (Occamy) is formed with a motive to convert laboratory research to technologies and products. It aims to bring the research and novel approaches to the Indian market, further targeting to reduce the cost for mass application and bringing superior technology to common people. Occamy has an extremely flexible approach to the development and delivery of products and technologies.

Social Challenge: India tops the world in ,milk production (@25% of total) and the Indian government intends to further it to 33%, in coming times. The rural, small cattle owner, forms the backbone of overall milk productivity.
Animals/Cattles require micro and macro-nutrients in addition to feed, for sustained productivity and performance. However, the increased prices does not allow the cattle owners to given the required micro- and macro-nutrients leading to fluctuation and drastic reduction in cattle productivity and performance, pushing the farmer into vicious cycle of low productivity of milk and high cost of cattle maintenance, many of the small farmers are opting out of this business because of reduced profits or even losses.

Solution: Occamy BioScience Pvt Ltd (Occamy) has made a product, BoviBooster, which not only provides high quality protein for stable milk production, but also incorporates all the required micro/macro-nutrients in one product which enables the farmer to provide ALL essential requirements in single product at affordable cost, thus making the milking business profitable.

Impact on Grassroot development: The impact of the product is multifold and can be summarized as follows
1) Farmer – The farmer is able to provide ALL essential requirements to the cattle along with some nutrition in one single affordable product which increases the milk productivity in terms of quality as well as quality. Thus, the milk production becomes a profitable and sustainable business also allowing the farmer to look forward to future growth.
2) Animals – BoviBooster contains ALL essential micro/macro-nutrients for the cattle, hence regular use leads to increase in performance of the animals and extends the milk production for longer period. Also it positively impacts the animals health by increasing immunity, decreasing disease incidence.

Implementation: Occamy works with organization involved in CSR as well as NGO/NPOs, which in turn can recruit local village level entrepreneurs (VLEs) for disbursal of the product. This, in turn, generates employment at grassroot level. Also it allows the product to be available at affordable costs to the end user by cutting down the supply chain.

Challenges: In India, the dairy animals is a major factor in contribution towards Green House gases (GHGs) emission. The milk productivity of Indian cattle is only one third of those in European countries. Majority of the GHGs emitted from cattle are due to unbalanced nutrition, incomplete digestion leading to underutilization of nutrients and

thus leading to wastage. Incomplete digestion of the fed material leading to decrease in animal efficiency (of milk productivity) and GHGs emission. A modulation of the digestive capacity of the animal via feed ingredients will increase the milk productivity per head of animal and also decrease in GHGs. BoviBooster provides a partial solution in that it increases milk quantity and quality thus reducing the methane production diverting it to higher productivity.

Sustainability: It is therefore proposed that these emissions can be reduced substantially by suitably altering feed compositions as well as by using ingredients that modulate production of CH4 and N2O and shall also reduce nitrogen in manure. It is important to note that mere feeding high quantities of nutrition is not responsible for mitigation of GHGs emission but a directed and purposeful modulation of nutrient utilization is required for GHGs reduction. It is therefore proposed to create compositions bringing about increase in the milk productivity. Our current compositions already support the notion increasing milk productivity by 10%. Thus, using BoviBooster during milk production makes the business sustainable due to its ability to mitigate GHGs production while increasing productivity.

Future Plans: Occamy's product BoviBooster has shown tremendous potential in boosting the animals productivity by 10-20%. The futire plans of Occamy for the amrketing of these products include-

1) Working with dairies to increase the productivity of attached farmers as well as the dairy.

2) Supply a variant of BoviBooster to raw material feed manufacturers the increase the profits of the end user.

3) Working with NPOs/NGOs to increase the penetration of the product to grassroot level , while increasing the employability at rural level.

Performance and sustainability: The product is already adopted by three dairies and one Raw material producer for cattle with good results. stable revenues have been generated

in last 8 months. The next step will be to increase the revenues and profitability and sustain the product in the market.

Associations & Capacity Building: The following association will help in capacity building -

1) Association with dairies for disbursal product which becomes a win-win-win situation for dairy, farmer and animals.

2) Association with feed/raw material providers who utilize BoviBooster as raw material used to increase nutritional value of the feed/feed components.

3) Association with NPOs/NGOs/CSR implementing agencies which helps to make the last mile delivery enabling rural employment at the same time.

Awards & Photographs

- Recognized as 1 of the 75 entrepreneurs in animal husbandry sector. Certificate uploaded.
- Recognized by Atal Incubation Centre (AIC) as one of the 10 entrepreneurs facilitation change (Parivartan) in India. Incubated with AIC-RMP in Parivartan cohort (In association with SBI foundation)

Contact Information:
Address : A 901, Twin towers, Sector 20, Kharghar, Panvel, Maharashtra, 410210
Email : occamybioscience@gmail.com
Contact : **+91 8898787831**
Website : **occamy.in**

18. Saptkrishi Scientific Pvt. Ltd.

Nikky Kumar Jha, Founder

Overview: Saptkrishi Scientific Pvt Ltd is an agri-tech startup committed to solving the problem of the perishability of horticultural commodities. We are focused on the development of affordable, available, and accessible storage and transportation solution directly to individual farmers, cooperatives, and traders to ensure better post-harvest outcomes. We also provide advisory, support on agri-processing and market linkages to farmers and traders engaged with horticulture. Incubated at Agri-Business Incubator, SKUAST-Jammu Under RKVY-RAFTAAR Project of Ministry of Agriculture and Farmers' Welfare, Govt. of India. We are receiving technical support from IIT-Patna and receiving accelerated support from IIT Kanpur.

Solution: Sabjikothi: A storage to extend the shelf-life and preserve the freshness of fruits and vegetables. Sabjikothi work on the construction of self-adaptable, ethylene oxidizing, and near-sterile microclimate in an insulated chamber. The controlled microclimate created inside the insulated chamber inhibits pathogen growth, delays browning as well as ripening, and regulates the activity of the antioxidant enzyme. It also oxidizes ethylene into hydrogen, carbon dioxide, water vapor, and other small molecules which further creates a controlled atmosphere that enables the storage of fruits and vegetables for anywhere up to 40 days. It is a self-sustainable solution that only requires 20 watts of electricity either on-grid or off-grid, and a liter of water per day.

Impact on Grassroot development: Fruits and vegetables emit ethylene, a gas that is responsible for the ripening and spoiling of agricultural products. In Sabzikothi, the plasma (ionized air) is produced electronically and oxidizes ethylene into carbon dioxide, hydrogen, and water vapor. This creates a controlled atmosphere, delaying the browning and ripening process, besides regulating the activity of antioxidant enzymes. As no chemical is used in the entire process, the nutritional value of the food is not affected. It is a one-of-a-kind solution that only requires a liter of water per day, and 20 watts of electricity, either on-grid or off-grid.

Implementation and Challenges: Initially, the product got a Nidhi Prayas prototype grant from IIT Kanpur to the tune of ₹10 lakh. “Then, with the help of SIIC IIT Kanpur, we raised investments through the Invent program run by the Technology Development Board and UK Aid.

The product is priced at around ₹10,000. Only fruits and vegetables can be stored in the Sabzikothi, for a period of 10 to 40 days. However, it is not suitable for dairy and meat products. The total storage capacity is around 500 kg Currently, it is being validated at Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST), which is a third party. We have been shortlisted for Rashtriya Krishi Vikas Yojana (RKVY) Raaftar program at SKUAST Jammu campus. Under this program, we are doing a third-party validation of the storage so that scientists there can validate our claims,

Performance: Sabjikothi extends the shelf life of perishable horticultural produce through the construction of a high-humid and sterile isolated chamber. This chamber is incorporated with high-end technology that suppresses pathogens as well as the respiration rate of fruits and vegetables, thus inhibiting ethylene biosynthesis which is responsible for perishability. It oxidizes

ethylene into small molecules, thus delaying browning and ripening, and also regulating the activity of the antioxidant enzyme. The controlled microclimate created inside the Sabjikothi enables the preservation of fruits and vegetables anywhere between 3 to 30 days. It works on the principle of degradation of ethylene itself, which is responsible for the perishability of fruits and vegetables. Sabjikothi comes with the novel idea to incorporate storage and transportation solutions into one single unit while using ethylene-degradation as the preservation technique.

Sustainability and Future Plans: Initially, the plan is to set up a production facility for 1,000 units a month, and then, based on the demand, the production facility will be expanded.

Associations & Capacity Building: Associated with IIT Kanpur. Incubated at Agri-Business Incubator, SKUAST-Jammu Under RKVY-RAFTAAR Project of Ministry of Agriculture and Farmers' Welfare, Govt. of India. We are receiving technical support from IIT-Patna and receiving accelerated support from IIT Kanpur.

Awards & Photographs

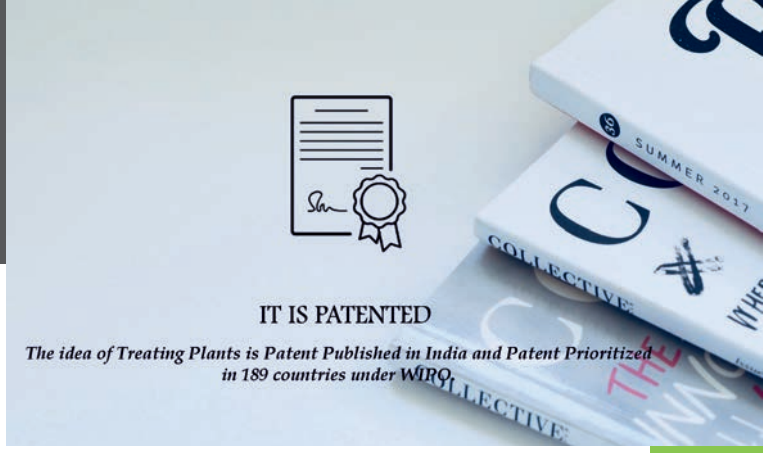
- Demonstration of Sabjikothi to Hon. Prime Minister Shri. Narendra Modi, Lt. Governor J&K Shri. Manj Sinha, Minister of Panchayati Raj Shri. Giriraj Singh
- Conferred By Youth Affairs & Sports Shri. Minister Anurag Thakur

Contact Information:

Address : 108D, SIIC Extension, IIT Kanpur, Kanpur, UP, 208016
Email : saptkrishi@gmail.com
Contact : **+91 8826217394**
Website : **saptkrishi.com**

19. St. Jude Herbals Pvt. Ltd.

Vinoj P A Raj, Founder



Overview: We are an Agri-Bioscience Startup working to make Agriculture sustainable, profitable and easy by eliminating the need for costly and harmful chemicals and pesticides in farming by offering a superior substitute - Our Proprietary Vaccines for Plants. It is an inexpensive, highly efficient, safe and sustainable alternative for plant protection that works like vaccines we take and makes capable of defending itself.

Solution: The problem we address is Plant Diseases - it causes around $220 Billion worth of crop loss every year and is considered as a threat to food security. whereas the supposed solution for this problem, the Fungicides has been causing problem of its own affecting everything from soil to air and is basically a -cidal formulation. Moreover, using fungicides, we are trying to create barrier around the plants so that pathogen wouldn't reach the plants which is like wearing PPE kit which we know is temporary. Also, spraying this barrier and maintaining it in an open environment prone to wind, rain etc is hard, especially in large crops.

So, we offer a solution that works better than current alternatives without any of its side effects, we introduce St. Jude's Plant Immune **Stimulator** – Our Proprietary Vaccine Equivalent for Plants. Like Vaccines we take, it works by activating Systemic Acquired **Resistance** - A untargeted, robust Plant Immunity offering protection against broad spectrum of Pathogens along with increasing the production of certain antioxidant and defence enzymes further reinforcing the defence. Application and maintenance is easy as it's drenched to roots and absorbed by plants within 5 hours. Moreover, Our Solution is manufactured by specific chemicals specially extracted from herbs and is toxicology proven to be safe even for consumption. Also, it costs 50% less than current alternatives and can increase the yield by up to 70%.

Impact on Grassroot development: Our Solution is in active use in 3000 Hectares of land effectively eliminating harmful fungicides from farming while cumulatively saving INR. 5 million for our farmers with average increase in yield by 45%. Indirectly, by using choosing our product over fungicides, Farmers are eliminating and the side effects associated with it which leads to benefits ranging from biodiversity conversation, soil health to global warming and his own healthy; all of which are positive effects of natural and sustainable agriculture. Incidentally, by offering sustainable solution for plant protection, we have removed long standing hurdle for organic farming – Plant Diseases.

Implementation and Challenges: The Biggest challenge we faced with implementation was educating farmers and convincing them that our solutions are sufficient for plant protection and there is no need for spraying fungicides as they couldn't see how such a small amount of formulation applied to root can protect entire tree. They had become accustomed to spraying chemicals and it's also matter of their livelihood.

We overcame this by setting up model plots in their localities and practically showing the results on field. We are also setting up a local language chatbot that can offer End- to-End Agri Advisory and Handholding support for Organic Farming with help from NABARD. Also, we are targeting farmers growing such crops where there is no dependable solution for plant protection.

Performance:

- YoY Growth Rate: 240%
- Advertising to Revenue Ratio: 3.1%
- Listed among Top 50 best Youth led Startups in SCO Region and among Top 15 best Land Restoration Businesses by Land Accelerator South Asia. We are also listed among Next 500 Global Best Businesses by Startup SG.

Sustainability and Future plans: We are profitable already and we intend to scale rapidly by both number for crops we serve and area we serve in. There are two Business Models we'll expand in. First, Consumer Focused; Here our formulations will be offered to farmers under our brand through different channels such as Traditional Channels, Ecommerce, Affiliates and Direct Sales - This is Operational.

Second, Manufacturer Focused; Here our formulations will be white labelled and offered to existing manufacturers to create a product of their own as the market is huge for us to scale alone - This is in planning and we have had discussion with two leading MNCs. We intend to onboard our first White labelling customer by 2024 end.

Associations & Capacity Building: We are backed by

- Punjab Agribusiness Incubator
- Manush Labs
- Kerala Startup Mission
- Uplink, World Economic Forum
- UNDP
- Queen's Commonwealth Trust
- Unicorns SCO
- The Land Accelerator South Asia
- NABARD

We Support

- Primary Agriculture Credit Co- Operative Society Niyamitha Kalasa
- Kampu Agriculture & Horticulture Crop Producer Company Ltd
- Panchatatvam Farms Product Producer Co.Ltd
- Grow Your Farms Private Limited

Awards & Photographs

- Felicitation by NABARD as most promising Startup in Kerala. Dr. Rajesh P Jose, Founder of St. Jude's was felicitated by Hon'ble Minister of Agriculture Kerala, Shri VS Sunil Kumar.
- National Youth Award for Mr. Vinoj P A Raj for St. Jude's work in Social Entrepreneurship, Felicitated by Hon'ble Union Minister for Youth and Sports, Shri Anurag Thakur in presence of UN Resident Coordinator for India, Ms. Deirde Boyd.

Contact Information:
Address : Padikakudy Lane, PO Kumbadaje, Kasaragod, Kerala 671551
Email : Info@stjudesindia.in
Contact : +91 9061085960
Website : stjudesindia.in

20. Symbiotic Foods Pvt. Ltd.

Manoj Kumar Bosumatary, Founder

Overview: Symbiotic Foods Pvt Ltd was formed in May 2016 to set up a Social Business to work in the entire value chain of Piggery and act as an Integrator. The Company runs a breeding farm of 300 sows producing more than 5000 quality Piglets annually. It runs a fattening farm with an annual capacity of 1000 fatteners. The company has a feed mill where it produces its feeds as well as makes the feeds available to its cluster farmers. The company is working with more than 5000 farmers directly or indirectly. It has trained more than 8000 farmers in scientific commercial piggery in the last 3 years. It has formed piggery clusters for farmers in the Sonitpur district in Assam. The company has set up a small slaughterhouse during the Covid lockdown period and started its own packaged branded pork called Symbiotic Gahoree. The company is FSSAI certified and is also an ISO 22000 2018 certified company. The Company entered into an MoU with SBI and Canara Bank for contract farming in commercial Piggery and hence making bank loans easily available to commercial farmers. The contract farming model with ready finance makes a direct ready market for the Company's piglets. The Company has also provided pieces of training in commercial Piggery to existing as well as new commercial farmers.

Solution: Symbiotic Foods Pvt Ltd has found multiple solutions both in terms of fulfilling the knowledge gaps of farmers in scientific commercial pig farming and creating product solutions like quality feeds, quality piglets, and quality breeding stock for farmers. It has also solved the problem of farmers by making market linkage available for them at their doorstep. Further, by tie-ing up various banks and Financial Institutions, the company has made credit available for farmers which may not have been possible for the farmers individually.

On the customer front, Symbiotic Foods Pvt Ltd has created a brand called "Symbiotic Gahoree" which stands for quality, hygiene, and traceable meat for consumers. It is also the first company in India to start Special Pork cuts like Chops, Picnic, Ham, Sliced Belly, baby Pork, etc.

Impact on Grassroots Development: The company has trained more than 8000 farmers so far, helping them to practice scientific pig rearing. The breeds made available to farmers are of better varieties and have increased the yield. The feeds formulated by the company are also of very high quality which helps the farmers produce 100kgs live weight animals in 6-7 months from birth which used to be 9-10 months earlier. This has led to an increase in the farmers' income more than doubled in last few years. The Company has also introduced contract farming where around 200 farmers have been credit linked by SBI and Canara Bank in Sonitpur District in Assam. Implementation and challenges: There were multiple challenges at the beginning as Piggery is one of the most backward sectors in India. The sector has remained backward as there were not many educated and well-off people working in this sector. The traditional rearers are mostly Tribal and Scheduled caste and backward populations who are at the bottom of the pyramid. It is still very unorganised and capital flow in the sector is minimal.

In the beginning, it was very challenging to convince people that commercial piggery hold immense potential in the country. Despite being an ex-banker, it was not easy to convince the banks about the economic viability of this sector. Also, there are very few modern big commercial farms in India especially in North East India to emulate.

However, our persistence and eagerness to learn and follow the best practices adopted by farmers in different parts of the world have given us confidence and find better ways of doing business. Then our co-founder and CEO, Manoj Kumar Bosumatary also got opportunities to visit and learn about modern scientific commercial piggery in some West-European countries like Netherlands and Belgium which gave us a clear roadmap. From not getting a Bank loan in 2015 to being able to

create a successful model where now banks are ready to finance those farmers who are associated with us is proof that our model has worked. We have also tried to take up every challenge and find solutions to deal with it. For example, during the Covid lockdown, when most markets were closed and sales of Live animals were not happening, the company took permission from the authorities and started its branded meat "Symbiotic Gahoree" which became an instant hit with the consumers for its high quality and special cuts.

Performance: The company is growing at a good pace. Revenue for the FY 2022-23 was Rs.286.08 lacs compared to Rs.154.95 lacs in FY 2020-21, an increase of 84%. The Profit before Tax for FY 2021-22 was Rs.50.90 Lakh against Rs.31.18 lakh in FY 2020-21 an increase of 63%.

Sustainability and Future Plans: The Start-up is in the process of setting up a full-fledged Slaughter cum processing plant during this financial year. It has plan to add 1000 contract farmers during the current FY and 5000 contract farmers by FY 2024-25. The start-up with the help of NRCP, Rani, and NEATHub, Assam Agriculture University, Jorhat is in the process of setting up an Artificial Insemination Laboratory, which will further help in working in breed improvement and reducing the cost of Breeder farmers. The Start-up is also working at expanding its footprints to other states of North East and in Bengal, Jharkhand, and Orissa.

Associations & Capacity Building: The Start-up is working actively in Association with civil society organizations, women's self-help groups, farmer producer organizations (FPO), etc. for social transformation and grassroots development. The company has provided training to members of various SHGs, FPOs, NGOs, etc. It has trained more than 5000 farmers in the BTR region in Assam under Bodoland Pig Mission. The CEO & Co-founder, Shri Manoj Kumar Bosumatary is a Board Member of a reputed grass root NGO, SeSTA. It has also worked with Assam State Rural Livelihood Mission on capacity building and training of its women members.

Awards & Photographs

- For the pioneering work that Symbiotic Foods Pvt Ltd has done, many awards and recognition have been awarded. The CEO & Co-founder, Shri Manoj Kumar Bosumatary is a member of the Management Committee, Extension Education Institute (NE Region), Assam Agriculture University, Jorhat Extension Education, and a member of IQAC cell, Tezpur Central University. He was awarded the prestigious 3rd highest civilian award " Assam Gaurav-2021" by the Government of Assam for his pioneering work in the sector and for being an inspiration for many youths in the state.

Contact Information:
Address : Vill-Dhekidol, PO-Ghoramari, PS-Tezpur, Sonitpur, Assam-784105
Email : symbioticfoods@gmail.com;
: mkbasumatary@gmail.com
Contact : **+91 9560998889 / 9954392120**
Website : **symbioticfoods.in**
LinkedIn : **manoj-kumar-basumatary-a0ba8998**

21. Temperate Technologies Pvt. Ltd.

Vishal Singhal, Founder

Overview: We provide farmers with access to low-cost cold rooms to increase the shelf life of fruits and vegetables, and in the process, increase their incomes. Our solutions consume up to 80% less energy than traditional refrigeration-based solutions and are especially suitable for off-grid solar-powered installations. We provide solutions for short-term storage and transport of daily-use fruits and vegetables and long-term storage of onions. Our solutions have both lower upfront and lower operational costs.

Solution: Our solution is a low-power and low-cost cooling system that maintains ideal conditions for the short-term storage of fruit and vegetables.

Impact on Grassroot development: Increase in farmer incomes and reduction in food waste.

Implementation and challenges: Bringing the solution to the farmers is a challenge as the market is fragmented. We are partnering with many organizations such as NABARD, KVKs, ICAR institutes, and NGOs to bring our solution to the farmers.

Performance: We have done 5 pilot installations and our solution is very well-liked by the end-users. We are in the process of receiving repeat orders from some of these customers.

Sustainability and Future Plans: We have set up an in-house manufacturing facility to reduce costs and scale up our operations. We have launched the product for short-term storage of fruits and vegetables and will shortly launch the solutions for temperature-controlled transport and long-term storage of onions.

Associations & Capacity Building: Working with Tata Trusts, CiNI, multiple NGOs, and FPOs in Telangana, Maharashtra, Andhra Pradesh, and Odisha.

Awards & Photographs

- One of the winners of the EDF Pulse India Award 20-21
- One of the winners of the CITI Social Innovation Award 22-23
- One of the winners of Techtonic – Innovations Towards Zero Food Waste
- One of the winners of Best Agri-tech Startup 2022 by ICAR NAARM
- One of the winners of the IEEMA Electraverse Sparks Awards
- One of the winners of the IIT Hyderabad ANTRA Hackathon
- One of the winners of the CatalyseTech Energy for Cooling Challenge
- One of the winners of the PATH ClimateXHealth Challenge

Contact Information:
Address : Plot No 120, Ranganatha Nagar, Gopanpally, Hyderabad – 500019
Email : **vishal@temperatetech.com**
Contact : **+91 7659079944**
Website : **temperate.tech**
LinkedIn : **temperate-technologies**


PATH
Climate X Health
CHALLENGE
WINNERS!
Risk Mitigation
and Adaptation
Temperate Technologies
Private Limited (India)
A low-power cooling system for
healthcare facilities and emergency
use during heat waves


Short Term Storage of Fruits And Vegetables


Temperature Controlled Transport


Long Term Onion Storage
Cost-effective system for long-term storage of onions to
reduce wastage, stabilise prices and boost exports.

22. Teplu Learning Pvt Ltd

Sanjay Bhattacharji, Founder

Overview: Using its digi-touch platform, Teplu helps create employment in rural areas and increase the incomes of women and youth through dairy processing units. Although most of the women in rural areas contribute to farm operations as laborers, their contribution is neither accounted for nor are they remunerated. Due to the lack of industries in villages, most of the youth migrate to cities although they may own agricultural land in their village. They are employed in cities either as daily wage laborers or in petty jobs with a poor quality of living. Our startup focuses on creating rural dairy entrepreneurs so that the incomes of women and youth can be increased and migration to cities can be reduced. We want to create income-generation avenues in our villages that have good dairy resources. The target beneficiaries are semi-literate / literate women and youth who are unemployed and may belong to a backward community. Our customers are CSR organizations, government departments, international funding agencies, and private dairy entrepreneurs.

Solution: Teplu enables women and dairy farmers to manufacture different kinds of dairy products using "Small scale dairy technology". We provide end-to-end solutions in dairy product manufacturing by giving access to practical training, best-quality equipment, inputs, licensing, handholding & marketing support. The dairy products are Paneer, whey drink, curd, khowa, rabdi, basundi, kulfi, ice cream, buttermilk, chenna, lassi, shrikhand & traditional sweets. Based on the requirement, we also sell the dairy products of these units in neighboring areas or to wholesalers, hotels, and caterers, thereby ensuring that the units are sustainable. Our expertise in dairy product manufacturing ensures that the dairy units have unit-level profitability from day 1. The dairy units procure good quality milk from local farmers leading to increased local consumption. Villagers often purchase dairy products from these units, thereby increasing local protein consumption in protein-deficient people.

To help the dairy units increase the procurement of milk from farmers, we also offer online courses on scientific dairy farming in multiple regional languages.

Impact on Grassroots development: Three of the dairy units that we have set up in rural areas in Maharashtra and Gujarat are operational and have monthly net incomes of Rs 15000 to Rs 45000 depending upon the processing capacity of the dairy plants. Each plant employs around 2-4 women/youth.

Currently, we have close to 15000 users enrolled on our online platform. We have paid users from 11 different countries such as the USA, Botswana, Bangladesh, Singapore, Australia, UAE, South Africa, Rwanda, Chile, Nepal, and India.

On our platform, we have answered over 2000 queries from active learners from our courses. Our paid online courses have a completion rate as high as 65% and workshops have net promoter scores (NPS) as high as 90.

Our training videos on silage-making have received over 5,50,000 views with high interaction rates and conversations.

Implementation and challenges: One of the challenges we faced was the difficulty of setting up dairy plants in remote areas where proper roads and mobile networks are not available. There was no proper

accommodation available for our staff to stay. Through our determination, we managed to stay in the home of villagers and completed the projects.

The other challenge was to teach semi-literate women and youth about dairy technology and implement it to get good quality hygienic dairy products that would be accepted by customers. Our unique training methods and extensive in-plant training calendar helped streamline processes.

Marketing of products, and managing the shelf life of milk and milk products in the absence of electricity at times is a big challenge. Through our experience of managing different kinds of dairy units and connections in the market, we helped overcome these challenges.

Performance: Most of the new dairy projects that we get for setting up are through word-of-mouth publicity. Our team involvement is appreciated by all sections of the society. Our revenues have grown by over 100% yoy and we are a profitable bootstrapped startup with no debt. Our philosophy of empowering women and helping dairy units become sustainable is generating more business for us.

Sustainability and Future plans: To increase the impact of our social innovation we are reaching out to various international organizations which are benchmarked on ESG parameters. We expect to receive grants/funding support for establishing more such dairy units in rural areas. We also guide students of our online courses who want to become dairy entrepreneurs. This gives us valuable leads. In the future, we want to market the products made in these dairy units and export them to international markets. This will increase the scale of operations of existing plants and also give our startup recurring revenues. We are present in Gujarat and Maharashtra and are expanding to Karnataka and Uttar Pradesh soon. We want to expand to other states as well shortly.

Associations & Capacity Building: We have set up dairy processing plants in various states in India. Some of our institutional clients are Larsen & Toubro Public Charitable Trust, BAIF Foundation & Mukul Madhav Foundation.

Awards & Photographs

- Considered a Top Startup by IIT Bombay during Eureka 2018.
- Awarded NIDHI EIR fellowship by Science & Technology Park, Pune in 2022.
- Incubated by Indian Veterinary Research Institute (IVRI) in 2019 and given a grant by the Ministry of Agriculture, Govt. of India in 2020.
- Selected as Salzburg Global Seminar Fellow in 2023.
- Also currently incubated by Science & Technology Park, Pune.

Contact Information:

Address : 204 Mimosa, Nahar Amrit Shakti, Chandivali , Powai, Mumbai

Email : sanjay@teplu.in

Contact : **+91 9830910069**

Website : **teplu.in**

LinkedIn : **admarketinsanjaybhattacharji**

23. Verdant Impact Pvt. Ltd.

Manish & Maya, Founder

Overview: We are a full-stack animal husbandry platform. Our work begins with providing farmers with backward and forward linkage for the purchase and sale of livestock. With our state-of-the-art product - Animal ICU, we provide digital livestock healthcare services to the farmers for the wellbeing of their animals. With our animal mark and certification, we help in the unique identification of the animals using RFID and providing certification of quality. Our RFID reader can help in precise animal identification.
Our unique identification helps farmers in availing credit products for their animals. We have introduced a cattle credit card product with the help of our banking partners.

Social Challenge: Low income for cow and other dairy farmers, No proper telemedicine treatment network for livestock, No proper information and credit network for livestock farming communities like tribal, women, SHG, JLG, Kisan Clubs, and other venerable groups.

Solution: We are a full-stack animal husbandry platform. Our work begins with providing farmers with backward and forward linkage for the purchase and sale of livestock.

Impact on Grassroot development:
- We have benefitted more than 10,00,000 Farmers during our various projects,
- To support the doubling of the income Mission by our honorable PM Sir Shri Narendra Modi Ji, we can support 40to300% raise in Incomes.
- We have tagged and treated more than 2Cr plus livestock.

Implementation:
1. India's firs AI/ML-based largest telemedicine setups for livestock known as Animal ICU.
2. RFID and Muzzle linked Biometric UID for livestock,
3. India's first cattle credit card directly for Cows and other livestock.
4. India's first digital agri OTT platform is known as Kisan Radio FM.
5. World first livestock Animal NFt "AniFT"
6. Blockchain enables cattle credit under FinSupport project

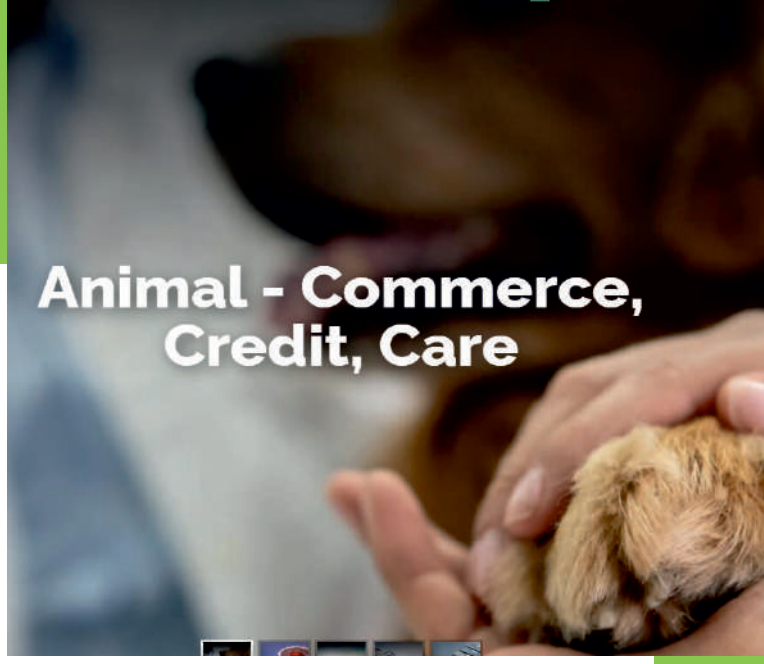
Challenges: Some funding issues with these innovative projects, Adoption by farmers, etc

Sustainability:
- We can sustain within two years of launching even after corona outbreaks.
- We have launched India Dairy Net Zero Initiatives.
- We have launched India's agri-waste-based energy based cattle feed

Future Plans: In the next two years, we are going to be global in South Africa, the UK, the USA and Norway

Associations & Capacity Building: We are supported by various governments like Gov of Rajasthan, Gov of Jharkhand, at national level er is supported by IAR, ICAR Pusa Krishi, CSWRI-ICAR, ICAR-CIGR (Up), AIDEA-NAARM, IM Punjab, IISER Mohali, Miety, etc

Contact Information:
Address : Vidyadhar Nagar, Jaipur
Email : **manish@verdantimpact.com**
Contact : **+91 9672025828**
Website : **verdantimpact.com**



लम्पि बीमारी रोकथाम में वरडेन्ट एनिमल आईसीयू बना मददगार

कृषि डेस्क। लम्पि बीमारी भारत मे अब महामारी के रूप लेती जा रही है, सरकारों एवं पशुपालन विभाग की नींद उड़ा देने वाले इस जूनेटिक आउटब्रेक ने बहुत बड़ी संख्या में गौवंश को काल-कवलित कर लिया है और अगर इसके तेजी से बढ़ते संक्रमण पर रोक नही लगाई गई तो यह खतरा और बढ़ेगा.

भारत मे कई कम्पनियां और संस्थाए इसके संक्रमण की रोकथाम के लिए प्रयासरत है. राजस्थान के आइ-स्टार्ट से टेक्नोफेंड के अंतर्गत मदद प्राप्त एक स्टार्टअप वरडेन्ट के एनिमल आईसीयू ने भी लम्पि डिजीज की रोकथाम का बीड़ा उठाया है.

वरडेन्ट एनिमल आईसीयू भारत का पहला आईओटी व सेंसर आधारित पहला ऐसा एनिमल हस्बैंडरी स्टार्टअप है, जो एनिमल

जियो फेंसिंग, संगरोध, सर्टिफिकेशन एवम डिजिटल हर्ड मैनेजमेंट की सुविधा देता है. वरडेन्ट के वन हेल्थ टेलीमेडिसिन प्रोजेक्ट के डायरेक्टर डॉक्टर नवनीत कुमार ने बताया कि वरडेन्ट के डिजीटल फॉरकास्टिंग सॉफ्टवेयर से पहले से ही इस बीमारी के और बढ़ने का अनुमान लग गया था अतः उन्होंने काफी तैयारी की थी, जिसके सकारात्मक परिणाम निकले है.

अभी वरडेन्ट का मुख्य ध्यान इन्फर्मेशन, कम्युनिकेशन एवम रिमोट डायग्नोस्टिक पर है, पर अगर सरकार से और सहायता मिलती है तो वे आउटब्रेक वाले इलाको में भी पीपीपी मोड पर एनिमल आईसीयू के टेलिएमेडिसन सेंटर्स खोलना चाहेंगे जिसके लिए उन्होंने पत्राचार भी किया है. यह क्लिनिक एक बड़ा नवाचार साबित होगे एवम इससे लाखों की संख्या में पशुधन के जीवन बचने के साथ किसानो को होने वाली आजीविका की हानि पर भी रोक लग सकेगी.

कार्यशाला सामूहिक प्रयासों के अवसरों पर भी सार्थक चर्चा

लाइवस्टॉक स्टार्टअप वरडेन्ट को गोट वैल्यू चेन प्रदर्शन के लिए मिला सम्मान

लखनऊ, संवाददाता।

आईसीएआर के केंद्रीय बकरी अनुसंधान संस्थान ने 11 जुलाई को अनुसूचित जनजाति विकास कार्य परियोजना के तहत आयोजित राष्ट्रीय कार्यशाला एवम प्रशिक्षण कार्यक्रम में देशभर से आये बकरी आधारित मूल्य संवर्धन के क्षेत्र में काम कर रहे प्रगतिशील कृषको, उधमियों,एफपीओ, नीति नियंताओं, वैज्ञानिक एवम अन्य केंद्रीय विभागों ने शिरकत की.

इस अवसर पर विभागों, किसानो एवम स्टार्टअप के मध्य एक विस्तारपूर्वक विचार मंथन का दौर भी हुआ। जब आदिवासीयों की उत्थान की हो रही हो तो स्वाभाविक है कि मखदूम केंद्र के प्रयासों के द्वारा सफलता की

कहानी रचने वाले उधमियों ने अपो अनुभव साझा किए.

इस कड़ी में आदिवासी उद्यमी माया जेफ एवम मनीष कुमार मीणा द्वारा प्रारंभ किये गए लाइवस्टॉक सेक्टर के वेरडेन्ट इम्पैक्ट ने सभी सुधिजनो का ध्यान अपनी और खींचा.

मात्र 2 वर्षों में 6 लाख किसानो तक पशुधन विकास के क्षेत्र में अतिआधुनिक फुल-स्टैक समाधान के जरिये उनके फार्मगेट तक पहुंचाने वाले इस स्टार्टअप को आदिवासी किसानों के लिए उनके योगदान के सम्मान स्वरूप प्रशस्ति पत्र एवम गोट-एंटरप्रेन्योर की ट्रॉफी से सीआईआरजी केंद्र के निदेशक द्वारा नवाजा गया.

केंद निदेशक ने बकरी आधारित मूल्य संवर्धन में जुटे हुए सभी विभागों, उधमियों से किसानों एवम ट्राइबल्स के लिए लास्ट माइल डिलीवरी हेतु नवाचारों की अपेक्षा जताई. इसके अतिरिक्त केंद्र में पशु सवास्थ्य विभाग ने बकरी पालकों हेतु वरडेन्ट इम्पैक्ट के एनिमल मार्क आधारित बायो टैग द्वारा ऋण व बीमा एवम एनिमल आईसीयू द्वारा पशुधन की मोर्टालिटी कम करने के प्रयासों में सामूहिक प्रयासों के अवसरों पर भी सार्थक चर्चा हुई.

वरडेन्ट के संस्थापक मनीष मीणा भारत के 100 प्रभावशाली व्यक्तियों की सूची में शामिल

वरडेन्ट ने आदिवासी बाहुल्य राष्ट्रों में विकासात्मक परियोजनाओं की दस्तक देने की तैयारी कर ली है

अफ्रीकन एवं कैरेबियन देशों में वरडेन्ट के प्रयास को मिल रही हर ओर से सराहना

नई दिल्ली @Public Care

मीडिया समूह फॉक्स स्टोरी इंडिया ने हाल में ही अपनी 100 अंडर 40 की सूची जारी की है. इस सूची में स्थान बनाने वाले मनीष कुमार मीणा पहले आदिवासी उधमी बने हैं। यह सूची फॉक्स स्टोरी मीडिया समूह द्वारा जारी की जाती है।

मनीष कुमार को यह स्थान उनके आदिवासी उधमिता को फेडरेशन ऑफ ट्राइबल इंडस्ट्रीज के द्वारा चलाये जा रहे मिशन 1 ट्रिलियन ट्राइबल इकोनॉमी के लक्ष्य एवम वरडेन्ट नामक स्टार्टअप के माध्यम से ट्राइबल आजीविका संवर्धन के लिए दिया गया है। मनीष कुमार भारत मे ट्रिलियन ट्राइबल इकोनॉमी के तहत कई हजार स्टार्टअप्स को ट्रेनिंग एवम मदद मुहैया करवा चुके हैं। उनका लक्ष्य प्रधानमंत्री नरेंद्र मोदी के विजन 5 ट्रिलियन की इकोनॉमी में आदिवासी उधमिता की भूमिका को सशक्त रूप से 1 ट्रिलियन के अंशदान को मूर्त रूप में पहुंचाना है।

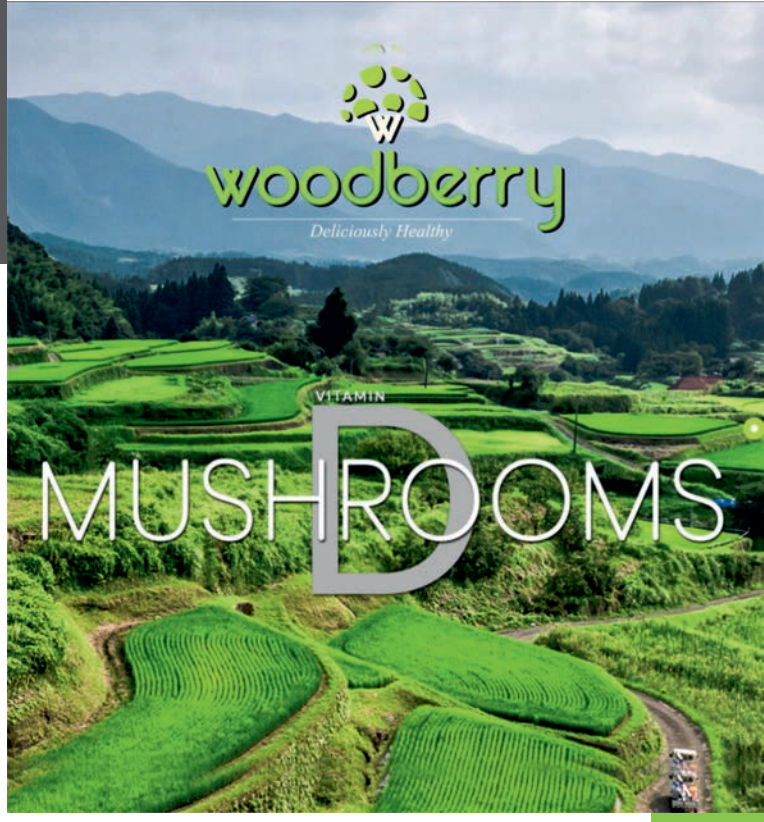
मनीष मीणा का मानना है कि अब वह वक्त नही जब ट्राइबल्स को सिर्फ जंगल मे धकेल दिया जाए, या फिर मुख्यधारा में उनके योगदान को अनदेखा कर दिया जाए, यह खबर ऐसे दिन आयी है जब भारत मे पहली बार कोई आदिवासी राष्ट्रपति पदभार ग्रहण कर रही हैं।

इसके बड़े मायने हैं, की भविष्य में देश-दुनिया के समाजार्थिक कैनवास पर अब आदिवासी उधमिता के भी सशक्त हस्ताक्षर उभर कर आएंगे. ध्यातव्य है कि वरडेन्ट ने हाल में ही अफ्रीकन एवम कैरेबियन देशों में भी अपने कार्यविस्तार की परियोजनाओं पर काम करते हुए कई आदिवासी बाहुल्य राष्ट्रों में विकासात्मक परियोजनाओं को दस्तक देने की तैयारी कर ली है।

> मनीष कुमार को यह स्थान उनके आदिवासी उधमिता को फेडरेशन ऑफ ट्राइबल इंडस्ट्रीज के द्वारा चलाये जा रहे मिशन 1 ट्रिलियन ट्राइबल इकोनॉमी के लक्ष्य एवम वरडेन्ट नामक स्टार्टअप के माध्यम से ट्राइबल आजीविका संवर्धन के लिए दिया गया है...

24. Woodberry

Dr. Priyangshu M. Sarma, Founder



Overview: The concept of clean, organic, chemical-free, vegan, or plant-based nutrients in our food systems is increasingly accepted not only by consumers but also has seen a surge in the investment portfolios of several organizations. It not only provides economic or health benefits but also meets a few of the Sustainable Development Goals. This encouraged us to initiate work on a super-food, mushrooms, as are classified as a complete vegan protein and most importantly are the only natural source of Vitamin D.

With over 80% of our population suffering from Vitamin D deficiency, we wanted to position mushrooms as the natural source of vitamin D. With no natural alternatives, people are forced to take artificial formulations of Vitamin D. Thus, Vitamin D-enhanced mushrooms can provide a natural supplement in the diet, while the dried and powdered form can be used to fortify other food products with Vitamin D.

Initially bootstrapped and then with a grant from BIRAC, we developed and patented a process to enhance Vitamin D in mushrooms. Our mushrooms contain 3000-4000 IU of Vitamin D per 100 gms and can meet the daily recommended dose as suggested by WHO. Our focus was also to leverage this opportunity with the mushroom farmers. We realized that even though there are over two lakh beneficiaries trained for mushroom production in Assam alone, there were issues with quality and more important market linkages to these farmers. We thus also developed an IoT-based platform to maintain quality and consistency.

We thus currently provide our technology to the farmer clusters / FPOs through organizations like E&Y, Samunnati, and related Foundations and ensure a buy-back guarantee. We ensure quality, accountability, and traceability through the integration of QR codes and incentivize the farmers based on the quality of produce they give us.

Thus starting with retail and aggregators (B2B2C) and would now focus on B2C sales of our produce through our website. We are currently focused on Vitamin D-enhanced mushroom powder for fortification in soup, noodles, Atta, and other dehydrated foods (B2B). Our focus is to move towards vegan meat and animal-free protein and aim to be the largest exporter of animal-free protein in the next three years. With mushrooms as a base, we would move into other sources of protein like hemp and would apply the model for nutritionally rich other argo-produce.

Woodberry thus operates in two integrated domains.

1. We provide a platform for technology adaption and market linkages to the existing mushroom farmers.
2. We also provide a natural source of Vitamin D to people who are conscious of chemical-free and natural nutritional supplements in their diet as well as to food companies who require natural sources of Vitamin D for fortification of food products, but are currently dependent on chemically synthesized formulations.

Solution: Mushroom cultivation has gained significance and is being promoted through several Government interventions and social initiatives in India. There are several well-documented success stories. However, even with these incentives, we stand significantly low in terms of contributing to producers' income or creating value addition to the produce. This is more so in the eastern and Northeastern regions of the country. Apart from this, the high perishability of the produce creates a hindrance in establishing a robust supply chain. Further, the non-availability of consistently good quality spawns is also one of the major deterrents in creating a successful venture.

We at Woodberry, have tried to develop a concept, specifically to target to overcome these lacunas and that would consider mushrooms are a major source of revenue earning source for the growers. We aim to achieve this by enhancing the nutraceutical properties of mushrooms by increasing the Vitamin D content so that they can serve as a functional food. The patented protocol can

enhance the Vitamin D content of the mushrooms by over 200 %. The vitamin D concentration in the dried and powdered mushroom is not lowered so the perishability is taken care of and it can be used as a source for fortification of other food products with Vitamin D. We also have our spawn unit to ensure quality.

Based on our initial experiments, we have developed a process where this conversion to Vitamin D can be enhanced during the fruiting phase of the mushroom growth that does not require postharvest modifications. Impact on Grassroot development:

We are associated with a few farmers' clusters in Assam, Delhi, and Himachal Pradesh for the supply of residue-free naturally produced mushrooms. We install customized UV lights that are the key interventions of the technology. The controller is programmed to achieve the desired levels of Vitamin D in the growing mushrooms so that the farmer's interventions in minimal. We have programmed the unit so that the mushrooms harvested have on average around 4000 IU of vitamin D per 100 gms of mushrooms. The Vitamin D enrichment is carried out in our labs in Delhi and Assam. Routine analysis of our mushrooms for Vitamin D content and residues is done from FSSAI-certified labs. We have a zero-wastage approach as we have dried and powdered mushrooms products for all the unsold inventory

Implementation and challenges: One of the major issues for producing mushrooms of consistent quality is the procurement of good-quality spawns. To address this issue, we set up a spawned unit at NETEHUB, a NITI AUOUG-sponsored Agri Incubator, at Assam Agriculture University with the BIRAC funds. We have set up the facility to produce around 25 kgs of spawns per day. We are in the process of scaling up this facility to at least 100 kgs per day to not only meet the demand of our captive farmers but also supply consistent good-quality spawns to the farmers of the region.

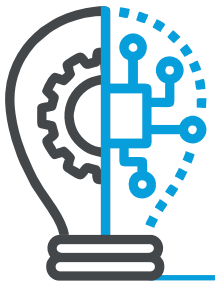
Performance: With the product launch, we have started our commercial production as well as the sale of the products under the brand Woodberry. We are currently producing around 100 kgs of mushrooms in association with our farmer's groups. We have established a network with 36 retailers and aggregators in Delhi NCR and Bangalore for the same Vitamin D-enhanced mushrooms and products. We also have our commercial website for B2C customers. Since commercialization in late 2019, we generated a revenue of around Rs 50 Lakhs of sales till this financial year.

Sustainability and Future plans: At present, we aim to scale with our model in different geographies and develop a successful agri-business strategy for standardizing the mushroom production protocol and establish a supply chain and market linkages for Vitamin D enhanced mushrooms and related products. It would be meeting the nutritional requirements of people, and enhance the profitability, skills, and livelihood of mushroom growers. We propose to consider mushrooms as a major source of revenue for the growers by enhancing their skill set and consequently targeting the growth of the mushroom farming industry.

Awards & Photographs

- Received the BIG grant of Rs 50 Lakhs from BIRAC for the initial research. We then received a seed grant of Rs 10 Lakhs from NRL Ideation.
- Recognized as winners of Economic Times Power of Ideas, with a seed fund of Rs 5 Lakhs (CIIE, IIM Ahmedabad).
- In Smart50 organized by IIM Calcutta
- Recognized as top 10 agri-startups in Northeast Acceleration Program.
- Selected as top 10 fundable startups from NE India. In 2021
- Runners-up in the Agribased Startup Awards, Cash Award (Rs 75 thousand), organized by MANAGE and Samunati. In 2022
- Received a cash award of Rs 1,00,000/- for a Business Plan competition organized by TIE and the Embassy of Israel.

Contact Information:
Address : R5, CDS Prestige Towers,
F A Ahmed Road, Guwahati Assam-781027
Email : info@innotechin.com
Contact : **+91 9811665349**
Website : **woodberryin.com**
LinkedIn : **woodberry-mushrooms-56299b187**



Social Innovation & Technology

Social innovations in the technology category for grassroots start-ups refer to the development and implementation of novel technological solutions that address social challenges and improve the well-being of communities. These innovations leverage technology to create positive social impact, promote inclusivity, and address issues related to education, healthcare, poverty alleviation, environmental sustainability, and more. Grassroots start-ups focusing on social innovations in technology aim to harness the power of technological advancements to tackle societal problems and create meaningful change. These start-ups often emerge from local communities, driven by individuals or groups who identify pressing social issues and believe that technology can play a pivotal role in finding solutions.

1. Aruheal Solutions Private Limited

Archana Jayant Mahajan, Founder

Overview:

- The startup is utilizing agro-waste [banana waste stem] to make sanitation product
- SHG women are engaged in production, the startup is providing an income source for their livelihood
- Maternity pads and sanitary napkins are 95% organic and eco-friendly. Safe for the user and the Earth
- Farmer is having dual income as the startup is utilizing agro-waste.

Solution:

The maternity pad is made up of banana stem pulp as a core material. Maternity pads and sanitary napkins are made up of organic material, eco-friendly, leakproof, plastic-free, comfortable, affordable with high absorbing capacity, and light in weight. India is well known for its Banana crop. Banana fibers are naturally super absorbent and highly effective at locking away menstrual and postpartum fluid. This fiber is having excellent absorption capacity. The company is mainly focusing on women's health and sanitation, the maternity pads are made up of waste Banana stem pulp. These pads are very suitable for sensitive skin. These pads are tested by a lab accredited with NABL, and ISO. Maternity pads are long, and broad in size. Pads are made up of SHG women. There is a leakage & spotting Problem in Post Partum. Maternity pads made by the start-up solve this problem. It gives a healing effect to women with postpartum, painful stitches. In society, many women are facing a problem of heavy flow and in these cases, they are not aware of the proper solution. In the market, there are cheap pads made up of thin plastic which seems to be harmful & leading to uterus cancer. Heavy flow and the bleeding problem is not only useful in postpartum but also in abortion, hysterectomy, in fibroid removal operations which develop during a woman's childbearing years. The maternity Pad is made up of organic material & plastic free. Banana stem waste is used as a base material in the formation of the Pad. It is big. Alum in pad plays an important role as an astringent & anti-infective agent. The maternity Pad is useful in all mentioned cases such as hysterectomy, vaginal injuries, fibroid operation bladder leakage, abortion & regular menstruation for heavy flow as there is no other safe and suitable solution in the market for the above cases. This maternity pad is unique in size as it is long and broad [40 cm x 10 cm] It is very comfortable to use in case of stitches. Its surface is smooth in touch. It gives a healing effect as made up of organic material. The pad is clinically tested and safe for use .n brief the solution that your innovation offers to the identified social challenge.

Impact on Grass root development:

- Our company utilizes banana waste pulp for making maternity pad.
- We provide dual income to banana crop farmers. and reduces the strain of soil. Simultaneously stop soil pollution.
- We provide competitive prices. and plastic-free pads.
- We are committed to women's health and sanitation.
- We generate revenue for SHG members as a daily income source.
- We are supposed to reduce environmental pollution.

Implementation and challenges:

There is a leakage & spotting Problem in Post Partum. Maternity pads made by the startup solve this problem. It gives a healing effect to women with postpartum, painful stitches. In society, many women are facing a problem of heavy flow and in these cases, they are not aware of the proper solution. In the market, there are cheap pads made up of thin plastic which seems to be harmful & leading to uterus cancer. Heavy flow and the bleeding problem is not only useful in post partum but also in abortion, hysterectomy, in fibroid removal operations which develop during a woman's childbearing year.

Performance:

Aruheal Solutions Pvt. Ltd. has reached 1,00,000 customers till February-2022 with revenue of 1,30,000/-. In the next three years, our target is to reach up to 10,00,000 customers with 1,00,00,000 turnover.

Sustainability and Future Plans:

Start up will make available the product on Online Platforms. The start-up will generate revenue through the Common sales Revenue model and web sales, Direct Sales, and Indirect sales. Also, prefer to generate revenue by Ad- based Revenue model.

The startup will try to reach every medical Service Sector such as Medical shops, Maternity hospitals other hospitals, medical colleges, Malls, and Educational Institutes to facilitate hostel girls. The company will organize health check-up awareness camps, especially for women. We will tie up with NGOs for health camps

as a marketing view. The company will include the role of SHG in the marketing of product.

Associations & Capacity Building:

Aruheal Solutions Pvt. Ltd. is incubated at NETRARIT Foundation, Islampur Dist:- Sangali, Maharashtra.

Zashichi Rani SHG Jalgaon Maharashtra registered in Jalgaon Janta Bank is selected by NABARD for MY PAD

MY RIGHT Pilot Project of making sanitary napkins. A pan India initiative of NABARD to bring menstrual hygiene closer to rural women in the form of a livelihood option

Awards & Photographs

- Women-led startup "Aruheal Solutions Pvt Ltd" (Innovation: Maternity / Sanitary Pad from Banana Pulp) has been recognized by Sushma Swaraj Award and Rotary Tejaswini Award 2023
- The startup has raised CSR funds of Rs. Eleven lakhs from HDFC Bank

Contact Information:
Plot No.167,Survey No.436/A, Adarsh Nagar, Behind D-Mart, Jalgaon-425001, Maharashtra, India.
Email : **aruhealsolutions@gmail.com**
LinkedIn : **linkedin.com/in/aruheal**
Contact : **+91 8788664860**
Website : **www.365dfarms.com**

2. Aryav Ecofriendly Resources Pvt. Ltd.

Sanjay Kumar Garg, Founder

Overview:

ARYAV AWG is an Indian Startup, which generates pure, clean, and alkaline water from humid air that delivers safe and mineral-rich water (even at places with no water) without any water input and water wastage, unlike RO technology. Aryav AWG is more efficient than the competitors as we are using Heat Exchanger which helps to get the higher yield at lower power consumption.

Social Challenge:

 # Major Problems we are solving

- Water is Scarce
- Health Issues because of using contaminated water
- Usage of Plastic Bottles for drinking purposes is hazardous to Climate

Solution:

The solution is Aryav AWG i.e. Atmospheric Water Generator, which is generating pure, Clean drinking water from the air without any water input, water wastage, and no heavy metals in water. Also providing Real-time Monitoring of Water Quality in terms of TDS and Alkalinity.

Impact on Grassroot development:

Women's Empowerment Can Stop the Migration of people from their roots because of water deficiency

Drinking Water is a major problem and more than 1.2 billion people don't have access to drinking water. We can Solve this problem.

Implementation:

Implementation is through our 3 modes

1. Through Our Channel Partners Under Product Selling

2. Through the Rental Model of our Product

3. AMC / Spare Parts

Challenges:

The Major challenge is to reach areas, where water is in Scare and to create awareness that AWG water was good for drinking.

Sustainability:

We Cover Following SDG

- Goal NO. 6 ----- Clean water and Sanitation
- Goal No. 11 ----- Sustainable Cities and Communities
- Goal No. 12 ----- Responsible Consumption and Production
- Goal No. 13 ----- Climate Action
- Goal No. 14 ----- Life Below Water
- Goal No. 15 ----- Life on Land

Future Plans:

Being Startup, we just started getting traction and future plans to work on 3 Major aspects of AWG machines.

doing more R&D and working on more efficient machines along with developing IoT basis for the machines.

Target for 2023-24 will be generating Revenue of INR 3Cr 3. Globally we should able to target minimum of 3 to 4 Countries and generate business from them in FY 2023-24

Associations & Capacity Building:

We have been Associate members of ASSOCHAM and TiE. Also, we are working to build our Channel partner base across India and globally to increase our presence in the market and build our Capabilities.

Performance and sustainability :

Performance on Sustainability means that our Aryav AWG meets 6 SDG and contribute a lot to making the water available in a sustainable manner. Performance can be measured in terms of generating drinking water through Aryav AWG without using any natural resources.

Awards & Photographs

We were selected by World Economic Forum, and Davos in 2023 by Startup India we were selected for AMRUT 2.0 Mission by MoHUA we were also selected by the top 75 innovative Startup by Startup India we were also been awarded by IIT Delhi for the Entrepreneurship of the Year award in 2018

Contact Information:
B906 , Ithum Tower, Sector 62,
Noida - UP - 201301
Email : **sanjay@aryaveco.com**
Contact : **+91 9811779299**
Website : **http://aryaveco.com**

3. BharatGo

Pravin Adik, Founder

Overview:

BharatGo is a tech-enabled social innovation start-up that is dedicated to empowering artisans, self-help groups, and small businesses and entrepreneurs mainly in tier 2 and tier 3 cities/towns in India using technology. We are making them AatmaNirbhar by providing them with an easy-to-use online store platform. With our innovative platform, we enable small businesses to reach a wider customer base, manage their inventory, and take direct orders from their customers. Our primary aim is to help small businesses create a strong online presence and grow their business.

By supporting small businesses, we are contributing to social change by promoting local entrepreneurship and reducing economic inequality. We believe that by providing small businesses with the tools they need to succeed, we can help to create a more equitable society where everyone has the opportunity to succeed.

Our target customer segments are artisans, self-help groups, small businesses, and entrepreneurs in tier 2 and tier 3 cities/towns in India who are looking for an affordable and user-friendly way to create an online store. We work with a wide range of businesses, from local artisans to small retailers, to help them succeed in the digital age. Our mission is to make it easy for small businesses to access the benefits of e-commerce and to grow their business.

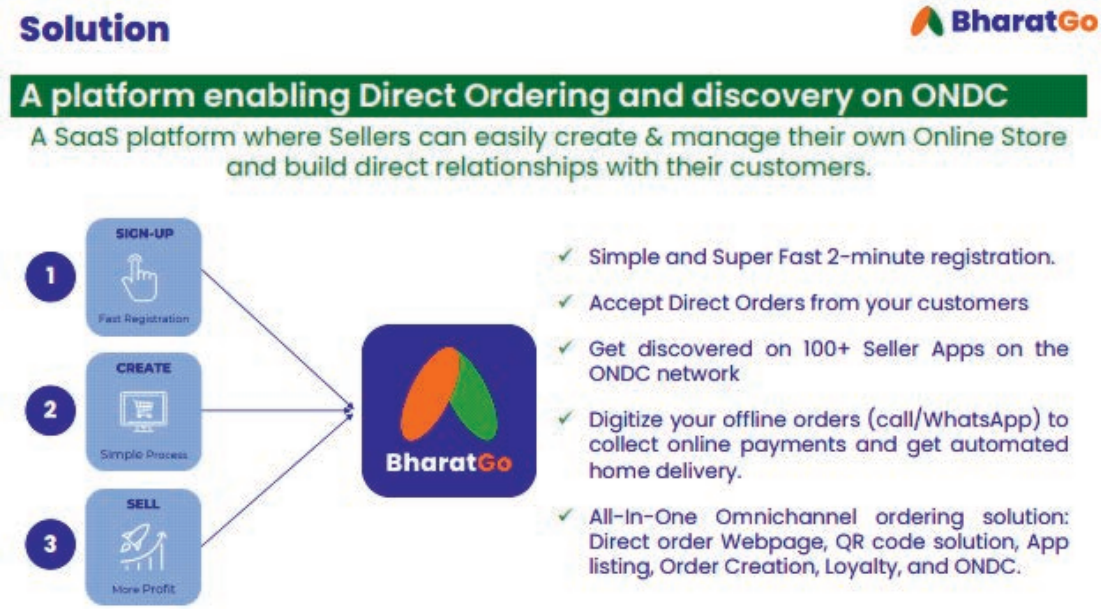
Solution:

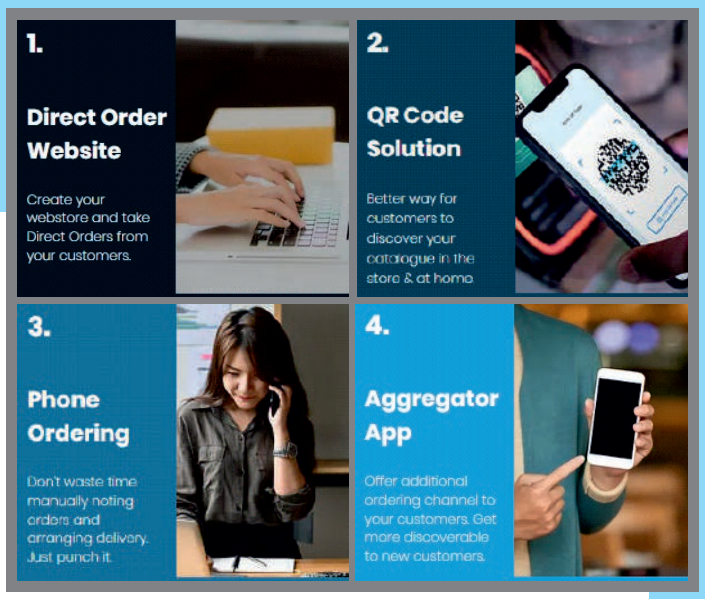
BharatGo's comprehensive e-commerce solution helps small businesses to easily create and manage their online store and take direct orders from their customers. This empowers small business owners, especially those in rural areas, to overcome the challenge of limited access to technology and digital platforms, and enables them to reach a wider customer base. By providing an affordable and user-friendly platform, BharatGo aims to promote entrepreneurship and economic growth, while also contributing to the larger goal of digital inclusion and bridging the urban-rural divide.

Our platform also offers ONDC (Open Network for Digital Commerce) integration to help sellers access a wider customer base across Indis, thus contributing to their overall growth and development. With BharatGo, small businesses can increase their reach and become more competitive, thus enabling them to thrive and positively impact their communities.

Impact on Grassroots development:

Our startup has had a positive impact on grassroots development by empowering small business owners to be AatmaNirbhar. By providing a user-friendly platform for creating and managing online stores, BharatGo has made it easier for small businesses to take orders directly from customers, without the need for expensive third-party services.





The integration with ONDC (Open Network for Digital Commerce) will further enhance this impact, as it will provide benefits such as increased visibility, reduced commission rates, and access to a wider customer base for the sellers using our platform. This will not only improve the profitability of these businesses but also create employment opportunities in the long run.

Through our innovation, we have already helped several small businesses across India to establish their online presence and generate revenue, thus contributing to grassroots development. As we continue to expand our reach and offer more services, we are confident that we will make an even greater positive difference in the lives of our intended beneficiaries.

Performance:

- Profit: Increased earnings of small business owners by 23%
- ROI: Delivered 60XROI (Return on Investment)
- Impact: Our start-up has enabled 150+ small businesses so far (and more in the pipeline) to embrace technology and leverage the benefits of e-commerce, which has resulted in improved livelihoods for small business owners and their families.

Sustainability and Future Plans:

BharatGo is committed to ensuring the sustainability of its social innovation practice. To achieve this, we have implemented several measures.

- Firstly, we have a strong focus on revenue generation through our online store management platform for small businesses. This ensures the financial sustainability of our start-up while also providing an affordable and accessible platform for small business owners.
- Secondly, we have plans to expand our services by integrating with the government's One Nation One Digital Platform (ONDC), which will provide additional benefits to our sellers and help us reach a wider customer base.
- Thirdly, we plan to invest in research and development to constantly improve our platform and services, keeping up with the latest technology and industry trends.
- Lastly, we plan to scale up our innovation by expanding to new areas and increasing our reach to help more small businesses and entrepreneurs succeed.

Through these steps, BharatGo is dedicated to ensuring the sustainability and growth of our social innovation practice, while also making a positive impact on the lives of small business owners and the economy as a whole.

Associations & Capacity Building:

BharatGo recognizes the importance of partnerships and collaborations to drive social transformation and grassroot development. We have a vision of working closely with government organizations, trade associations, civil society organizations, women's self-help groups, farmer-producer organizations (FPO), and other stakeholders to implement our solution and provide them benefits. We believe that such partnerships will not only help us in reaching out to a wider audience but also provide us with the necessary support to drive meaningful change. We look forward to building strong associations and capacity-building opportunities with these stakeholders to ensure the success of our social innovation practice.

Awards & Photographs

- Received MeitY Tide 2.0 grant
- Received Startup India Seed Fund

Contact Information:
MIT Technology Business Incubator, MIT WPU, D Building, 5th Floor, Kothrud, Pune, Maharashtra, India - 411038
Email : **pravin@kwyk.one / support@kwyk.one**
LinkedIn : **linkedin.com/in/pravinadik/**
Contact : **+91 8087076666**
Website : **www.bharatgo.co**

4. C.H.I.R.A.G.

Shefali Vinod Ramteke, Founder

Overview:

Around $36,000 M of annual crop yield loss is witnessed in India due to pest attacks. According to our market research in around 100 villages in parts of Uttar Pradesh and Haryana, 8 out of 10 Farmers face health issues due to prolonged exposure to crop protection chemicals. ~12,00,000 tons of water wasted due to conventional methods of spraying. Also, poor bio-efficacy is observed/agriculture chemicals overuse in traditional spraying methods, with more than 50% goes to non-targeted areas. Also, poor containment/MRL (Minimum Residue Levels) is observed which is important for food & crop export. Due to inefficient & non-uniform spray that increases the costs & reduced yields. Lack of Operator/Labor Availability is also a major issue.

Addressing the Pain Points of Farmers in India:

Reducing the cost of inputs and accessibility, improving the productivity

Affordable and sustainable solutions (Drone-as-a-Service)

Affordable equipment that reduces drudgery, have improved user experience and are suitable for small land parcels.

Precision crop health monitoring solutions that deliver actionable intelligence to reduce crop losses.

Solutions for early pest/disease detection, monitoring system and advisory to minimize crop damage.

Presenting – Deep 1.0 – Spraying Drone for Farmers

Solution:

Smart Spraying Drone Technology & Differentiated Nozzle Systems Intelligent Real-time Target Detection for Canopy Compensation (for spatial variability) Variable-rate spraying of canopy, sensing for dosage adjustment

Spray target detection according to the geometrical characteristics & Leaf foliage density/indices of the plantations for precision agriculture spraying. We manufacture standardized drones for precision spraying & climate-smart agriculture for bringing variable-rate & optimized spraying technology for farmers that help in increasing their ROI & yields. Around $36,000 M of annual crop yield loss is witnessed in India due to pest attacks. According to our market research in around 100 villages in parts of Uttar Pradesh and Haryana, 8 out of 10 Farmers face health issues due to prolonged exposure to crop protection chemicals. ~12,00,000 tons of water wasted due to conventional methods of spraying. Also, poor bio-efficacy is observed/agriculture chemicals overuse in traditional spraying methods, with more than 50% goes to non-targeted areas. Also, poor containment/MRL (Minimum Residue Levels) is observed which is important for food & crop export. Due to inefficient & non-uniform spray that increases the costs & reduced yields. Lack of Operator/Labor Availability is also a major issue.

Addressing the Pain Points of Farmers in India: Reducing the cost of inputs and accessibility, improving the productivity Affordable and sustainable solutions (Drone-as-a-Service) Affordable equipment that reduces drudgery, have improved user experience and are suitable for small land parcels. Precision crop health monitoring solutions that deliver actionable intelligence to reduce crop losses. Solutions for early pest/disease detection, monitoring system and advisory to minimize crop damage. Presenting – Deep 1.0 – Spraying Drone for Farmers Agriculture is liable for climate change as its activities account for nearly 13.5% of the total global anthropogenic Greenhouse Gas (GHG) emissions.

Impact on Grassroots development:

SDG Impact & Social Relevance Rural Microentrepreneurs, Youth opportunities for drone pilots, operations for Drone-as-a-service, etc.

Reduce Inputs (Fertilizers & Pesticides)

Increase Crop Yield

Remote Automated Operations

Pesticide Exposure to Sprayers Eliminated

Easy to Use

Highly Efficient System – Time reduction

SDG 13 – Climate Impact, & SDG 2, 5, 7, 14, 15

Implementation and challenges:

- Product Optimization & Testing On-field testing for spraying optimization & variable rate studies, MVP-beta phase, Demos
- Product Launch/Commercialization Sales, Product MVP Launch in Western Uttar Pradesh, Punjab, Haryana, Madhya Pradesh

Performance:

- We conducted a paid pilot in Uttar Pradesh, where we saved around 5000 Litres of water, 60 Litres of crop protection chemicals, and 200 hours of intensive labour engagement. We can create a huge impact in India and solve problems starting from the local problems of farmers towards global problems such as Zero Hunger & Climate Change. We are targeting a blend of small and medium landholding farmers to create maximum impact. We are also targeting 3 climate risks: Extreme temperature (such as heatwaves), Drought, & Cyclones, hurricanes, typhoons or storms towards adaptation & resilience to climate change.
- D2C (Medium/Large Landholding), B2B (Pesticide Companies, Farm Equipment Manufacturers, Farm Service Aggregators, Marketplaces)

Sustainability and Future Plans:

There is a huge demand for drones now - more than ever. It is estimated that a manufacturing potential of INR 98,000 crore in 2030 across fixed-wing and multi-rotor drones - with agriculture being at the INR 26,800 crore mark.

Associations & Capacity Building:

Associations with civil society organisation, women self-help groups, farmer producer organisation (FPO) etc. for social transformation and grassroot development.

Skill Development Outcomes

Manpower trained (Graduates, Post - Graduates - Technical) - 7

Details of Publications, IPRs, etc. – Poster & Research paper in pipeline in 5th International Conference on Climate Change & its Impact 2023

Details of Workshops – Dronathon (Drone Design Workshop – Offline – 3)

Capacity Building Training for Students and Rural Microentrepreneurs

Associations with national and international collaborators from the stakeholders systems from industry, academia, and scientific community.

Contact Information:

C.H.I.R.A.G. Technologies, Sharda Launchpad, Plot No. 32 - 34, Knowledge Park III, Greater Noida, Uttar Pradesh 201306

Email : **shefali@chiragtechnologies.com**

LinkedIn: **linkedin.com/in/shefaliramteke/**

Contact : **+91 9559649244**

Website : **www.chiragtechnologies.com**

5. Electromotion E-vidyut Vehicles Pvt. Ltd.

Founders - **Pulkit Jain, Gaurav Kumar Singh, Surya Pratap Singh, Bishwajeet Kumar**

बिरसा का गांडीव
रांची, सोमवार, 22 फरवरी, 2021

SPECIAL 11

चार दोस्तों ने मिलकर बनाया इलेक्ट्रिक रेट्रोफिट ऑटो

रांची। हमारे देश में बुराओं में कुछ करने का जज्बा है। अपने टैलेंट और नए आईडिया से खुद का स्टार्टअप और नया अविष्कार करते रहते हैं। ऐसे ही आज हम आपको अपने झारखंड से चार इंजीनियर दोस्तों की कहानी बताने वाले हैं, जिनकी दोस्ती कॉलेज में इंजीनियरिंग डे के दिन हुई और अपनी इनोवेटिव सोच के साथ हैकथॉन में भाग लिया, जहां इनकी टीम स्परऊप रही। इसके बाद चारों दोस्त, जो झारखंड के अलग-अलग जगहों से थे, इनमें से पुलकित जैन (रांची), सूर्य प्रताप सिंह (जमशेदपुर), गौरव कुमार सिंह (जमशेदपुर), विश्वजीत कुमार (कोडरमा) के है, ने एक इनोवेशन के बारे सोचा और उस पर काम करना शुरू किया। ये इनोवेशन में पुराने पेट्रोल और डीजल ऑटो को इलेक्ट्रिक रेट्रोफिट ऑटो में बदलने का काम है। जिसकी खास बात ये है कि मात्र दो घंटे में धुआं देने वाली ऑटो बिल्कुल पर दौड़ने के लिए बिल्कुल तैयार हो जाएगी और इस ऑटो से 120 किमी बिना रुकावट के आराम से चल सकते है। क्या है इलेक्ट्रिक रेट्रोफिट ऑटो? क्या है इसकी विशेषताएं? कैसे आया इसके पीछे का आईडिया? क्या परेशानियों का सामना करना पड़ रहा इन सब बातों का ध्यान रखते हुए गांडीव रिपोर्टर शीश ओझर ने टीम से बात कर विस्तार से रिपोर्ट बनाई।

एक बार इलेक्ट्रिक ऑटो में कन्वर्ट हो जाए फिर 120 किमी चलेगा

इंजीनियर डे के दिन चारों की दोस्ती हुई

इलेक्ट्रिक ऑटो का आईडिया

हैकथॉन ने दिया मौका

2019 में खुद का स्टार्टअप किया

इलेक्ट्रिक ऑटो की खास विशेषताएं

- माज दो घंटे में पुराने ऑटो को इलेक्ट्रिक ऑटो में बदला जा सकता है।
- कंचाई और चढ़ान में आसानी से बिना रुके चल सकती है। प्रदूषण के स्तर को -नुकसान लाने में मदद मिलेगी।
- इसमें एक खास ब्रेकिंग सिस्टम है, जिससे ब्रेक लगाने से इसकी बैटरी चार्ज होती रहेगी।
- 120 किलोमीटर तक का सफर आसानी से तय हो सकता है।
- बैटरी का लेवल भी दिखता रहेगा। बैटरी में 5 साल तक की वारंटी है।
- सबसे खास बात तो यह है कि इसमें सिंगल ट्रैकिंग एवं डीएरिंक्टवेट सिस्टम भी होगा, जिससे आपकी गाड़ी सुरक्षित रहे।

35-40 हजार का खर्च

ऑटो बनकर तैयार, कुछ महीने बाद सड़क पर दौड़ेगी

कई परेशानियों का करना पड़ रहा सामना

झारखण्ड छोड़ हर जगह से मिल रही मदद

इनलोगों ने निभाया मेंटर जैसा रोल

कई पुरस्कार हासिल कर चुके है

मिशन भारत को प्रदूषण मुक्त करवाना : टीम विद्युत

Overview:

Electrifying India With Retrofitted Autorickshaws. Economically Enhancing Lives Of Community Of Auto Drivers. RetroKit(R) converts an autorickshaw & cargo three-wheelers running on Internal Combustion Engine (ICE) consuming Petrol or Diesel into Electric Vehicle (EV) in 2 hours. Our solution is cost-effective as it retains the majority of the components of the original autorickshaw. Retrofitting also eliminates air and noise pollution.

Solution:

Presently, there are more than 3.5 million combustion engine auto rickshaws running on Indian roads that have been sold in the last 6 years. Typically, auto drivers spend about 50% of their income on fuel and maintenance of the vehicle. Our aim is to help

such auto drivers to switch to electric in a cost-effective and environmentally responsible manner, while significantly increasing their daily income.

We have developed an electric retrofitting system for existing combustion engine vehicles. The system includes a modular and scalable electric powertrain, which is compatible with various autorickshaw types and can be easily adapted to other vehicles as well.

Some key components of the powertrain are novel and the patent is pending. The system also consists of an electronic diagnosis and benchmarking system to ensure that the retrofit is accurate and optimal based on the condition of the vehicle.

The entire retrofitting process and the vehicle are monitored on a cloud platform and the system has the potential for providing customers with remote diagnosis and fleet management services using this platform.

Impact on Grassroots development:

- After conversion, the auto driver's daily income will increase by 65% and the converted electric vehicle will provide a much more comfortable ride for the passengers.
- With our patent-pending retrofit technology and unique diagnosis system, we can convert any passenger autorickshaw into a pure electric vehicle in just 2 hours!
- The converted vehicle provides unmatched performance and torque for all road and loading conditions.
- The fully charged vehicle can give a range of 100 Km and can re-charge to 80% in less than an hour with fast charging.
- Each retrofitment with RetroKit eliminates tailpipe emissions, and is equivalent to planting 23 Trees!
- The vehicle has a smart information system and can provide enhanced driver and passenger safety.
- With India's goal of switching completely to electricity by 2025, RetroKit is the best and most sustainable solution!

Implementation and challenges:

Challenges faced by start-ups can vary greatly depending on the nature of the innovation, industry, and market dynamics. In our case, these are the challenges that we are facing while the implementation

- Regulatory and Legal Constraints: We have faced and are facing type approval

challenges at the RTO level as we have not been able to receive our trade certificate for the full proof testing of our vehicle and that remains a challenge post-commercialization as well

- Compliance Testing: Development of funding/financing schemes for regulatory certifications (in our case AIS Certifications) in order to bring the product to market faster. Development of alternative testing centers and facilitation of existing educational institutes with test facilities at subsidized rates for startups (at least for development testing, if not certification)

- Manufacturing Plant Setup: we seek to find a suitable space (both budget-wise and location-wise) for setting up a pilot manufacturing plant. Most of the business incubators around the country are designed for IT/service-based startups and focus on reducing costs for business operations or IT teams. Hence offices/coworking spaces are set up with this in mind. However, we have not been able to find any incubators / accelerators focused on manufacturing startups, that can provide pilot production/workshop-like space in areas accessible by local talent. As a startup, investing in a remote industrial plot is not feasible as getting the workforce to operate from a remote manufacturing location is often very challenging and generally proves to be operationally expensive, and finding affordable workshop/assembly line space nearer to the city is very difficult. As an example, we have learned that the cost of lease per Sqft in areas such as Pimpri Chinchwad Municipal Corporation (PCMC) region Industrial Parks (Such as Bhosari, Chinchwad, etc.) start at around Rs. 20-25/- per sqft for a built-up shade. This implies Rs. 1Lakhs-1.5Lakhs Per month of lease (in addition to electricity and maintenance) for a 4000 sqft unit. For a startup with negligible revenue or traction, and in the early stage, this cost is prohibitively expensive and deeply affects profitability and breakeven. Also, state policy and activities of the state government do not seem to facilitate small businesses or startups with manufacturing space to set up pilot-scale production units (in Maharashtra).

Performance:

With the maximum payload and torque, the range we are providing is 100-120 Km with an easy EMI payment scheme for the auto drivers. The EMI can be as low as Rs. 100/day/vehicle. While we also plan to use the rear part of the autos for revenue generation via leasing out the area to advertisement agencies.

Sustainability and Future Plans:

We are ensuring the social healthcare of all the auto-rickshaw drivers who are in our connection with the help of certain NGOs such as Baghtoy Rickshawala. On the business front, we plan to bloom out as a technology company that not only focuses on retrofitment as a business but overall components and technology development for the EV market via giving employment to

the grassroot employees. We plan to span out the battery and the motor market as well.

Associations & Capacity Building:

Associated with some of the NGOs for Grassroot development such as:

- AIC@36 INC, Raipur, Chhattisgarh
- Scitech Park, Pune
- STPI Motion, Pune
- JGMSMETR, Ranchi, Jharkhand
- Makerspace, NIT Raipur
- People for Change (NPO in Jamshedpur, Jharkhand)
- Baghtoy Rickshawala (Connected with 5000+ auto drivers via this community)

Awards & Photographs

- Runner Ups, Smart India Hackathon, 2018
- Winner, CII Startup Conclave, 2019
- Runner Ups, Business Conclave, BIT MESRA, 2019
- Runner Ups, Bizathon, IIT ISM Dhanbad, 2019
- Top 10 Startups, KPIT Sparkle 2019
- Top 10, A Minute Million, IIT BOMBAY, 2020
- Top 5, Conquest, BITS Pilani
- Top 10 Startups, IIM Kashipur
- Facilitated by MSME Minister (Central & State)
- Invited by Doordarshan, Nayi Bulandi, Local for Vocal

Contact Information:

Electronic Sadan - 3, MIDC, Bhosari, Pune, Maharashtra - 411026

Email : **pulkit.jain@evidyut.com**

LinkedIn : **linkedin.com/company/eevv/**

Contact : **+91 9852222148**

Website : **www.evidyut.com**

6. Energinet Innovations

Akash Singh, Founder

Overview:

In our country temple waste management is a huge challenge. For the last 4 years, we at Energinee Innovations are giving innovative solutions to this challenge by converting temple waste into beautiful idols, artifacts, and home decor pieces by upskilling jail inmates, rural women, and marginalized communities. We have upcycled 12,481 metric tons of temple waste, and trained more than 1,620 marginalized families, boosting their incomes by four folds (latest figures of March 2023).

Social Challenge:

In India, we have more than 5 million temples but we don't have a proper and efficient waste management system. Most of the waste generated by temples is dumped into water bodies. About community challenges, We found out that 69% of the people in Indian jails are undertrials - the prisoners who are not convicted of any crime but are currently on trial in courts. Most of the prisoners were sole earners of their families, and their families are rendered helpless after their arrest.

Solution:

Collaboration with Government: When we started our operations in 2018, we had to face a lot of issue in the collection of temple waste which goes directly into the river and endanger the life of water bodies. We started the temple waste collection but had to face a lot of legal actions and permissions which could halt our operations.

- We started collaborating with the govt. waste collection bodies and the local community to help us in cleaning the waste. The government bodies were really helpful in doing such a huge task. They helped us in arranging transportation and helped us save cost on transportation.
- Jail Inmates: Jail inmates who were yet not proven guilty and are in the prisons, we collaborated with the jail and made inmates work for us, and in return, they would earn some money and shape their lives. They were trained and asked to make sustainable products for the company in return they were paid to work for us.
- Rural women: Apart from jail inmates we collaborated with the rural women in the backward areas who are skilled but don't have work to do. We trained them on how to make products and helped them earn a living. This improved their standard of living and helped them in providing education to their kids.
- Backward communities: Communities that are socially backward and are not given work to do because of their social backwardness & lack of education are part of our operations.

Impact on Grassroot development:

Today, the girl's parents are fully accepting of their marriage and have given him their blessings. Since then, Sanjay has continued working with Energinee and handles the operations. Sanjay says he will never leave Energinee and promises to give it his all to make Energinee successful. To Sanjay, the best part about Energinee is that the employees never feel like they are employees. Instead, everyone is treated with respect, and empowered to do things in their own way.

Implementation: Team-jail inmates, co-founder, learnings

challenges:

Key Challenges we faced: The first major challenge was, we had to use our own funds for waste collection bins and transportation which would limit our capacity to focus more on the product side and its distribution to keep the businesses running. We managed to deal with this challenge by collaborating with the city waste collection authorities, they help us by providing waste collection bins and curtailing our transportation costs by using their own funds for these activities.

B. Another challenge was when we started our operations by involving jail inmates in making our products, we were only dependent on them which could raise the risk of timely completion of our orders because of their time restrictions and own jail-related rules and regulations. They also had their court hearings and could bring the operations to a halt. We dealt with this by starting to reach out to other communities that are underprivileged and don't have basic needs fulfilled. We focused on reaching new communities and also involved women from rural areas who can utilize their time and improve their family income level.

Another was we earlier had our major operations from August – December which accounts for 70%, the rest of the time we used to do corporate gifting. We started our training program for the rest of the time which could eventually help in reaching our community members and training them. It helped us with more production and increase our revenue collection.

Sustainability :

I want to make society understand that all undertrials are not criminals. We should not treat their families and them like criminals. An undertrial who started working with us as a laborer while he was an inmate has now been released and is working as a core team member with us. I want to share these stories of hope with more people.

By interacting with potential mentors and development sector leaders, I want to understand how I can partner with more foundations and corporates. Currently, a few of them have begun working with us.

In India, we have more than 5 million temples and Energinee believes that waste from one temple can easily provide employment to at least two individuals. We inaugurated our training programs this year. Till now we are successfully running our training programs in 4 different states and have received an overwhelming response. Our mission for the coming years is that through our training program, we provide employment opportunities to a lot of rural communities and stop temple waste from entering the rivers.

By partnering with state authorities we solve their waste management problem and by training rural communities we are providing them with employment opportunities. Temple waste is free for us. We earn by the sale of our products and through our training programs.

The products we create from temple waste have a very high demand because people see them as eco-friendly as well as very auspicious for them to have. 92% of our income comes from sales (corporate gifting and events) and the other comes from grants and prize money.

Future Plans:

In short-term plans: We are planning to skill around 10,000 people from different geographical regions.

- We are looking forward to developing our own e-commerce platform to scale our reach in PAN India.

Scaling operations by skilling 10 jails could potentially help in more production for us.

- Collaboration with city authorities on temple waste education and how our initiative can help in making the city more pollution free and clean.

Performance and sustainability:

The Company has now 4 years of incorporation and I am very proud to share the achievements and technical capabilities we have achieved working as a team. We work on sustainable products which can be used for corporate giftings and festival giftings. The best thing is that all the products are made from the waste which is thrown into the rivers and is very harmful to the water bodies. We have created a method for this temple waste collection and conversion of it into some sustainable and meaningful products. like Idols, statues, sculptures, trophies, and flower pots. We have 120+ Varieties of products that can be further used for gifting purposes incorporating offices and Diwali festivals. We have used 3D Printing Techniques in our products. Apart from this, in our endeavor to achieve 100% sustainability. We have experimented with a new line of products example: In India, we celebrate a festival called Rakhshabandhan. The rakhis are made of plastic and thermal materials and then later dumped into rivers. We made rakhi with sustainable materials and sold 7500+ Rakhis during the festival. These numbers can go much more than this as this experiment was to validate our product.

Awards & Photographs:

Selected one of the teens from India for the first Global Edition of Ashoka Young Changemakers - 2019

Udyam Veer Award by MSME - 2019

Represented India in Social Enterprise World Forum (SEWF) held in Addis Ababa, Ethiopia - 2019

Excellence Award by Chief Minister of Haryana 2018

Young Changemaker of the Year Award by the Finance Minister of India Nirmala Sitaraman - 2022

United Nations-V Award by the Ministry of Youth Affairs, Shri. Anurag Singh Thankur and United Nations -2022

Our story has been featured as a Documentary on Amazon Prime by the name "Ashes to Idols."

Contact Information:

Village - Khajpure, Jewar, Greater Noida, G.B Nagar, Uttar Pradesh

Email : **akashsingh7842@gmail.com**

Contact : **+91 9457138214**

Website : **www.shorturl.at/iXY78**

7. GREENJOULES Pvt. Ltd.

S Viraraghavan, Founder

Overview:

Greenjoules Pvt. Ltd. (www.greenjoules.in) incorporated in 2018 and registered under Start-up India, is in the business of manufacturing green alternate fuels such as Biofuels.

Greenjoules is a renewable-energy company in the business of manufacturing environment-friendly **Green Diesel**, a Biofuel with agro-Industrial wastes using technology, fully developed in India. Registered under the "Start-up India" program and an incubatee of Science & Tech Park (Pune), Greenjoules has established the first Bio-refinery plant in Chakan, Pune.

The manufacturing process also produces by-products that are Petrol-like and LPG-like fuels. They can be used to blend in petrol and in the LPG Supply Chain respectively. One more interesting by-product is Biochar which can be used as a fertilizer. It can be further refined into valuable silica and activated carbon. Both can be used in a variety of industries. Advanced Biofuels will initially target Enterprise customers. They consume a total of about 13 Mn Metric Tons (17% of the 77 Mn Metric Tons) in India.

The primary Use-Cases are:

- Gensets 24%
- Boilers 30%
- Construction & Others 35%

Solution:

Greenjoules Green Diesel, the Biofuel, is manufactured at high temperatures using Agro-Industrial Wastes using a Thermal cracking process. A catalyst mix creates energy density, removes acidic compounds, and reconstitutes the feedstock into a mix of Alkanes & Alkenes. (Greenjoules' IP - Raw materials, their mix ratios, catalysts, and the process conditions).

Specifications:

Carbon footprint <5 kg CO2e/per mmBtu compared to 90 for Diesel and about 60 for Biodiesel.

100% replacement (neat) fuel with no equipment change unlike 1st Gen fuels like Biodiesel

Made from non-food, non-feed wastes v/s Biofuel that is made from edible raw material (veg oil)

Delivers >18% energy (Gross Calorific Value: 10,500 Kcals v/s Biodiesel at 8,900 Kcals per liter)

Ultra-low Sulphur content (<10 ppm) without sacrificing lubricity

Impact on Grassroot development:

- Every liter of HSD burnt for energy releases 2.9 Kg of CO2. Using ABF, Cargill will be able to convert almost all of it to renewable carbon as no major Carbon footprint enhancing process is used in making ABF. In other words, unlike with Biodiesel, almost all the CO2 emission from ABF can be considered as not adding to incremental CO2 in the air. The efficiency of Carbon footprint reduction for Cargill is almost the full 2.9 Kgs/Lit.
- SOx emissions would be significantly down thus enhancing the life of equipment while improving air quality. ABF has Sulphur that is even tighter than BS VI and Euro VI fuels.
- ABF has a superior HFRR (< 300) than HSD (Max 460). This means that all moving parts in the plant that use ABF will have far lower rates of wear and tear.
- Finally, ABF has practically no PAH (Polycyclic Aromatic Hydrocarbons) which are known carcinogens. The limit for it in Europe is 7% while in India it is 11%. ABF has less than 0.5% making it safe for everyone handling it.
- ABF has other major benefits over Biodiesel. It has 14.4% more energy released in Combustion and generally has better flow and corrosion properties than Biodiesel.
- Biodiesel can only be used as blends along with High-Speed Diesel for any application. While ABF can be used 100% neatly in many applications. This is a huge advantage it has over Biodiesel as there is no need to introduce a blending process before using the fuel.

Greenjoules has a list of marquee customers who are using Biofuel for various applications in their journey toward Green Energy adoption.

Implementation and challenges:

Availability of funds – This is a huge capital-driven project and while we managed through a VC who came in early but we had to give up a lot of equity for it.

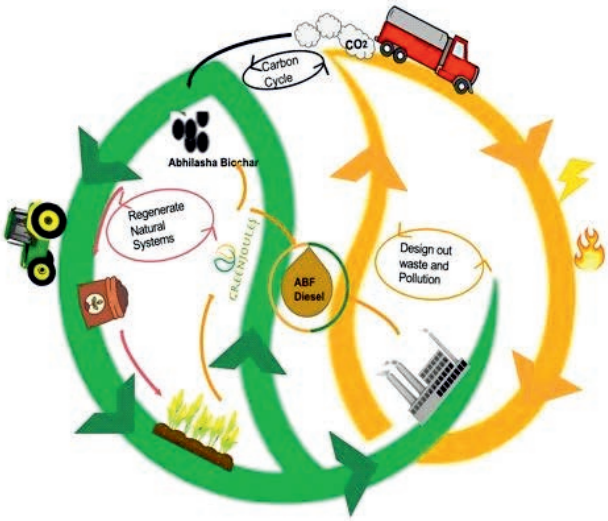
The constant requirement for working capital is also a great impediment. Banks do not easily give loans under CGTMSE for the full amount without collateral.

Performance:

FY 2021-22: Rs 2.8 CR

FY 2022-23: Rs 6.8 CR (unaudited figures)

FY 23-24: Rs 20 CR – Plan



The customer profile is growing across India, especially in the segment that is chasing Carbon neutral goals by 2030 and beyond. As their adoption grows, the company has a huge opportunity to grow by replacing all the Diesel applications fully.

Sustainability and Future Plans:

India has 3 Mn tons of Agro-Industrial wastes identified by Greenjoules. We believe we can convert the same into 2 Mn tons of Green Diesel. If we get sufficient funding, we can set up plants across the county.

Each location will be a 100 KL per day plant.

We are looking at being present

- About 5 Acres of Land
- Assured 440 volts supply
- Regular Water Supply
- Access to main Roads and road infrastructure
- Good Telecommunication provider networks

Awards & Photographs:

- Selected in Top 20 Start-Ups, Year 2022 – Dept of Science & Technology; Govt of India
- Asian Association of Incubation Business – Award
- Top 100 Energy Start-Ups in the World – SET 100, Germany

Contact Information:

PAP B 77, VARALE; MIDC Phase II, Chakan
Tal: Khed Dist: Pune 410 501

Email : **svira@greenjoules.in**

Contact : **+91 9810069838**

Website : **www.greenjoules.in**

8. Lway Technologies Private Limited

Founders, **Dr. Lalit Gangurde & Mr. Kishor Gangurde**


CERTIFICATE NO:
DIPP111079

#startupindia

Government of India
Ministry of Commerce & Industry
Department for Promotion of Industry and Internal Trade

CERTIFICATE OF RECOGNITION

This is to certify that **Lway Technologies Private Limited** incorporated as a **Private Limited Company** on **28-02-2022**, is recognized as a startup by the Department for Promotion of Industry and Internal Trade. The startup is working in 'Transportation & Storage' Industry and 'Passenger Transportation Services' sector as self-certified by them.

This certificate shall only be valid for the Entity up to Ten years from the date of its incorporation only if its turnover for any of the financial years has not extended ₹ 100 Cr.

04-10-2022
DATE OF ISSUE

27-02-2032
VALID UPTO

Overview:

Lway is an App based travel platform that focuses to provide better solutions to the problems faced by passengers, drivers, and vendors while booking autos, taxis, cabs, and buses. We are giving both online and offline solutions to provide services to Tier 2 and Tier 3 Cities along with metropolitan cities. Our vision is to develop a collective ecosystem of multiple mobility options where autos, taxis, cabs, and buses will be on a common standard network and provide their services under government policies. This initiative will help passengers to get rid of last-movement cancellations, unexpected surges, and non-transparency in billing. With our zero commission policy, all the ride amount will directly go to the drivers and their families. With our instant payment settlement and self-driver assignment options, now drivers can scale, grow and manage their business in both online and offline models. We have already launched our User & Driver Apps in Android & iOS Versions and testing them in Pune, Mumbai, and Nasik Regions.

Social Challenge:

The social challenge in the mobility industry is that it is still highly unorganized. The challenges are divided into three segments

- Passengers: No all travel options on one platform, ride cancellations in the last movement, unexpected surge price, billing non-transparency, no overall safety, and bad customer support.
- Drivers: They have to pay high commissions to aggregator companies, have to deal with agent cheating, payment recovery, and customer bargaining, have to face loss in package trips and one-way rides, are unable to provide bills on their own, and have no technical support.
- Operators or Booking Agents: It is difficult for them to find cabs by call, no data of all cabs available in one place, they are unable to scale, unable to have ride records, have to deal with driver payment recovery issues, and have no technical support.

Solution:

Lway provides all kinds of travel options including autos, taxis, daily cabs, corporate cabs, rental cabs, outstation cabs, and sharing cabs at quicker safer, and affordable rates. With our zero “0” % commission policy drivers will not cancel the rides as there is no middle man so all money goes to them directly. We provide transparency in bill calculations and don't add surge prices. SOS alert and emergency contact numbers are provided for safety purposes and we have a 24X7 Customer support team for help.

With zero “0” % commission drivers are very happy to join Lway as they are getting 100% ride amount so there is no reason to cancel the rides. Our payment settlement is instant so as soon as the trip ends driver gets his amount quickly. With our “self-driver assignment” option drivers can assign themselves and provide bills and transparency to their personal customers.

Now from Lway's Partner Portal and App, vendors and booking partners can access the data of all drivers in one place, accept direct calls from customers, and assign their own drivers. They will have a record of all bookings in one place and can scale their business more with our technical support.

Impact on Grassroot development:

First, we are a PIN code-based system so we can penetrate deeper into the cab market by collaborating with local cab drivers, operators, hotels, etc at City, Taluka, and even Village levels and provide our services at local rates only. We are the first company who is providing this kind of mobility service not only in metropolitan cities but also in Tier 2 & Tier 3 cities too and improving the traveling experiences of people in these places.

Second, by reducing the commission to “0” %, more drivers are joining us, and ride cancelations by drivers are also getting controlled. Making them our direct partners, and giving them self-driver assignment options is helping them to handle their business digitally.

Third, by partnering with local vendors, travel agents, and hotels we are helping them to scale their local businesses to the next level. Customers who are unable to book rides online and always visit local travel offices can also be served very well with our local collaborations. Those who don't have smartphones will get all the details by SMS. So cheating by agents and drivers on customers will be controlled.

In this way, we are trying to improve the overall mobility industry by addressing the major issues in both the online and offline business models and helping passengers to have a better traveling experience and drivers to become more efficient in their mobility business with our technical support.

Implementation

- The company is incorporated as Lway Technologies Private Limited on 28th February 2022.
- Our company is recognized as a start-up by the Department for Promotion of Industry and Internal Trade (DPIIT) on 4th October 2022.
- The company Website, User & Driver Apps are launched in Android & iOS Versions.
- Currently, we provided autos, taxis, and daily cab services like mini, sedan, and, SUV cabs.
- We also provide Outstation and Rental cab services for general use and for our corporate clients.

Challenges:

Improvement in mobility is very challenging. The first challenge for us was to have the technology which would solve real-life genuine problems. Second, the product should have some uniqueness so that people will use it. Third, acceptance by drivers and users with the presence of other big online companies and local offline options.

Sustainability:

- We have just opened our new office in MIT-WPU-Technology Business Incubator Pune.
- Hired 2 more employees for our digital marketing and customer support work and started digital marketing work to increase our market presence and reach.
- We are developing a dedicated section for corporate bookings and improving our user and driver apps to make them more user-friendly.
- We are contacting corporate companies in Pune to generate corporate clients.
- We are collaborating with local travel offices and cab operators to have both an online and offline presence in the market.

Future plans:

- We will be developing a dedicated partner app, adding a long-ride outstation sharing cab option in App, add a trip insurance option in the app in the coming months.
- We will also add "scan and travel" options specifically to increase our penetration in Tier 2 & Tier 3 cities where people can just seat in an auto or taxi scan the code of drivers and pay instantly.
- In the coming 1 to 2 years, we are planning to expand our services in all regions of Maharashtra.

In Feb 2023, we got 20 Lac Grant from Center for Business Innovation & Entrepreneurship (CBIE)- MIT-World Peace University Pune.

Performance & Sustainability:

- We are currently testing our services in Pune, Mumbai, and Nasik regions.
- 4121 Users & 3222 Drivers are already registered.
- 1541 rides are already completed.
- The total sales we did is around 40 Lacs and the revenue generated is around 8 Lacs.
- We have already provided corporate services to companies like BYJUs, Carzonrent, Sayaji Industries, etc.
- We got a 20 Lac Rs Grant from the Center for Business Innovation and Entrepreneurship (CBIE) – MIT – World Peace University Pune in March 2023.
- Got office space and Incubation facility at MIT-WPU-Technology Business Incubator Pune in March 2023.
- We got corporate cabs contract from MIT-WPU in April 2023 and now working on it.

Awards & Photographs:

Our company is recognized as a start-up by the Department for Promotion of Industry and Internal Trade (DPIIT) on 4th October 2022.

Contact Information:

KS 525, Technology Business Incubator (TBI), S. No.124, 5th Floor, Kashyap (COE-D) Building, MIT-World Peace University Campus, Paud Road, Kothrud, Pune 411038, Maharashtra, India.

Email : **lalit@lwayonline.com**
kishor@lwayonline.com
support@lwayonline.com

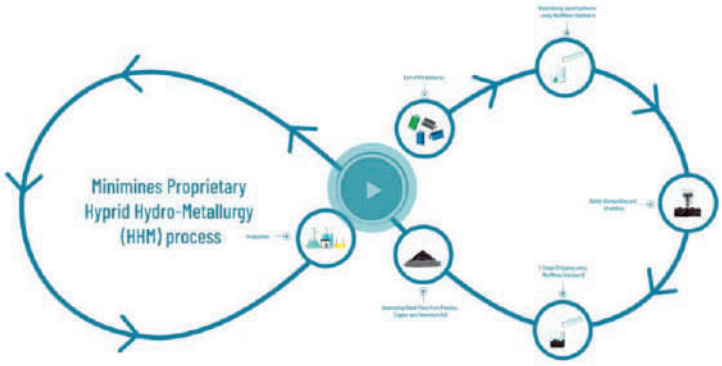
Contact : **+91 9922284692**

Website : **www.lwayonline.com**

LinkedIn : **linkedin.com/company/lway-technologies-private-limited/**

9. MiniMines Cleantech Solutions Pvt. Ltd.

Anupam Kumar, Founder



Overview:

MiniMines is a leading lithium-ion battery resource recovery company, focused on providing sustainable solutions for end-of-life lithium-ion batteries. Our proprietary technology and processes recover up to 96% of all materials found in lithium-ion batteries, including critical materials such as lithium, cobalt, nickel, and copper. By doing so, we reduce the environmental impact of lithium-ion batteries and create a circular economy that preserves critical resources. MiniMines is committed to providing a safe, sustainable, and cost-effective solution for the management of end-of-life lithium-ion batteries.

Social Challenge:

- Li-ion batteries contain toxic and potentially hazardous materials, such as lithium, cobalt, nickel, and Manganese, that can harm the environment and human health if not properly disposed of. commonly these batteries' waste are dumped in landfills causing soil, water, and air pollution. (i.e. Lack of Waste Disposal practices).
- Lack of domestic supply of rare earth metals Lithium, Cobalt, Manganese, and Nickel (i.e. Lack of Natural Resources & Import Dependency)
- Toxic and costly existing recycling process (i.e. Lack of Sustainable Recycling Process)
- Exponential demand for Evs

Solution:

The solutions to these problems are the safe and environmentally responsible disposal of used or end-of-life batteries. Recycling these batteries helps to prevent these materials from entering landfills and potentially contaminating soil and groundwater.

Impact on Grassroot development:

Waste Lithium-ion battery recycling businesses can have a positive impact on grassroots development in several ways: Environmental benefits: Recycling Lithium-ion batteries reduces the amount of waste that goes to landfills, which helps to conserve landfill space and reduce environmental pollution. By properly recycling these batteries, recycling businesses can help to prevent hazardous chemicals from leaching into the soil and water, which can have harmful effects on the environment and public health. Job creation: Waste Lithium-ion battery recycling businesses can create job opportunities for people in the local community, which can help to reduce unemployment rates and stimulate economic growth. These jobs may include roles in the collection, transportation, processing, and management of the batteries.

Implementation:

The implementation of our proprietary solution involves four main steps:

Collection: The company collects end-of-life lithium-ion batteries from various sources, including electric vehicle manufacturers, battery pack assemblers, and battery recycling facilities.

Pre-processing: The collected batteries undergo a pre-processing stage where they are sorted, shredded, and separated into their component parts, including the valuable metals and the hazardous materials.

Recycling: The company uses a proprietary technology called Hybrid HydrometallurgyTM process to recover valuable metals from the batteries, including lithium, cobalt, nickel, and copper. These metals can then be used to manufacture new batteries or sold back into the market.

Disposal & Re-Introduction in Supply Chain: The hazardous materials, such as electrolytes and plastics, are safely disposed of in accordance with environmental regulations.

Challenges:

The challenges faced by our startup:

Political/Regulatory: Indian EV battery recycling market is not regulated due to a lack of proper awareness and regulations. In order to increase the recycling percentage of spent batteries, it is better that the government of India implement some policies for recycling with some benefits to the stakeholders in terms of tax rebates and easy loans with some rules for making battery recycling necessary for OEMs. Ease-of-doing-business considerations.

Market/Competition

Brand and reputation: In India, these scrap batteries are exported to China and other countries for recycling. This causes extra costs for transportation, manpower handling, and loss of foreign reserves as well as a time-consuming process. We Mini-Mines set up an in-house sustainable and green process of recycling to save foreign reserves and generate employment to meet future EV demand.

Sustainability:

We fulfill 5 SDG Goals through our MINI MINES Initiative: We Proudly Mine in India for the World. #OneMoreEffort We are working on a Sustainable model for LIB recycling to meet global EV demand and meet UN SDGs 7,8,9,11,12 Goals and COP26 Goal towards carbon neutrality, and sustainable recycling. Affordable and clean energy: Mini Mines use non-Conventional energy sources for processing and production. Ensuring access to affordable, reliable, and modern energy services. Use of Energy efficient, advanced, and cleaner fossil-fuel technology. Responsible consumption and production: Recycling of spent energy storage devices and extracting valuable battery-grade material. Collection and proper disposal of electronic waste produced via consumption and while production of devices. Zero-impact air emissions

Future Plans:

A product/technology roadmap for MiniMines, aiming to build a commercial 3000-ton/annum processing facility within the current year, and set up 3 separate hubs at different geolocations in India for battery collection and black mass extraction, could be designed as follows:

Performance and sustainability :

Our USP is our proprietary patented Hybrid Hydrometallurgical Method TM which uses water as a solvent and extracts the elemental compounds with more than 96% efficiency and above 99% purity at 1/10th carbon footprint. The process is designed in such a way that it can process all types of Li-ion batteries regardless of their chemistry or form factor. The process does not generate any type of liquid, solid, or gaseous discharge during the process making it the most sustainable method for recycling. There are several measures that we as a sustainable and responsible enterprise are implementing to reduce the waste of resources, such as energy and water.

Use renewable energy sources: The recycling process and other domestic works require a significant amount of energy. By using renewable energy sources such as solar power, we are reducing our carbon footprint and energy consumption. We are getting 30% of our power requirement from solar panels.

Implement water recycling: We are recycling our domestic used water from STP to flush the toilets and garden. Our Process is not generating any liquid discharge in the form of waste.

Reduce chemical usage: Chemicals are used in the recycling process, and their disposal can be hazardous. Our proprietary process (HHMTM) reduces the usage of chemicals and recovers the leftover materials for their reuse.

Develop partnerships: The plastic waste generated during the recycling of batteries is given to their respective recyclers. Educate customers: Our aim is to educate customers on the importance of recycling batteries and the benefits of using recycled materials. This can help us to increase the demand for recycled materials and reduce waste.

Associations & Capacity Building:

We are virtually incubated at

1. IIT-Guwahati **2.** KIIT-TBI **3.** IIT-Kanpur
4. IIT-Palakkad **5.** IIM-Bengaluru

Awards & Photographs:

- Start Rajasthan, Rajasthan, India; Amount: Rs - 1.2 Lakhs; Date: 20 January 2022
- NIDHI EIR, GOI, India; Amount: Rs - 3.6 Lakhs; Date: 3 March 2022
- NIDHI Prayas, GOI, India; Amount: Rs-9.0 Lakhs; Date: 22 April 2022 IIT-Palakkad (IPTIF)

Awards:

Honored to be among the top 30 cleantech start-ups in the country, as announced by the Ministry of Housing and Urban Affairs (MoHUA) and the Agence Française de Développement (AFD) (2022).

Contact Information:

Flat No 102, First Floor, Plot no 27, Ruheen Ecco Homes, Goner Rd., Jagatpura, Jaipur, Rajasthan 302017.

Email **: info@m-mines.com**
Contact **: 080-6716-9**
Website **: www.m-mines.com**

10. NEMA AI

Nidhi, Founder

Overview:

Currently, 20% global population is Neurodiverse and lacks proper diagnosis and access to proper education. Due to unawareness lot of taboo and learning delay happens, which in turn creates many mental health issues and anxiety among the parents of such students.

Solution:

Neuroscience and AI-based consumer insights platform which understand your brain pattern, our technology is currently used to teach students who are Autistic, ADHD, Down syndrome, etc. to help them learn faster with an aim to employ them. Secondly, we serve adults to become productive and keep them mentally healthy. Our aim is to make India ready for the new age of tech and expand its business with our innovation.

Impact on Grassroot development:

Live at 3 schools within Delhi with special students with Autism, ADHD, Down syndrome, etc. Currently, we have 20+ students live using our platform from all across India, mainly from Delhi, Mumbai etc. We have touched more than 200+ students by creating awareness and providing early identification of strengths and weaknesses for free and currently trying to expand all across India and then globally to help as many students as possible.

Implementation and challenges:

As a startup in Neurodiverse areas, we face a lot of unacceptance from parents mainly. This creates issues while providing the students with appropriate solutions while teaching them. Secondly, the system where parents are aware is inaccessible due to the middle man in-between. We implement using B2B solutions by providing free 1st Brain Scans to parents to acquire and create awareness.

Performance:

- For every 10 Free Demos of Brain Scans, 4 customers register with us for a monthly package.
- Currently, from Dec -April we have been able to acquire 5 new customers each, and a projected revenue of 75 lakhs for the year April 2023-24 is expected.
- Our Subscription is monthly, quarterly, and yearly. Currently B2B2C and in future proper B2B.

Sustainability and Future Plans:

NEMA AI has planned to acquire more schools using marketing with a social cause which creates awareness in schools that are normal by making them inclusive using our easy-to-start inclusive content platform to teach students with Neurodiverse conditions easily. Our tech is market agonistic; we will work on revenue and profit from other sources as well such as corporate mental health etc while working on a mission to serve as many special students as many possible.

Associations & Capacity Building:

No such association yet, though we are working with Non for profit organizations to support and help students

Awards & Photographs

2nd Position HCI IIT MANDI CATALYST 2022 | 1st runner up HBTU Startup Award Kanpur 2022 | 1 runner up Innovative Startup Award BCOC, Mumbai Jan 2023.

एचबीटीयू के कॉन्क्लेव में रविवार को छात्र-छात्राओं को सम्मान से नवाजा गया।

नीमा आई बताएगा, छात्रों को कितना समझ में आया

कानपुर, वरिष्ठ संवाददाता। मानसिक बीमारी से ग्रसित छात्रों को क्लास में कितना समझ आया, यह नीमा आई बताएगा। दिल्ली से आई निधि के अपने स्टार्टअप नीमा आई की मदद से इस समस्या का समाधान किया है। ऑस्टिक या मंदबुद्धि या स्पेशल बच्चों को हेडगेयर दिया जाएगा, इसको लगाने के बाद छात्रों को साफ्टवेयर की मदद से पढ़ाया जाएगा। पढ़ाई के बाद छात्रों को कितना समझ में आया है, इसकी रिपोर्ट शिक्षक और अभिभावकों के पास पहुंच जाएगी। ऐसे ही कई स्टार्टअप प्रस्तुत हुए, जिन्होंने समाज में फैली अनेक समस्याओं का तकनीकी से समाधान किया है। एचबीटीयू में चल रहे एंटरप्रेन्योरशिप कॉन्क्लेव आरंभ का रविवार को समापन हुआ। 12 महिलाओं ने अपना स्टार्टअप अनमोल गिफ्ट हाउस, मारुति फ्रैगनेंस, प्रो इंटरनेशनल, मॉम्स चॉकलेट, अन्नपूर्णा प्रोडक्ट्स, अहर्म, हर्ट आर्ट, इंडियन डॉल्स आदि को भी इनवेस्टर ने काफी पसंद किया।

यासिर ने जमाया रंग।

जमकर झूमे

डॉ. एके राठौर, आदर्श कुमार आदि मौजूद रहे। छात्र-छात्राएं यासिर देसाई के गीतों पर झूमते रहे। यासिर ने अपने गीत दिल को करार आया..., जैसे अनेक गीत गाकर सभी को झूमने पर मजबूर कर दिया।

ये बने विजेता

प्रोडक्ट कैटेगरी

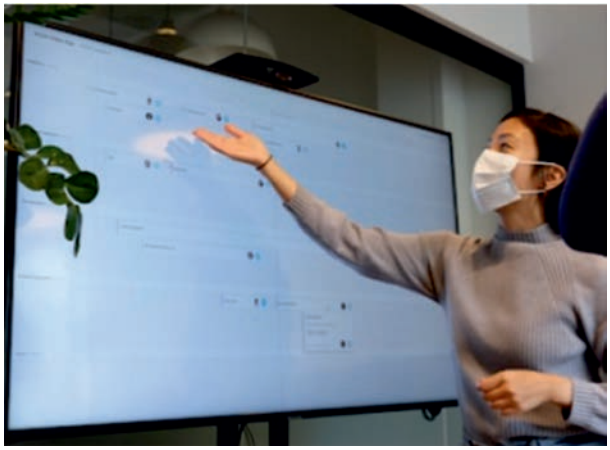
स्टार्टअप	पुरस्कार
नक्षत्र लैब	1.5 लाख
पेज 21	1 लाख
रोड पायलट व 4 वलाइमेट	60 हजार

प्रोटोटाइप कैटेगरी

गुड फरमेंट	एक लाख
नेमा एआई	75 हजार
मोजेक हेल्थकेयर व इडरबिट	50 हजार
नवरट्रीम इनोवेशन	75 हजार
अत्रियत	60 हजार
मेराकी इंडस्ट्री व रीइनरजाइज	35 हजार

आइडिएशन कैटेगरी

पीस्टार टेक	60 हजार
टिंकरर्स	40 हजार
ह्यूमन ग्रानसिस टेक व स्मार्ट बिन	25 हजार



Contact Information:

Pkt A-4 , 261, Kalkaji Extn, ND-110019.

Email : **support@nemaai.com**

Contact : **+91 9811366064**

Website : **www.nemaai.com**

LinkedIn : **linkedin.com/company/78675389/**

11. OneDi Smart Mobility Pvt. Ltd.

Nishanth PR, Founder

Overview:

We have created an Intelligent Transport Management System (ITMS) for the **Ernakulam Jilla Autorickshaw Drivers Cooperative Society** in Kochi, Kerala. This system is designed to efficiently manage their fleet of vehicles, including features such as vehicle and driver management, fleet tracking, and battery management. We also developed a driver app and a booking app for commuters, with security features such as OTP and an in-built SOS facility, promoting green mobility and ensuring safe rides. We have brought together auto drivers from various trade unions under a single society, to provide professional and aggregated services. This can greatly benefit regular commuters by providing first and last-mile connectivity for the Kochi Metro Service, reducing traffic congestion and parking issues.

Solution:

Intelligent Transport Management System and Ride Booking App for e Autos & conventional autos for EJADCS (Ernakulam Jilla Autorickshaw Drivers Cooperative Society) in Kochi, Kerala. The Society as such is the first of its kind in India, a collaboration of all the different trade unions under one umbrella.

The ITMS has the following features.

- Vehicle Management
- Driver Management
- Fleet Tracking & Monitoring
- Battery management (For EAutos)
- Route & Trip Management
- Alerts & Reminders

The entire data can be seen in a single dashboard, (Energy efficiency, cost per km, no of trips, shift details, etc. makes handling the fleet of vehicles easier for society.

We have implemented a state-of-the-art solution that handles their operational challenges so that operations become smoother and the feature-rich solution addresses the pain points in their day-to-day activities.

Commuter App Features:

Know the fare in advance
Set Favourite destinations
Digital mode of payment accepted
Secure ride - OTP for each ride
In-built SOS facility - In case of emergency
Promotes Green Mobility - e Autos

Impact on Grassroot development:

Improving feeder services for metros and buses can have a positive impact on grassroots development by providing better access to public transportation. With our solution that ensures first and last-mile connectivity, people can conveniently reach their destinations without relying solely on their vehicles. This reduces traffic congestion and the parking crisis, leading to a more efficient and sustainable transportation system. As a result, the community can thrive with improved mobility, access to opportunities, and reduced environmental impact.

Implementation and challenges:

The main hurdle we face is the operational challenge of building a sustainable ride app that benefits both drivers and passengers. Many other apps have failed due to difficulties in attracting and retaining drivers. Our focus is on stabilizing the driver base to provide good service to customers. We achieved this by forming a cooperative society with the help of officials from various domains and government agencies, which took two years of effort to unite all trade unions. With the driver base stabilized, we gathered feedback from drivers, customers, and transit industry experts to shape our product.

Performance:

- The society concept for aggregating the drivers along with the entire ITMS features to manage the system, makes it a scalable model which can be replicated anywhere in the country.
- Enhances First & last-mile connectivity to metro & buses.
- Only Govt. the tariff charged, gets to know the fare in advance
- Safe and convenient ride.
- Digital payments promoted
- A big fleet of e Autos - Promotes green mobility

Sustainability and Future plans:

The current operation of e-Autos is limited to the corporation limits. However, the plan is to expand to cover the entire district, followed by the entire state, which would cater to end customers/users across the state. This expansion plan can be easily scaled up and presents a significant opportunity for the entire country. Also, we have started working on an integrated transit app that would include all modes of transport – bus, metro, autos/cabs, and ferries, which would be made live shortly.

Associations & Capacity Building:

This initiative involving the **Kochi Corporation, Ernakulam Jilla Auto Drivers Cooperative Society**, and **KudumbaShree (Women Community Network)** has a significant impact on grass-root development by sourcing drivers from diverse backgrounds and providing them with proper training under the guidance of the **KMVD (Kerala Motor Vehicles Department) and KMRL (Kochi Metro Rail Ltd.).** This approach ensures that employment opportunities are created for individuals from all segments of society, particularly those who may have previously faced barriers to employment. By improving the public transport network, this initiative also promotes community involvement and contributes to the economic and social development of the region.

Awards & Photographs

Have been shortlisted for the final round of ITDP Transport4all – Digital Innovation Challenge conducted by the Ministry of Housing & Urban Affairs, under the IPT aggregator category. The final round of tasks is ongoing.

Contact Information:

5th Floor, Opp. Metro Pillar-328, Kalamassery, Kochi - 682033, Kerala

Email : **mathews@onedi.in**
Contact : **+91 9995297983**
Website : **www.onedi.in**

12. OrjaBox LLP.

Vishakha Chandhere, Founder

Overview:

OrjaBox LLP. promotes the concept of cooking with renewable fuels. OrjaBox was registered as an LLP. in August 2021. It is a firm based in Pune, founded by Vishakha Chandhere and Priyadarshini Karve is the co-founder. OrjaBox is an all-women team and employs nearly 10 people directly or indirectly. OrjaBox currently works with various partners in the clean cooking sector across India.

Social Challenge:

Our country imports more than 70% of its cooking fuel and the rest of it is mostly fuelwood. Nearly 30 lakh families still use inefficient firewood cookstoves for cooking. On the other hand, we are also struggling with biowaste management. We also receive ample sunlight throughout the year. With the increasing fuel prices, many households have moved back to biomass cookstoves instead of LPG. Many households do not refill the LPG bottle as well. In an urban context, there are many families who are wanting to use renewable energy to reduce their carbon footprint but are not aware of the solutions available. They are also not confident about the utility of these solutions.

Solution:

OrjaBox has developed a service approach to address these issues. Orjabox promotes the use of solar, biogas, and biochar for cooking. To promote cooking with renewable fuels OrjaBox regularly conducts awareness and demonstration sessions. The demonstrations include complete meals cooked using renewable energy. OrjaBox also sells renewable energy equipment and hand-holding to become LPG-free.

Freedom fuel

Pune entrepreneur experiments with cooking devices powered by solar and biomass to beat rising LPG prices

HIMANSHU N

IN THE past four years, Vishakha Chandhere has spawned a quiet revolution of sorts from her city of Pune to beat the rising prices of cooking gas or liquefied petroleum gas (LPG). Every day, while preparing a lunch of *dal*, rice and vegetables for her family, she measures the ingredients, finds the perfect ratio of spices and mixes them in a steel vessel. But instead of turning to an LPG stove, Chandhere carries the vessels up to the roof to place it in one of her three solar cookers—the first has a parabolic reflector that heats the base; the second one is an insulated box with light reflected mirrors on the base and the lid; and in the third cooker, food is placed inside a vacuum tube that concentrates light to generate heat.

"Food can be boiled, steamed or roasted in any of the three cookers," says Chandhere. The only difference is that the parabolic solar cooker works well when there is excessive light; the tube model is best suited for cloudy days; and the box cooker, though it takes one to two hours to warm up, is suited for all conditions. Chandhere also uses these cookers to prepare dinner early in the evening, when there is still some sunlight. "The food then stays warm in the device without any danger of being burnt or overcooked," she says.

Since *rotis* do not cook well on solar cookers, she uses a biogas stove. "I have a portable biogas digester which provides enough methane by decomposing just 2 kg of food waste," she says. During monsoon or winter, when the solar cookers cannot run at full capacity, she uses a briquette stove fuelled by garden waste and coconut shells compressed with a briquetting machine.

An engineer by education, Chandhere has worked in the environment and clean energy sector. She began experimenting with clean cooking to find sustainable alternatives to expensive LPG cylinders. "I needed about eight cylinders a year for my family of four. The shift to clean cooking helps me save about ₹6,000 a year," she adds. The devices have cost her ₹3 lakh. "But there is no recurring investment, unless I run out of food or garden waste," she says.

To share the lessons she has learnt and to promote clean cooking devices, Chandhere in 2018 launched a startup called Orjabox. It conducts sessions on eight clean cooking devices, including solar cookers, a biochar steam cooker that uses charcoal derived from agricultural waste and a rocket cookstove, a smokeless *chulha* that works on firewood. Since these devices are not easily available, the startup also facilitates their purchase from manufacturers. Nivedita Kumbhar, a Pune resident, bought a box solar cooker six months ago after a workshop with Orjabox, and says, "The food tastes better as it is slow-cooked."

Chandhere has also started to sell biomass and biochar briquettes, along with solar-dried onion, tomato, mint and ginger. "Other people can do their own experiments to generate additional income," she says.

Impact on Grassroot development:

The cost of cooking can be reduced to a great extent by using renewable fuels. This will result in reduced import fuel costs for cooking. It will also lead to energy independence. Once we are energy independent in terms of cooking fuel then we will be able to address many issues like bio-waste management, livelihoods, women empowerment, and climate action.

Implementation:

Currently, we have demonstrated our energy-independent kitchen to more than 500 people in the last year. We have sold nearly 50 solar cookers, 10 steam cookers, and 5 biogas systems so far. We aim to create 1000 energy independent kitchens in the first leg of our project. We are also aiming to reach out to 5000 visitors to experience the energy independent kitchen.

Challenges:

The main challenge we face currently is that of funding to reach out to more people for demonstrations and to set up energy independent kitchens. We are also facing the challenge of manpower having an interest in this sector. The Government support for this kind of project is yet minimal. Technology research and development fund is also low.

Sustainability:

Currently, our revenue stream is from our paid demonstrations and sale of clean cookstoves and equipment. We have made marginal profits during our first year. We are looking forward to developing our business model to become more sustainable by improving the sales and marketing of our unique products and services.

Future Plans:

OrjaBox aims to set up 1000 energy independent kitchens across the country in this upcoming year. We aim to reach out to 5000 visitors to Orjabox for experiencing the demonstration.

Associations & Capacity Building:

OrjaBox is a member of the CLEAN https://www.thecleannetwork.org/about-us.php

OrjaBox is a member of Solar Cookers International OrjaBox is associated with several other companies and networks like the Green Entrepreneurs Network

Awards & Photographs:

We have received a grant of 1000 Euros from the SEED UNO organization. OrjaBox is featured in the Down to Earth magazine. We have also been featured on the solar fandom wiki page.

Contact Information:

B203, La Gloriosa Society, Vadgaonsheri, Pune 411014

Email **: info@orjabox.com**

Contact **: +91 9890907442**

Website **: www.orjabox.com**

13. GREENJOULES Pvt. Ltd.

S Viraraghavan, Founder

Overview:

PadCare is an unprecedented hygiene management solution that completes the loop of the menstrual hygiene economy by generating harmless, recyclable output out of soiled pads. We are a team of young engineers on a journey to bring about positive and significant changes in the sanitary waste disposal system with a broader vision of safeguarding our women, our waste-pickers, and Mother Earth. Our holistic solution completes the loop of menstrual hygiene.

Our Initiative has been recognized by the central government, and various National and International organizations like NASSCOM Foundation, American Society of Mechanical Engineers, United Nations Development Programme, Villgro Foundation, NITI- Aayog, Infosys Foundation, Dassault Systems, etc.

We currently serve more than 280 clients like Goldman Sachs, Capgemini, Mahindra, Mercedes, Raymond, Taj Hotels, and ICICI Lombard across 6 cities in India, including Pune, Mumbai, Bangalore, Chennai, Hyderabad & Delhi. We are starting in Ahmedabad, Kolkata, and Nagpur soon. We have also initiated our first community-level project in Mahabaleshwar, Maharashtra, wherein the pads collected in Mahabaleshwar city are getting recycled by PadCare. We have also been serving housing societies across India. With our current clientele, we are serving more than 5 lac women every month while processing more than 10 lacs pads and saving 150MT of CO_2 eq.

Solution:

PadCare is a leading fem-tech platform where we help our clients to achieve their sustainable development goals, ESG & ZWL goals while ensuring the wellness of females.

Solution: PadCare provides menstrual waste disposal as a service. Which includes Collection - Reverse Logistics - Processing - Recycling - Secondary Raw Material.

PadCare Bin (Decentralized, safe storage of sanitary napkins)

PadCare Bin is part of a larger preprogrammed hygiene management system that generates harmless, recyclable output out of used sanitary napkins. It is inserted in individual washroom cubicles where women can privately and safely dump their used menstrual absorbents. Bins are embedded with our patent pending PadCare Vap technology which enables pathogenic lock.PadCare bin is made up of ABS material and it can store up to 75 pads (1.5 kg) for 30 days. PadCare Vap works on vapor phase technology that ensures safe storage of pads inside females' washrooms.

PadCareX (World's 1st automated sanitary napkin processing and recycling systems)

PadCare is an automated hygiene management system that generates harmless, recyclable output out of used sanitary napkins. Through multi-step mechanics, it breaks down absorbent sanitary waste into two by-products - cellulose and plastic. Once the waste is processed in the Central Processing Unit where it goes through a fully mechanized 5D process to finally be broken down into two by-products - pulp and plastic, these can be utilized in the paper-packaging industry, chemical, and Agri industries.

Impact on Grassroot development:

We have currently employed 15 informal workers. This has helped uplift their livelihoods. We are providing safe hygiene choices to more than 5 lac females on a monthly basis while saving more than 150 MT of CO_2 eq.

We have initiated our community-level project in Mahabaleshwar, wherein, the whole setup is not just helping us avoid manual segregation by waste-pickers, but also, helping the city align with its **Swachh Bharat Mission.**

Implementation and challenges:

Menstruation is associated with a lot of taboos. Initially, we did face challenges while understanding the needs of the users. But, eventually, we conducted a lot of awareness sessions and we do conduct them even now to generate awareness about menstruation.

Our initial model also revolved around providing a small-scale recycling unit inside the washroom, but we realized that this is not a scalable model considering the washrooms in India. The washrooms are very compact and may not have electricity and water supply at all times, which may cause issues for the users. This was not even economically viable. Hence, we pivoted our model and introduced PadCare Ecosystem which we have now scaled across various cities in India.

Performance:

We are currently serving across Pune, Mumbai, Chennai, Bangalore, Delhi, Hyderabad, Nashik, Rudrapur, and Mahabaleshwar and we are expanding to Kolkata, Ahmedabad, and Nagpur. We are serving more than 5 lacs females on a monthly basis and saving more than 150 MT of CO_2 eq.

Sustainability and Future Plans:

We are planning a micro-entrepreneurship model wherein entire operations as well as running the processing unit could be done by informal waste pickers by generating livelihood. The informal waste-pickers would be recruited, trained as per PadCare's EHS guidelines, and uplifted from their existing day-to-day work. They would not only have an improved and steady source of income, but would also be getting additional benefits of PF, ESIC, and Health Insurance which will eventually increase their standard of living.

Apart from this, we are expanding across other cities in India.

We are also planning our Global level entry in the next 18 months.

Associations & Capacity Building:

We are associated with the Mahabaleshwar Municipal Corporation for our community-level project which is currently running with the help of Recity and Hildari.

We are also speaking in the process of initiating our pilot project at a ward level in association with Pune Municipal Corporation and Swachh.

Under the Micro-entrepreneurship model which we are currently exploring, we are looking for SHGs to be one of the stakeholders in the whole project.

Awards & Photographs:

American Society of Mechanical Engineers-ISHOW, Maharashtra Start-up Week award - 2018, Tata Social Enterprise Challenge, FICCI-Sanitation Award, NBEC-2019, Infosys Aarohan -2018, etc.

Contact Information:

100, NCL Innovation Park, Dr Homi Bhabha Rd, Pune, Maharashtra 411008

Email : **aasawari.kane@padcarelabs.com**

Contact : **+91 8976600104**

Website : **www.padcarelabs.com**

LinkedIn : **linkedin.com/company/padcare/mycompany/**

14. Raheja Solar Food Processing Pvt. Ltd.

Mr. Varun Raheja, Founder

Overview:

Raheja Solar Food Processing Pvt. Ltd. produces a range of food products, including pickles, chutneys, and sauces. Its products are made from high-quality, natural ingredients sourced from local farmers, and are processed using solar energy, reducing the company's carbon footprint.

The company's products are known for their high quality, taste, and nutritional value. They are sold under the brand name "SOLARVEDA" and are available in leading retail outlets and online platforms.

Solution:

Raheja Solar Food Processing Pvt. Ltd. produces a range of food products, including pickles, chutneys, and sauces. Its products are made from high-quality, natural ingredients sourced from local farmers, and are processed using solar energy, reducing the company's carbon footprint.

The company's products are known for their high quality, taste, and nutritional value. They are sold under the brand name "SOLARVEDA" and are available in leading retail outlets and online platforms.

Impact on Grassroot development:

Implementing Raheja Solar Food Processing Pvt. Ltd.'s solutions can be challenging in certain regions. For example, there may be a lack of awareness or understanding of the benefits of sustainable agriculture practices in some areas. Additionally, the upfront costs of implementing solar-powered processing facilities may be prohibitive for some farmers and processors.

Another challenge is the availability of high-quality ingredients. While the company works closely with local farmers to source ingredients, there may be fluctuations in availability and quality due to weather conditions or other factors.

Implementation and challenges:

The implementation of Freshokartz's platform has been challenging due to various factors. One of the biggest challenges has been the lack of technological infrastructure and awareness among farmers in India. The startup has had to conduct extensive awareness campaigns and training programs to educate farmers about the benefits of its platform.

Another challenge has been the lack of investment and funding for startups in the agriculture sector in India. The startup has had to rely on private funding and partnerships to establish its platform and expand its operations.

The startup has also faced regulatory hurdles, including licensing and compliance requirements, which have slowed down the implementation process.

Performance:

Raheja Solar Food Processing Pvt. Ltd. has shown strong performance since its inception. The company has a growing customer base and has successfully established its brand "SOLARVEDA" in the market. Its products have received positive reviews for their high quality and taste, and have gained popularity among health-conscious consumers. The company's commitment to sustainable practices and community development has also been recognized. Raheja Solar Food Processing Pvt. Ltd. was awarded the "Sustainability Award" at the Food and Beverage Awards 2021 for its sustainable business practices.

Sustainability and Future Plans:

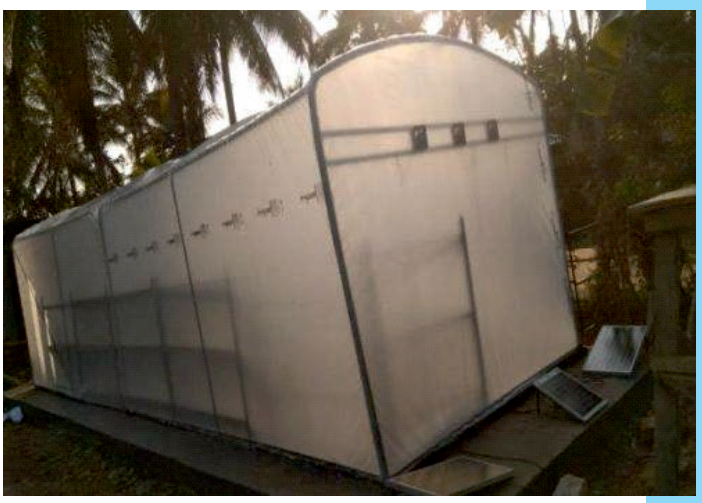
Raheja Solar Food Processing Pvt. Ltd. is committed to promoting sustainable practices and reducing the environmental impact of food production. The company's solar-powered processing facilities and use of natural ingredients help reduce its carbon footprint and promote sustainable agriculture.

The company's future plans include expanding its product line and market presence while continuing to promote sustainable practices and support local communities. Raheja Solar Food Processing Pvt. Ltd. aims to become a leader in sustainable food production and make a positive impact on society and the environment.

Associations & Capacity Building:

Raheja Solar Food Processing Pvt. Ltd. has established partnerships with leading organizations in the industry. The company collaborates with experts to develop and implement its solutions and conducts ongoing research to improve its offerings.

The company also conducts capacity-building activities to promote sustainable agriculture practices and support local communities. It provides training and resources to farmers to help them improve their agricultural practices and increase their income opportunities.



Contact Information:

852, Sudama Nagar, Opposite Shri Adinath Jain Mandir, Mahavir Gate, Indore, Madhya Pradesh 452009

Email **: business@rsfp.in**

Contact **: +91 6232 666 346**

Website **: www.rsfp.in**

15. Renergizr Industries Private Limited

Himanshu Gupta, Founder

Overview:

Clean electricity round the clock using geothermal renewable energy and green hydrogen

Social Challenge :

Fossil fuel-based energy sources such as coal, petrol, diesel, and natural gas(from coal gasification) emit greenhouse

gases leading to global warming & climate change and emitting other harmful gases which are hazardous to human health & pollute the environment

Diesel generators are relatively cheap and reliable but their fuel is expensive and polluting. In practice, most remote villages with their own power supply end up using diesel generators. As this is both expensive and not very sustainable Renewable energy sources are becoming cheaper by the day but they are heavily dependent on weather conditions which are varying and thus require storage to meet round-the-clock energy demand which is not cost-effective in terms Life-Cycle Cost and Levelized Cost of Energy Global energy demand will increase by between 25 % and 30 % by 2040, which in an economy dependent on coal and oil would mean more CO2, exacerbating climate change.

Existing electricity infrastructure is aging with one-way communication which does not respond quickly to changing demands causing reduced energy loss, inefficiency, and instability, and requires more accessible, reliable, secure, efficient, and sustainably driven clean energy

Non-resilient and nonreliable electricity infrastructure transmission and distribution system which does not respond quickly due to changing demand, natural disasters, and maintenance shutdown Need for self-healing intelligent system with monitoring and control capabilities to auto-detect variations in increasing energy demand Unavailability of reliable, abundant, clean and round the clock electricity with no provision of natural energy storage Need for weather independent clean energy source

Solution:

Indigenously made-in-India equipment designed and fabricated for use in our Power plant. Customized refrigerant formulated having low evaporation temperature for use as a working fluid in Binary organic Rankine Cycle Process technology which can utilize low-temperature heat sources in India. Excess unutilized electricity will be stored as Green Hydrogen and fuel cell stacks/rechargeable batteries.

A smart grid with super capacitors will be integrated with an energy management system for efficient utilization of generated electricity for enhancing power quality and effectively managing supply & demand of electricity in remote village areas of Ladakh and cities using smart hybrid energy systems.

Impact on Grassroot development:

Environmental Impact: Remove 600 metric tonnes of CO2 greenhouse gas emissions per MW scale (99% less CO2 than fossil fuel-based plants), less land footprint,

Economic Impact: Create employment opportunities

Social Impact: Access to better air quality, save import coast of India

Implementation: 2 geothermal power plants establish in India

Implementation:

The implementation of renewable energy projects by Renergizr Industries involves designing and installing solar power systems, wind farms, or other sustainable energy solutions. They work closely with local communities, government agencies, and funding organizations to identify suitable locations and secure necessary approvals. The challenges faced by the company include securing funding for large-scale projects, navigating complex regulatory frameworks, and addressing technical and logistical challenges associated with renewable energy installations. However, Renergizr Industries overcomes these challenges through meticulous planning, strategic partnerships, and leveraging its expertise in the renewable energy sector.

Sustainability:

environment-friendly technology, preventing the emission of greenhouse gases

Future Plans:

Scale up to 2 MW capacity

Performance and sustainability:

Sustainability is at the core of Renergizr Industries' operations. They prioritize the use of clean, renewable energy sources and actively contribute to reducing carbon emissions. In terms of future plans, Renergizr Industries aims to expand its reach and undertake larger-scale projects in the renewable energy sector. They continually invest in research and development to enhance their technology and explore new avenues in sustainable energy. By driving the adoption of renewable energy, Renergizr Industries strives to create a greener and more sustainable future.

Associations & Capacity Building:

IIT Kanpur and Shriram Institute for Industrial Research

Awards & Photographs:

Schaeffler India social innovation Award,

RenewX Award for impact created in South India

Contact Information:

Ghaziabad - 201014, Uttar Pradesh

Email : **renergizr.industries@gmail.com**

Contact : **+91 9315940284**

LinkedIn : **https://www.linkedin.com/company/renergizr/**

16. Saathi

Tarun Bothra, Founder

Overview:

Saathi has developed an innovative and inclusive product and business model to address the lack of access to menstrual hygiene products in a sustainable way. Saathi manufactures biodegradable and compostable sanitary pads from banana and bamboo fibers. Saathi is addressing the lack of access to menstrual hygiene products without creating a plastic pollution problem.

Saathi's commitment to sustainability and social impact extends beyond just its manufacturing process. Saathi has implemented a two-pronged pricing scheme, where urban women can purchase Saathi pads at a premium price, which subsidizes the cost for women in rural or underserved areas. This ensures that their eco-friendly and sustainable menstrual products are accessible to all women, regardless of their economic status. Saathi pads are available on various e-commerce websites, such as Flipkart and Amazon, making it easy for customers to order and receive their preferred products. Saathi's innovative approach serves as a model for how businesses can prioritize social and environmental impact while also generating revenue.

Solution:

We purchase banana fibers from local farmers in India. That fiber is processed in our manufacturing unit based in Ahmedabad (Gujarat) which is operated by an all-women staff. These sanitary pads are then packed and sent to our customers. We have a completely zero waste process and our product as well as the packaging are sustainable and eco-friendly.

Saathi pads are accessible to all women with our two-pronged pricing scheme. Urban women purchase Saathi pads at a premium which subsidizes pads for women in rural or underserved areas. Saathi partners with NGOs to provide pads to underserved women who don't normally have access. As of 2022, we have distributed 1M sanitary pads to underserved women and girls.

Impact on Grassroot development:

Saathi is mainly tackling two issues at once utilizing discarded banana fibers from local farmers to create biodegradable sanitary pads and empowering women by providing them with employment opportunities. This not only provides employment opportunities for women but also ensures that sanitary pads are produced ethically and sustainably. By purchasing banana fibers from local farmers, Saathi has been able to increase their income by $97.2k and provide employment opportunities for 350 women. We have also reached over 40000 menstruators and distributed over 1M sanitary pads as of 2022. When we distribute sanitary pads, we also run menstrual hygiene education workshops to explain menstruation as well as to talk about how to dispose of biodegradable products and what the difference is between those and regular pads. We have seen significant increases in attendance to school/work as well as better health outcomes in the communities we worked in.

Implementation and challenges:

In the beginning, it was difficult to get support for our idea as wanted to address the health issue as well as the environmental issue with a holistic solution. Today, this is what makes us unique. We're thorough in the impact we create because we have designed our model such that the impacts are built into our supply chain. We also initially faced challenges finding partners as many still found the topic taboo and didn't want to associate with our initiative till it became more widespread in the media. We also wanted to ensure that we could reach the end beneficiaries directly by working with NGOs on the ground.

Performance:

We measure our impact according to 9 of the UN SDGs: increasing income for farmers, employing women, providing access to sanitary pads & education around menstrual hygiene, measuring the plastic waste eliminated & CO_2 emissions reduced.

To date, Saathi has been able to increase farmers' income by $97.2k, employ 383 women, and give a rash-free period experience to 40000 menstruators. In the next 3 years, we plan to increase farmers' income by $1.80M, employ 2000 women, and give a rash-free experience to 600k menstruators.

To date, Saathi has been able to eliminate 36 MT of plastic waste and reduced 71 MT of CO_2 emissions. We're addressing plastic pollution at the source by replacing single-use plastic products with biodegradable and compostable alternatives. In the next 3 years, we plan to eliminate plastic waste by 2225 MT and reduce CO_2 emissions by 4286 MT.

Sustainability and Future Plans:

Saathi has developed an innovative and inclusive product and business model to address the lack of access to menstrual hygiene products in a sustainable way. We aim to revolutionize the hygiene industry by making products that are good for your body, the community, and the environment in a sustainable and responsible way. We want to drive systemic change around how menstrual hygiene is addressed and thus drive the shift to a circular economy. This means making pads that are from sustainable, renewable materials, making them accessible to women no matter where they live, and working with other partners to make sure our products get upcycled. We measure our impact according to 9 of the UN Sustainable Development Goals: increasing income for farmers, employing women, providing access to pads and education around them, measuring the plastic waste eliminated and CO_2 emissions reduced. Besides these quantitative metrics, we are able to have additional qualitative impacts that reach beyond just the women we work with. We also want to encourage other companies to support systemic change by supporting programs that are addressing plastic waste at the source. We aim to do this with our plastic avoidance program.

Associations & Capacity Building:

For the distribution of sanitary pads and menstrual education initiatives, we have worked with many NGOs including:

- Ekal Vidyalaya
- Arogya Foundation
- Avani
- YGPT
- Goonj

Awards & Photographs:

- Asia Society's Asia Game Changers 2022, USA
- Waislitz Global Citizen Award 2022, USA
- Ocean Impact Accelerator Program 2022, Australia
- The Circulars Accelerator (run by Accenture and the World Economic Forum) 2022
- SHEEO US Venture 2022

Contact Information:

1306, 13th Floor, Titanium one, Opposite Pakwan Hotel, Near Rajpath Club Road, S.G. Highway, Ahmedabad – 380054.

Email : **accounts@saathipads.com**

Contact : **+91 7874539394**

Website : **www.saathipads.com**

LinkedIn : **linkedin.com/in/tarunbothra1**
in.linkedin.com/company/saathipads

17. Solinas Integrity

Divanshu Kumar, Founder

Overview:

Solinas is a climate tech and deep tech startup founded by young graduates, focusing on the robotics and digitalization of assets for the pipeline and sanitation industry. It develops robotic solutions to solve problems related to water leakages, pipeline condition management, and the elimination of manual scavenging.

Solinas products are designed to tackle Indian challenges and can be applied globally. These products include short-range and long-range pipeline inspection tools, as well as robotic solutions for cleaning septic tanks and sewer lines.

We were the winners of the Economic Times Startup Awards, and our founders were honored by the honorable Prime Minister Narendra Modi and the honorable Chief Minister of Tamil Nadu, Thiru. MK Stalin. Additionally, we were selected as one of the top 30 promising tech startups by YourStory.

Social Challenge:

Millions of people in India are denied access to basic amenities due to inadequate infrastructural development, poor maintenance, and the prevalent practice of manual scavenging. One of the United Nations' goals (SDG 6) is to ensure that everyone has access to sustainable water and sanitation management. In India, over 70% of water is wasted and contaminated solely due to issues with pipeline distribution. Additionally, sewer lines pose a hazardous environment, yet they are still manually cleaned or managed without any prior data. The inefficient management of the pipeline network leads to significant water loss, contamination, blockages, and sewer overflows. This ultimately results in the need for costly pipeline replacements and negatively impacts the daily lives of households.

Solution:

Our solutions consist of Endobot, HomoSEP, and Swasth AI, which primarily inspect, clean, and manage assets such as pipelines, sewers, and septic tanks.

Endobot is a pipeline crawler robot designed to inspect pipelines ranging from 90mm to 900mm in diameter. It collects data on various factors such as cracks, dents, deformed pipe joints, pipeline inclination, and more. The robot utilizes laser profiling and mounted sensors to capture insights that can predict the C-Value and ovality of the pipeline.

Impact on Grassroot development:

Our inspection solution offers instant defect detection in pipelines, significantly reducing contamination and water leakages within a short span of 1-2 hours. Additionally, our software solution, Swasth AI, aids corporations in supplying high-quality, pure water to households by conducting thorough condition assessments. This includes pinpointing defects, predicting sewer blockages, identifying scales, laser profiling, and more.

With our solutions, we save approximately 600,000 liters of water per day for every kilometer of a pipeline. We also significantly reduce the number of road digs required, reducing them from 8-10 to just 2, resulting in substantial cost savings of over 40,000 per site.

Similarly, when it comes to septic tanks and manholes, our solutions offer remarkable benefits. We reduce the cleaning hours by 2 times, unclog septic tanks in less than 3 hours, eliminate the need for human entry, and replace manual cleaning with efficient machine cleaning methods.

Implementation:

We are currently operational in more than 5 states, and our presence is registered in over 10 states throughout the country. Our services range from pipeline condition assessment to the cleaning of manholes and septic tanks. We have successfully implemented our solutions with various government municipalities, Public Works Departments (PWD), O&M Partners, pharmaceutical industries, contractors, and more.

We have had the opportunity to collaborate with several key government customers, including CMWSSB in Chennai, TCC in Trichy, KWA in Trivandrum, and UMC in Maharashtra. Additionally, we have partnered with esteemed private organizations such as Suez, Wabag, Pfizer, Veolia, and others.

Challenges:

Our inspection solution requires at least one entry point for every 400-500 meters in order to access the pipeline. This is because it is an inline inspection solution with a limited tether length, which is a constraint common to all inspection companies globally. In cases where the city pipeline management has not planned valves properly, we may need to create entry points by cutting a small section of the pipeline.

Regarding our cleaning solution, it currently has a limitation where it can only clean up to a depth of 3-5 meters. While this is sufficient for most septic tanks, there are instances where manholes are deeper than 5 meters. To address this challenge, we are actively developing solutions that can go even deeper and effectively remove the sludge from such manholes.

Sustainability:

Our solutions are designed with the intent of addressing pressing issues such as groundwater contamination and reducing greenhouse gas emissions. Through regular inspection and condition assessment of water, sewer, storm drain pipelines, and septic tanks, we aim to minimize the risk of contaminating groundwater and ensure the safe distribution of water and sewage.

Furthermore, our products are specifically designed to eliminate the need for manual entry into hazardous environments such as manholes and septic tanks. This approach significantly reduces health risks for both sanitation workers and public health concerns.

Future Plans:

As an organization, Our revenue has grown by 215% from 1.6 crore in FY22 to 5 crore in FY23. In the future, we plan to expand to 100+ cities in India within the next 2-3 years. We are also considering expanding to 2-3 foreign markets due to the high volume of inquiries from foreign countries. Additionally, we are looking to open a new manufacturing facility in the next 2-3 months to meet the demand for both HomoSEP and Endobot.

Our current financial projection aims to achieve a revenue of 100 crores within the next 3 years.

Performance and sustainability :

We have successfully completed several projects across different cities in India for both our products, HomoSEP and Endobot. We have received positive responses from all of our clients, resulting in long-term project engagements. Furthermore, our projects have brought significant cost savings and water leakage reductions for government entities.

In terms of sustainability, our current digital solution is an AI dashboard that displays comprehensive information about the pipelines we have inspected. This abundance of data enables government and private companies to analyze the future risk of pipeline defaults. The opportunities are primarily present within local municipalities and large industrial players involved in operating long-distance water/sewage pipelines. Our main focus is to acquire government projects and tenders for individual municipalities, allowing us to establish our presence across various locations and effectively inspect and identify pipeline defects. When it comes to replicability, it would take at least 6 months to a year to comprehend the intricacies of our incorporated product and develop their own version.

Associations & Capacity Building:

Some of our key associations include NTPC, Indian Oil, Capgemini, and Wash Innovation Hub. Also are part of AMRUT 2.0 -AMRUT 2.0: India Water Pitch-Pilot-Scale Start-up program which has brought us lots of support in building business opportunities and understanding the Indian water pipeline connections.

Awards & Photographs:

We have won several awards:

- Co-Founder & CEO - Divanshu Kumar was awarded by Prime Minister Narendra Modi for Best Project(HomoSEP initial version) from IIT Madras
- Best On Campus award of the year 2022, by The Economic Times in the best startup category
- Top 30 Startups of the year 2022 by Your Story under the Best Deep-tech Startup category
- Winner of TANSEED 2.0 by Tamil Nadu startup mission
- Smart Cities India Award-Best Water Management (Category)

Contact Information:

1306, 13th Floor, Titanium one, Opposite Pakwan Hotel, Near Rajpath Club Road, S.G. Highway, Ahmedabad – 380054.

Email : **accounts@saathipads.com**

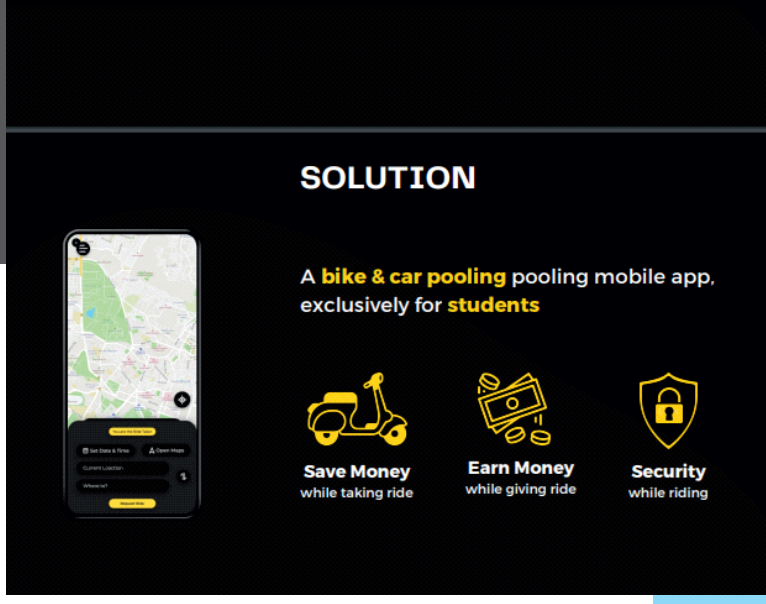
Contact : **+91 7874539394**

Website : **www.saathipads.com**

LinkedIn : **linkedin.com/in/tarunbothra1**
in.linkedin.com/company/saathipads

18. Swift Ride

Vivian Williams, Founder



Overview:

Swift Ride is a mobile app for Indian college students to bike and carpool with safe, affordable, and convenient transportation. Our app caters to the needs of students with a flexible onboarding process, background checks for drivers, and a user rating system. Our research-backed solution addresses the unique needs of our target market.

Social Challenge:

Swift Ride is trying to solve social challenges related to transportation for college students in India, such as the high cost of transportation, lack of safe and reliable transportation options, and environmental concerns related to individual car usage. By providing an affordable, safe, and sustainable transportation option for college students, Swift Ride is addressing these social challenges and contributing to the overall well-being of the community.

Solution:

Swift Ride is an affordable and safe bike and carpooling mobile app for college students in India. With customized features for our target market, such as a user-friendly onboarding process, and transportation options for college students.

Impact on Grassroot development:

Swift Ride's Impact on grassroots development is providing a convenient and affordable mode of transportation for college students by improving the accessibility, reducing traffic congestion and pollution. By partnering with universities and student organizations, Swift Ride is also fostering community engagement.

Implementation:

Swift Ride is in its initial stages and has onboarded over 4800+ users from Bangalore. Closed testing and user feedback have helped improve the app's performance. Sustainability efforts, such as tracking carbon footprint, have been well received. Future plans include expanding throughout colleges in Bangalore city.

Challenges:

Swift Ride faces challenges in funding, regulatory hurdles, building and maintaining a user base, ensuring driver reliability and safety, and overcoming infrastructural challenges in the Indian transportation industry

Sustainability:

Swift Ride promotes sustainability through its ride-pooling model, reducing single-occupancy vehicles and enabling users to track their carbon footprint.

Future Plans:

- Expand operations to more cities and universities in India
- Integrate more sustainability initiatives into the platform
- Introduce a loyalty program for frequent users
- Enhance the user experience by introducing new features and improving existing ones based on user feedback
- Partner with more universities and student organizations to better understand and serve the needs of college students.

Performance and sustainability :

Even though we haven't fully launched, we have gauged demand through emails and offline marketing, we have already onboarded over 4700+ users, including 400+ paid users from Bangalore alone. This indicates a significant demand for our service among college students in India. Our focus on sustainability has also been a key factor in our success.

Associations & Capacity Building:

Swift Ride is building partnerships with universities, and student organizations to provide transportation solutions to students and promote sustainable mobility. Additionally, Swift Ride is working on capacity building by providing An affordable and convenient commute for college students.

Awards & Photographs:

- First runners-up in the Rise x Runway by viral fission
- Cisco ThingQbator cohort 5
- Award title: Top 10 teams to receive ₹5 lakh seed grant
- DTSC Group
- Award title: Innovative Start-up of the Year
- MoE's IIC Regional Meet
- Award title: Best emerging student start-up
- Selected for Drapers University's hero program in California

Contact Information:

No.32, 7th main, 3rd Cross, Post, Raghavendra Nagar, Dooravani Nagar, Bengaluru, Karnataka 560016

Email : **williams@swiftride.in**

Contact : **+91 9449508702**

Website : **www.swiftride.in**

19. TBF Environmental Solutions Pvt. Ltd

Ajeet Oak, Founder

Overview:

TBF Environmental Solutions Pvt. Ltd provides Smart, Efficient, Modular Vermifiltration-based Sanitation and Wastewater Solutions. The technology was conceived and patented by PriMove Infrastructure Consultants Pvt. Ltd and Implemented by TBF Environmental Solutions Pvt. Ltd. Our main objective is to provide a solution for the safe disposal of any fecal matter and preservation of natural resources from pollution without any chemical usage.

Social Challenge:

The problem is the lack of access to decent and safely managed sanitation, specifically the issue of safe treatment and disposal on-site. Other diseases linked to poor sanitation include those transmitted by insect vectors such as filariasis and those transmitted by tapeworms and helminths such as schistosomiasis. According to Swachh Bharat Mission (SBM) 1 the figures were quite higher for open defecation and in Swachh Bharat Mission (SBM) 2 country achieved success in limiting open defecation. Lack of access to sanitation causes anxiety and stress for women and girls due to physical, verbal, and sexual harassment when defecating in the open. Solving the problem would therefore improve health, save lives, improve educational and life prospects, and increase household and national wealth. Globally, according to the latest 2021 update it estimated that in 2020, 26% of the global population (2.0 billion people) lacked "safely managed drinking water"– meaning water at home, available, and safe.

Solution:

TBF Environmental Solutions Pvt. Ltd provides The Tiger Toilet, Tiger Biofilter Sewage Treatment Plant (STP), Tiger Biofilter Grey Water Treatment Plant (GWTP) and Tiger Biofilter Fecal Sludge Treatment Plant (FSTP) The Tiger Toilet is an excellent solution to stop open defecation in rural and urban areas. So, we have Tiger Biodigester which uses a patented vermi-filtration process to treat fecal waste, and a product that is offered in plastic (FRP) and cement (RCC) which fits into any kind of structure. Our product is a Biodigester that can save space by installing biodigester instead of two pits and also can easily convert single pit latrines to safe disposal. Tiger Biofilter Sewage Treatment Plant (STP) briefly states that the technology is adequately studied and researched having references in a manual on sewage and sewage treatment (Second Edition) by CPHEEO and Ministry Of Urban Development 1993 under chapter 26 Emerging Technologies for Sewage Treatment Plant. So, Sewage Treatment Plant (STPs) is designed to treat domestic sewage to meet the required discharge standards. Tiger Biofilter Greywater Treatment Plant is a primary treatment tank where the solids are settled, a biofilter tank where the biological treatment takes place, and a disinfection tank where the treated water is disinfected. Fecal sludge management (FSM) is necessary in densely populated areas where a large population having septic tank toilets is not connected to a sewerage network and treatment of concentrated fecal sludge from these tanks is a big challenge. It is a novel and unique fecal sludge treatment system that utilize specially bred earthworms and microorganism for consuming fecal sludge and converting it to compost. Fecal sludge management (FSM) is the collection, transport, and treatment of fecal sludge from pit latrines, septic tanks, or other onsite sanitation systems.

Impact on Grassroot development:

TBF Environmental Solutions is an organization that focuses on grassroots development by providing sustainable solutions for waste management and environmental conservation. We focus on environmental conservation that can lead to significant impacts on the environment, including reduced greenhouse gas emissions, protection of biodiversity, and preservation of natural resources from pollution. Nature-based technology no use of chemicals in the process.

Implementation:

TBF Environmental Solutions has been successful in implementing waste management solutions across various sectors including residential, commercial, and industrial in rural as well as urban sectors. Our approach involves a combination of technology, innovation, and public awareness, and we continue to provide solutions to clients' needs and collaborate with Government as well as Private entities for the betterment of environmental sustainability.

Challenges:

There are a couple of challenges we have faced on route to development that is the availability of land, acquiring enough space to implement, communication, awareness among the community, and educating them to follow safe practices. Through sheer handwork and perseverance, we are overcoming these issues step by step. During, the course of our journey we surfaced upon the biggest challenge was a lack of awareness and understanding of sustainable waste management practices among the general public and local authorities. In many parts of India, waste management is still seen as a low-priority issue. Another challenge faced by TBF Environmental Solutions is the lack of infrastructure and resources for waste management in many parts of the country Sustainability

Future Plans:

TBF Environmental Solutions plans to expand its operations to other cities in India and other countries in the future. The company aims to provide waste management solutions to a wider audience and promote sustainable waste management practices globally using its patented nature-based technology. Through Research and implementation, TBF Environmental Solutions invests in research and development to develop innovative waste management solutions. The company collaborates with research institutions and organizations to implement technologies for waste management, such as The Tiger Toilet, Tiger Bio-filter Sewage Treatment Plant, Tiger Bio-filter Greywater Treatment Plant, and Tiger Bio-Filter Sewage Treatment Plant further. Our works have been implemented in more than 5 plus states such as Maharashtra, Delhi, Uttar Pradesh, Goa, Assam, Odisha, Rajasthan, Kerala, and Andaman Nicobar Island(UT).

Performance and sustainability :

Expansion of works: The company has worked on a lot of projects and collaborated with clients in India as well as abroad. Works that are completed and still going in several states are (Maharashtra, Delhi, Odisha, Kerala, Uttar Pradesh, Rajasthan, Goa, Assam, Andaman and Nicobar Island (Union Territory), etc. It has also ventured into new sectors such as healthcare waste management.

Fields of works: TBF Environmental Solutions Pvt.Ltd has worked in Four fields that is The Tiger Toilet, Tiger Biofilter Sewage Treatment

Plant (STP), Tiger Biofilter Sewage Treatment Plant (STP), Tiger Biofilter Greywater Treatment Plant, Tiger Biofilter Faecal Sludge Treatment Plant (FSTP) where used recycling water, No odor, low capital cost, No use of chemicals, No skilled manpower and water regeneration for future growth, as well as country growth, are counted. Investment and partnerships: The company has received investment and support from various sources, including national and international NGOs, the Toilet Board Coalition, and various Government programs. TBF Environmental Solutions has also partnered with other companies and organizations to improve its services and expand its reach. Hence, TBF Environmental Solutions has been successful in providing sustainable waste management solutions to its clients in India. The company has shown a commitment to innovation, sustainability, and regulatory compliance, and has received recognition for its efforts.

Awards & Photographs:

- 9th Edition of FICCI Water Awards under the 'Urban Wasterwater Management' category. Sarphati Awards, (2019) at Amsterdam
- International Water Week (AIWW), Netherlands for promising entrepreneurs focusing on groundbreaking activities for sanitation. Recognized by the Ministry of Jalshakti through the Department of Drinking Water& Sanitation, Govt. of India, By Dr. R. A. Mashelkar Committee for TBF Technology
- Recognized by Bill and Melinda Gates Foundation collaboration towards development of 'Tiger Technology'.

Contact Information:

C-3, 304B, Saudamini Complex, Bhusari Colony, Kothrud, Pune, 411038

Email : **info@tbfenvironmental.in**

Contact : **+91 9822439650**

Website : **www.tbfenvironmental.in**

www.primoveindia.com

20. Tvasta Manufacturing Solutions Pvt. Ltd.

Adithya VS, Founder

Overview:

Tvasta is a tech-driven company developing and deploying advanced industrial 3D Printers to digitize the manufacturing and construction sectors. We are India's leading full-stack developer for 3D printing solutions. We are a multidisciplinary, multi-pronged team that works in the area of Machine Manufacturing, Software Development, Application Development, and Core Scientific R&D.

Social Challenge:

It is estimated by Habitat for Humanity that there are 1.5 billion people around the world who require better housing. India is currently planning to build 20 million houses and 120 million toilets by 2024 to provide basic amenities to people. But the currently available construction technologies are not up to this task; they are slow, difficult to customize, varying in quality, and lack sustainability.

Solution:

Tvasta will be providing 3D Printing as a Service and as a Product. Tvasta is closely working with the Government of India and the Ministry of Housing and urban affairs to consider 3D printing as a mainstream solution for affordable housing. We are working on selected pilot projects by adapting new developments in the process, material, and machine.

Impact on Grassroots development:

There will be more standardization in the housing sector and everyone will get a shelter at an affordable rate. This tech will help us bridge the gap between the supply and demand.

Implementation:

With our proprietary Concrete Printing system; consisting of the Concrete 3D Printer, its operating software, compatible concrete mix, and the prerequisite designing methods, we offer complete package solutions, unlike any other company.

Challenges:

Today Construction is an unorganized sector. The quality of the structures is very poor in some cases. Cement is one of the largest contributors to the carbon footprint. India needs more than 20 million houses in the next two years and our current methods for construction are heavily labor dependant.

Sustainability:

There are several aspects that make the technology developed by Tvasta fundamentally suitable for large-scale green construction.

Materials: Tvasta uses greener materials for construction by ensuring that a large portion of the cement used in construction is replaced by Fly Ash or Slag from industrial waste (up to 50% replacement). Tvasta also completely replaces the aggregate used in concrete with recycled construction and demolition waste; thereby reducing the carbon footprint of the structures constructed.

Logistics: Tvasta uses a micro-factory approach to large-scale construction with the 3D Printer being situated very near to the construction site and using local materials to the extent possible. This reduces the carbon footprint of the buildings constructed.

Operational Energy use: Tvasta builds structures with partially hollow 3D-printed walls filled with insulation materials. This and technologies introduced by the company such as radiant cooling ensures that the building uses much lesser energy during its lifetime.

Design: The design philosophy espoused by Tvasta during the construction of a structure ensures that it is suited for the local climate that it is built for; thereby reducing energy consumption.

Future Plans:

Tvasta will have a long-term aim of making the Construction process Affordable and enabling large-scale construction using 3D printing. But since 3D Printing is a new technology it would take time to bring down the cost as there will be questions of reliability, operational ease, and economies of scale initially. Tvasta plans to automate construction and improve productivity and sustainability in the Construction Industry to provide affordable housing and better infrastructure to millions around the world.

Tvasta will start executing projects using locally available and recycled materials including clay, local sand, etc. Tvasta will start working on mass-scale affordable housing projects in association with states and the central government.

Performance and sustainability :

We have completed India's first fully functional 3D-printed house.

We have collaborated with five institutes including educational, research, and corporates.

We have developed an Off-site 3D printer, an On-site 3D printer, and also a Robotic arm 3D printer.

We have raised funding of $800k.

We have applied for more than 8 patents so far and 6 more are in the pipeline.

Associations & Capacity Building:

We are associated with the Ministry of Housing and Urban Affairs We have applied for DSIR certification Associated with CBRI Roorkee, CSIR SERC, and IIT M for research purposes Associated with India Cements, Godrej, etc.

Awards & Photographs:

Sankalp Global Awards winner 2022 #TransformingImpact National Start-up Award 2021 - Best start-up of the year Recognized as one of the 'Super 8 Construction Startups' in 2019 by the Ministry of Housing & Urban Affairs (Awarded by Hon'ble PM of India)

Contact Information:

Bala Complex, Old No.345, New No. 172, Rajiv Gandhi Salai (OMR), Sholinganallur, Chennai - 600119

Email : **tushar.joshi@tvastagroup.in**

Contact : **+91 8925812335**

Website : **www.tvasta.construction**

21. VIR NATURALS PRIVATE LIMITED

Mr. Vinayakumar Balakrishnan, Founder

Overview:

Our project is focused on manufacturing fully biodegradable tableware, as an alternative to disposable plastic and paper, such as single-use plates, cups; take away boxes, cutleries, and glasses. The products consist of agriculture by-products (wheat bran, rice bran, OR paddy husk) and other natural ingredients coated with natural binders. Our target market is hotels, Restaurants, Café, Resorts, Events, Weddings, Public functions, Govt functions, Exports, and any areas where sustainability is a challenge.

Solution:

As the single-use plastic ban is gaining momentum across the globe and as our country's economy is developing to new heights, there is tremendous scope for product which is sustainable and eco-friendly. There is huge scope for exports earning foreign exchange to the country. The product has the capability to take over plastic as it is affordable, microwave friendly, and biodegradable. Our endeavor is to accelerate research on other biodegradable products to ensure a sustainable earth, for future generations. We plan to introduce more biodegradable agricultural alternatives, which are useful to the earth

Impact on Grass root development:

The THOOSHAN brand came into existence with the goal to provide a replacement for the current disposable plastic utensils on the market. Our mission is to start a cutlery revolution. Millions of single-use cutleries end up in landfills every year after being used once. Through our initiative, we hope to put an end to this behavior and increase public awareness. THOOSHAN makes a range of plates, and bowls made from natural wheat/rice bran & paddy husk.

THOOSHAN's dishware has a longer shelf life and has fungus and bacteria-resistant packaging. Dishware from THOOSHAN is completely biodegradable and partially edible. However, you don't always have to eat the plate; if you throw it away, it decomposes into organic manure for the plants. After its use, this tableware can be used as cattle feed, fish feed, or poultry feed. The use of single-use plastic could be reduced to a large extent by this novel concept. Join us to change the way we eat and think about waste

We had made huge inroads into the single-use plastic market by providing alternatives. Change has already started at the grass root and hopefully within a few years, we can see a sustainable India, going back to its roots

Implementation and challenges:

The biggest challenge was on sales due to cheaper plastic and disposable products available. After the single-use plastic ban, people have started appreciating our products as an alternative, Scaling up and funding is another challenge. Definitely looking forward to greater future

Performance:

- Project under technical collaboration with NIIST/CSIR (Govt of India) & CIPET (Govt of India)
- Factory space at INKEL, Angamaly, Kochi (Gov of Kerala)
- 2nd in the world and 1st in India using this technology
- Affordable to the common man, once production reaches critical volumes
- Plates and straws safe for a bite, made from edible wheat bran or wasted broken rice
- Microwave friendly
- Water retention capacity of more than 1 hour
- Fungus & bacteria resistant packing
- Biodegradable in 30 days
- Long shelf life of 1 year
- After single use, can be reused as cattle /poultry/fish feed or as organic manure
- Direct and indirect employment generation to the local population
- Huge export earning possibility, since it's a global product
- Extra income generation from waste to farmers and local mill owners
- Won various awards and recognition nationally and internationally

Sustainability and Future Plans:

We plan to introduce one more large plant which can manufacture all our products under one roof since demand is increasing. The new plant will have new product lines which can create tableware from paddy husk and cutleries from rice or wheat bran. Another line will be creating biodegradable bags from bioplastic and corn starch. A fully automatic plant is being set up shortly with funding, which will create affordable products for public

Associations & Capacity Building:

Member of FIEO, FICCI, BNI & BOC Global

We are incubated at IIT-Kanpur, Kerala Agricultural University, and Indigram Lab Foundation, New Delhi

Awards & Photographs:

- We have won many accolades on the way, which includes the prestigious United Nations, UNDP " Green Innovation Fund" award instituted by Kerala Start-up Mission and Haritha Kerala Mission, 2021
- National winner from Kerala for RAFTAAR ABI for innovation in Agricultural products, Govt of India, 2021
- Idea and start-up grant instituted by Kerala Start Up mission.
- Won the Golden Award at Bhopal from India for promoting responsible tourism and qualified for WTM, London 2022.
- Attended and presented our full range of products to Hon Prime Minister at PM Kissan Sammelan in New Delhi on 17th October 2022
- Invited by Govt of Jammu, Kashmir & Ladakh to introduce our Biodegradable products
- Won the FICCI Special Jury National Award
- Runners-up at Climathon conducted by EY and KSUM
- Official tableware for the recently concluded G20 Sherpa meet at Kumarakom, Kerala

Contact Information:

Thooshan, C9, Tower 2, INKEL Business Park, Angamaly, Kochi-683573, Kerala

Email : **mail@thooshan.com**

Contact : **+91 85909 75777**

Website : **www.thooshan.com**

LinkedIn : **linkedin.com/in/vinay-b-7434347/**

22. Whrrl

Ashish Anand, Founder

Overview:

Whrrl is a Blockchain-enabled Agri Fintech startup revolutionizing the post-harvest ecosystem through its integrated Blockchain platform.

Social Challenge:

Distress sale of harvest by farmers due to post-harvest localized demand-supply mismatch is a sad reality of the agriculture sector with some of the crops selling at 30-50% below minimum support price, resulting in the low income of farmers. Additionally, smallholder farmers encounter the most difficulties in obtaining reasonable finance, the reason being the lack of recognizable collateral and the perceived high risk of lending to these communities by the financial institutions.

Solution:

Whrrl's WHR finance suite is a blockchain-integrated digital lending & trading platform that covers the entire life cycle of a farmer in the WHR financing vertical. By creating an integrated Blockchain platform of banks, warehouses, collateral managers, and borrowers, Whrrl creates an ecosystem of immutable warehouse receipt finance with a single source of truth helping farmers obtain instant credit of loans against their crop deposits made in affiliated warehouses thereby avoiding 'distress sale' of their products and eliminating risks of lending against fake/duplicate warehouse receipts, multiple lending, ghost collateral lending et. al. Further, the e-Marketplace allows the farmers to trade their farm produce stored in warehouses without incurring the cost of loading, unloading, transportation, local market taxes, etc.

Impact on Grassroot development:

Whrrl's Blockchain-powered Warehouse Receipt Finance platform connects farmers, warehouses, and banks directly, alleviating the need for any intermediaries and helping farmers obtain instant credit of loans against deposits of their crops in Whrrl-affiliated warehouses. Without giving any other security like land, gold, etc., just against the deposit of their crop, the farmers avail bank loans which help them avoid the menace of distress sale, help increase their realizable income by 25-40% and save the farmers from the clutch of money lenders.

Whrrl's Warehouse Receipt Finance Platform is currently India's largest blockchain platform in the production stage, having a presence in 1400 warehouses in 5 states of India and has registered a transaction volume of Rs. 5,000 Cr. The platform has digitized warehouse receipts for more than 18,000 farmers and has disbursed Rs.95Cr+ digital loans so far. The platform acts as a one-stop solution for all post-harvest needs right from searching for warehouses, applying for loans from the comfort of home, and selling products online at a later stage.

With the innovative blockchain solution, Whrrl helps farmers in securing interim credit for their household or agricultural capital requirement, get better price realization by avoiding distress sales, saving them from the debt trap of moneylenders, avoid wastage and resultant losses of a crop by facilitating storage in warehouses and also with better market linkage facilities. While doing so Whrrl is also working towards the achievement of SDG goals 1, 8, 10 & 17

Implementation:

Using an innovative Blockchain solution connecting Banks, Warehouses, and Farmers/Borrowers will curb the limitations of the existing warehouse receipt financing system. In blockchain-based warehouse receipt financing, information including the electronic warehouse receipts generated on the blockchain is transparent and open to all participants. Each blockchain node is verified and backed by all the participant nodes and hence cannot be tampered with. This ensures that there is no lending against fake warehouse receipts or that multiple warehouse receipts are issued to different borrowers against the same collateral.

With blockchain, no specified paper materials or manual verification are required, thereby reducing manual errors, and operational costs and also speeding up the process. Banks being a part of the network could easily provide them with capital support as they can easily monitor and make analyses about how their products end up in the market. Blockchain-based warehouse receipt financing thus helps the farmer fraternity with access to formal credit sources, reducing the dependency on any informal sector and procedural complexities.

Challenges:

Our current challenge lies in building a blockchain network with our enterprise partners in the business-to-business and business-to-government sectors such as

lenders and warehouses. The sales cycles associated with these partnerships can be extremely lengthy and require significant effort to establish.

Sustainability:

Whrrl is a Blockchain-enabled Agri Fintech startup revolutionizing the post-harvest ecosystem through its integrated Blockchain platform providing Warehousing, Warehouse Receipt Finance & Marketplace facilities to the farmers, solving problems such as distress sale, access to finance & market linkage problems faced by farmers. While doing so, Whrrl is also working towards the achievement of SDG goals 1, 8, 10, 13 & 17.

By making low-cost real-time loans available to farmers, Whrrl helps expand the reach of formal credit sources among the small and marginal farmer communities reducing the dependency on any informal sector and procedural complexities, thus reducing poverty. Facilitating the storage of agri commodities and managing it using scientific methods improves food security and at the same time, reduces post-harvest food wastage, which will ultimately reduce carbon emissions. Whrrl's digital lending and trading platform brings better price realization for crop produces, benefiting farmers, traders, the entire agriculture market, and the economy. By partnering with Banks, Warehouses & other government bodies, Whrrl creates a digital post-harvest agri supply chain and supply chain financing infrastructure that uplifts small & marginal farmers' livelihoods by eradicating the menaces of distress sale, usurious moneylending & middlemen profiteering.

Future Plans:

Whrrl has recently entered into a partnership with one of the world's largest payment solutions providers to issue credit card facilities for farmers. In the next 6-12 months our plan is to expand the market to other parts of the country, taking our product to more borrowers/farmers directly and onboarding 10 lenders, and reaching 2,000+ warehouses. Whrrl also plans to launch its commodity trading platform, which will enable farmers to sell their produce directly to buyers without the involvement of middlemen. In the next 36 months, we are looking to expand our operations to international markets of Africa, South East Asia, and Latin America, targeting a market size of $ 250 Bn. As a part of the international expansion, we have already developed partnerships in Singapore & Philippines and are actively canvassing these markets to commence operations soon.

Performance and sustainability :

Whrrl's Warehouse Receipt Finance Platform is currently India's largest blockchain platform in the production stage, having a presence in 1400 warehouses in 5 states of India and has registered a transaction volume of Rs. 5,000 Cr. The platform has digitized warehouse receipts for more than 18,000 farmers and has disbursed Rs.95Cr+ digital loans so far. The platform acts as a one-stop solution for all post-harvest needs right from searching for warehouses, applying for loans from the comfort of home, and selling products online at a later stage.

With the innovative blockchain solution Whrrl helps farmers in securing interim credit for their household or agricultural capital requirement, get better price realization by avoiding distress sales, saving them from the debt trap of moneylenders, avoid wastage and resultant losses of the crop by facilitating storage in warehouses and also with better market linkage facilities. While doing so Whrrl is also working towards the achievement of SDG goals 1, 8, 10 & 17

Awards & Photographs:

Winner - Startup India Award (Fintech - Financial Inclusion), 2023

The best organisation for improving access for Farmers - CISCO Award, 2022

Winner - Social Innovation Lab by CITI and received 20 lakh grant, 2022

NASSCOM India Fintech Award, 2021

Most Innovative Blockchain or Crypto Product - IFTA, 2021

Best of class TADS - Rising Stars Award, 2021

Winner - SankalpGlobal Ecosystem Award, 2021

Case Study- Published & Included in course curriculum by IIM Ahmedabad

Winner - Inc 42 #Pitch42, received a grant of $25K, 2021

Winner – Microsoft for Startups Program, India, 2021

Contact Information:

9th Floor, Kontor Space, Ashar IT Park, Wagle Industrial Estate, Thane – 400604

Email : **connect@whr.loans**

Contact : **+91 73562 3057**

Website : **www.whr.loans**

23. XEUJTECH PREFABS PRIVATE LIMITED

Bhaskarjyoti Thakuria, Founder

Overview:

India is one of the largest producers of paddy in the world. Rice cultivation produces a large amount of rice husk, which has no proper use and is usually left dumped and burned. This open burning of agricultural byproducts becomes a major reason for smog formation in DELHI, PUNJAB, and HARYANA areas. XEUJTECH PREFABS saw an opportunity in this agricultural byproduct and decided to use rice husk ash as a raw material for producing compressed stabilized bricks. The ash is obtained from JAGGERY industries where rice husk Briquettes are used as fuel for burning. This innovative approach not only provides a sustainable solution to the construction industry but also helps to reduce the carbon footprint associated with the manufacturing process of traditional bricks. By using rice husk ash, XEUJTECH PREFABS can produce bricks without producing any harmful gases during its production, unlike burnt clay bricks. Moreover, by using rice husk, We, the brick manufacturers help farmers to earn extra income by selling this agricultural waste which was earlier left dumped and burnt openly. Our compressed stabilized bricks are durable, cost-effective, and have excellent thermal insulation, making them an ideal choice for a wide range of construction projects.

Social Challenge:

Construction is an essential part of our lives, but it comes at a cost. The manufacturing and use of construction materials are not environmentally friendly, and this has contributed significantly to climate change. Moreover, the health concerns of the workers in this industry are also a major issue to consider. XEUJTECH PREFABS PRIVATE LIMITED is a company that is committed to addressing these problems in the construction industry

Solution:

AGRICULTURE is one of the prime sectors of the Indian Economy. With large yields of agriproducts, it also produces large amounts of byproducts. Rick Husk is one of them. Below a representation of how rice husk creates wealth for numerous sectors such as BIOMASS BRIQUETTE MANUFACTURER, the JAGGERY INDUSTRY, and COMPRESSED BRICK MANUFACTURER is shown. This way this waste-to-wealth innovation of XEUJTECH made positive differences in the lives of the intended beneficiaries. It not only creates wealth but also minimizes the use of fossil fuel in the jaggery industry by replacing coal with biomass briquettes and also helps brick manufacturers to produce environment-friendly bricks.

Impact on Grassroot development:

We want to be known as the best Socio-Tech company in this world. If we use the most basic matrix, Among the 17 Sustainable Development Goals, We believe we can contribute to 13 goals through our company's work culture.

Implementation:

Currently, XEUJTECH PREFABS PR\VT. LTD. uses rice husk ash to produce COMPRESSED STABILISED BRICKS. In the last 2 months, XEUJTECH has utilized 60 M Tonne of rice husk ash obtained from a Jaggery industry and produced around 60000 pieces of Bricks.

Future Plans:

- Lightweight interlocking block.
- Riverside land holder/ wave breaker (porcupine bar)
- Retaining wall block
- Geopolymer-based concrete (without the use of cement)
- Prefabricated septic tank.
- Prefabricated rainwater harvesting system.
- Carbon capture facility

Performance and sustainability :

- 90% of the total raw materials of XEUJTECH BRICKS are INDUSTRIAL WASTES. These are RICEHUSK ASH, & STONEDUST.
- All the raw materials are wet mixed with a Binder and then pressed using HYDRAULIC PRESS. (35 tonnes of pressure is applied over each brick). The operations did not emit any harmful gases into the atmosphere
- Newly formed bricks are water-cured over a period of 21 days. After that, the Brick becomes ready for delivery to the construction site

Associations & Capacity Building:

Partnerships to achieve the goal. (we planned to support environmentalists and NGOs to run large plantation drives)

Awards & Photographs:

Recognized as a startup by the Development for Promotion Industry & Internal Trade.

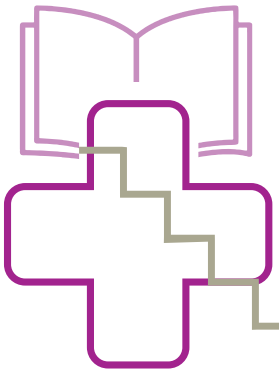
Contact Information:

C/O- Ratul Talukdar, Sitaghuli Path, Birkuchi, Narengi, Surya Nagar No. 1, Guwahati, Kamrup, Assam, 781026, India.

Email : **xeujtech2022@gmail.com**

Contact : **+91 8724064644**

+91 9577405994



Social Innovations for Health & Education

The Social Innovations for Health & Education category in the compendium of grassroots start-ups encompasses a wide range of initiatives and organizations that are driving positive change in the fields of healthcare and education at the grassroots level. These start-ups are characterized by their innovative approaches to addressing social challenges, improving access to quality services, and creating sustainable solutions to benefit underserved communities.

In the education sector, grassroots start-ups are leveraging technology to enhance education access and quality. EdTech start-ups develop online learning platforms, digital content, and learning management systems that facilitate remote and personalized learning experiences. These initiatives bridge the gap between students and quality educational resources, particularly in remote or disadvantaged areas.

1. Arcatron Mobility

Ganesh Sonawane, Founder

Overview: Arcatron Mobility is a Pune-based Start-up building the next generation of devices to empower people with limited mobility to lead dignified and active lifestyles.

Social Problems: India has 110 million+ elderly citizens with more than 1/3rd of them needing assistance in carrying out activities of Daily Living (ADLs) like bathing, toileting, and walking. India also has one of the highest rates of road accidents (one serious accident every minute) leading to severe mobility limitations.

Demand for mobility assistance is increasing due to the rapid rate of aging, spinal cord injuries, and obesity. However, the mobility devices available in India are poor quality or unaffordable.

Solution: World-class assisted living devices at affordable prices.

To cater to the unmet needs of the elderly, differently-abled, and others with limited mobility, Arcatron has developed innovative products which are designed to ease the lives of the above-mentioned population.

Arcatron's innovative shower and commode wheelchairs help the assisted living community (elderly, differently-abled, and others with limited mobility) manage their hygiene in a safe and dignified manner.

Impact on Grassroot development:

- Empowering the Locomotor Disabled: Arcatron's products are enabling their users to perform their most basic functions such as going to the toilet on their own without the assistance of others which was not possible earlier.

- Revolutionizing Caregiving: The range of products designed for caregivers/nurses has transformed the process of caregiving. The stigma associated with caregiving due to hygiene issues has been mitigated and is going to have a significant impact on the whole caregiving sector.

- Foreign Exchange and Reduction in Imports: At present, a vast majority of the assistive devices are imported to India which includes basic devices like walkers, and wheelchairs ranging from high-end assistive devices like motorized wheelchairs, electric care beds, and patient lifts to low-end functional models.

- Jobs Creation: In addition to giving direct employment to people in the manufacturing sector at its fabrication workshop, Arcatron is creating jobs for a large number of people through a network of more than 100+ vendors and counting.

Implementation and challenges: R&D: An agile R&D team with the ability to innovate faster gives Arcatron Mobility an edge to invent, design, prototype, and iterate products to make them market ready. The R&D team has experienced engineers, fresh minds, and versatile exposure to various fields to deliver high-quality products within stipulated timelines. The in-house R&D facility is strategically located at the company's manufacturing plant in Chakan MIDC, Pune which gives easy access to various sub-vendors, and prototyping facilities.

Manufacturing: The company has two manufacturing plants in Talwade MIDC & Chakan MIDC in Pune; where bathroom wheelchairs, and folding wheelchairs are manufactured. The quality control team at the company ensures that every product is up to its required standards.

Marketing: The company has strong in-house marketing and sales team that play a crucial role in penetrating the market

Performance: Wheelchairs sold: 13000+

Revenues:

- FY20: INR 1.1 Cr
- FY21: INR 5.4 Cr
- FY22: INR 5 Cr
- FY23: INR 23.5 Cr

Sustainability and Future plans:

- The company has an innovative product pipeline for people with limited mobility, especially elderly citizens. It is one of the few start-ups operating in the product space in a sunrise sector, where several innovations are feasible through leveraging software technology within the existing product platform which also lends itself to scale, both in India and Internationally.
- Arcatron Mobility aims to develop new offerings to improve its competitiveness and enhance its target market size.
- The company intends to file global patents and develop a strong IPR portfolio to leverage potential licensing revenues in more matured international markets.
- Upcoming proposed launches include innovative walking sticks, transfer lifts, bed recliners, electric wheelchairs, etc which aim to cater to the needs, alleviate the sufferings and fill the huge scarcity of suitable products in the market.

Associations & Capacity Building: Arcatron is the first wheelchair brand in India to be supplied at scale to Indian Army veterans, Indian Army Paraplegic Rehabilitation Centre, Pune.

Awards

- Arcatron Mobility won the best start-up award by Google India among 400 participating start-ups at SURGE Conference 2016.

- Arcatron was selected as one of the winners of the Maharashtra Start-up Week held in June 2018.
- Arcatron was selected in Entrepreneur Impact Program by Autodesk in 2016 and got free access to engineering software up to $150,000 for three years.
- First prize in Swachh Bharat SAN Sadhan Hackathon by likes of NITI Aayog, and Bill and Melinda Gates Foundation in September 2019.
- First prize in "Call for Innovative Assistive Technology Solutions" for people with Cerebral Palsy organized by NIPMR in Kerala in August 2019.
- Winner of the Amazon Smbhav Award 2022

Contact Information:

Sector No 21, Plot No. 63, Opp. Ranna Hosp., Yamunanagar, Nigdi, Pune-411044

Email : **ganesh@arcatron.com**

Contact : **+91 9049291555**

Website : **arcatron.com**

LinkedIn : **arcatron.com**

2. Ayugen Biosciences Pvt. Ltd.

Manish S Pungliya, Founder

Overview: AyuGen is a pioneer organization working in creating awareness of cervical cancer prevention. AyuGen expertise is in molecular genetics & it has implemented its experience to solve this problem.

Solution: AyuGen through its lab provides a simple easy-to-do test for early detection of cervical cancer & prevents them from getting into cancer. Our kit can be used to do cervical cancer risk assessment tests.

I**mpact on Grassroot development:** Provide evidence of the impact of your social innovation practice and explain how your innovation has made a positive difference in the lives of the intended beneficiaries.

We have directly & indirectly created awareness in more than 10 lakh women & have screened more than 35000 women so far. Our test has been used in rural areas of Maharashtra & Chhattisgarh

Implementation and challenges: The main challenge is the lack of awareness among women that this cancer is 100% preventable. There is a movement that needs to be created to get women for screening even if they do not have any symptoms.

Performance: We have successfully launched this test in the private sector in India & now the majority of the hospitals & labs have partnered with us to provide them with this solution. Our revenue for the last three years has been between 2 to 3 cr.

Sustainability and plans: We need to expand in other products & geographical areas for sales & marketing.

Associations & Capacity Building: Our organization is NABL accredited since 2014.

Awards

- Awarded Outstanding Cervical Cancer Diagnostics Laboratory of India in 2018 by ASSOCHAM.
- Completed several CSR projects in this area with organizations like The New India Assurance Company Ltd.

Contact Information:

Balgandharva Bridge, 562/1 Shivajinagar, Pune, Maharashtra 411005.

Email : **mpungliya@ayugen.com**

Contact : **+91 9860065758**

Website : **ayugen.com**

LinkedIn : **manish-pungliya-b177361**

ON A HEALTHY NOTE

November is observed worldwide as a month for creating awareness about cervical cancer

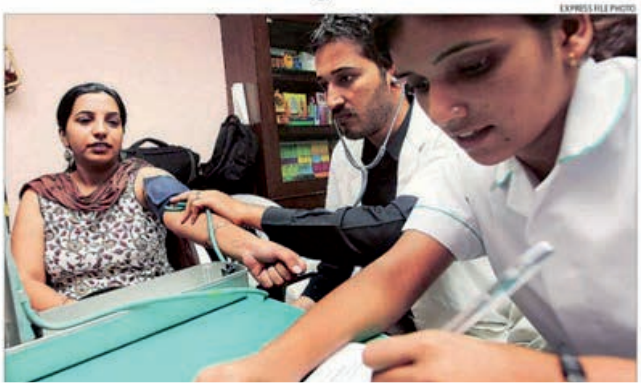
EXPRESS FEATURES SERVICE

FOR a country such as India, cervical cancer holds some depressing statistics. Every day more than 200 women die in India due to cervical cancer, a deadly but preventable disease. Since this cancer is most common in the age group of 30-50 years, it not only affects the woman but the entire family. In India, one woman dies of this disease every seven minutes. It is estimated that the incidence of this cancer will increase by 71 per cent by 2025 if immediate action is not taken. As a measure of creating awareness, November has been observed worldwide as the month to create awareness about cervical cancer. Several doctors including the Indian Medical Association (IMA) have organised a series of events to talk about the problem.

Dr Nina Mansukhani, consulting gynaecologist at Jehangir Hospital, says that cervical cancer involves usually acquired at the onset of sexual activity. Poor immunity, repeated vaginal infections, low hygiene levels and nutritional status are some of the causes," she says.

A woman may experience the symptoms of vaginal bleeding or discharge. Pain and urinary symptoms occur at later stages. The ironic thing about cervical cancer is that owing to the cervix not being a visible organ, it is not apparent early sometimes. However, due to the various tests available, it has become simpler to diagnose cervical cancer at much earlier stages and in fact as precancerous lesions.

For the last 50 years, cervical cytology (Pap smear), has been the cornerstone of cervical cancer prevention programmes. This is simply taking the shed off cervical cells, preparing a slide and visualising it under the microscope. "Pap test has the advantage of being relatively inexpensive as compared to other lat-



EXPRESS FILE PHOTO

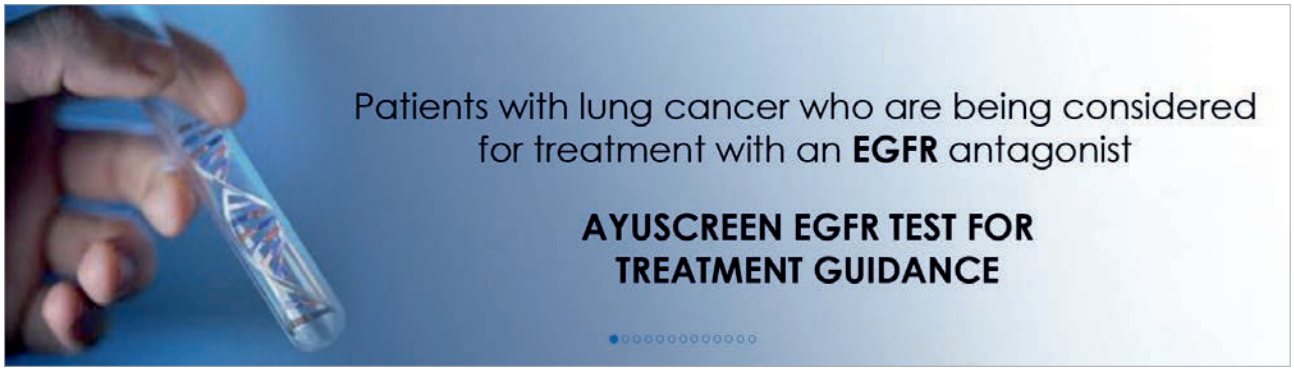
Cervical cancer can be easily detected and treated in the initial stages

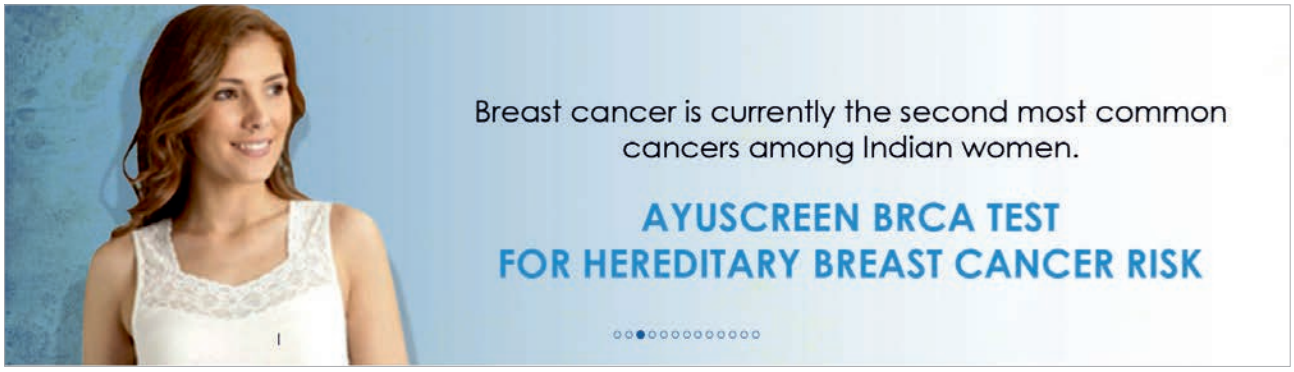
tests," says Mansukhani.

Gynaecologists point out that in order to find out whether one is affected with the HPV, it would be advisable to do the Digene HPV test which identifies the high risk type of viruses that predispose one to cervical cancer.

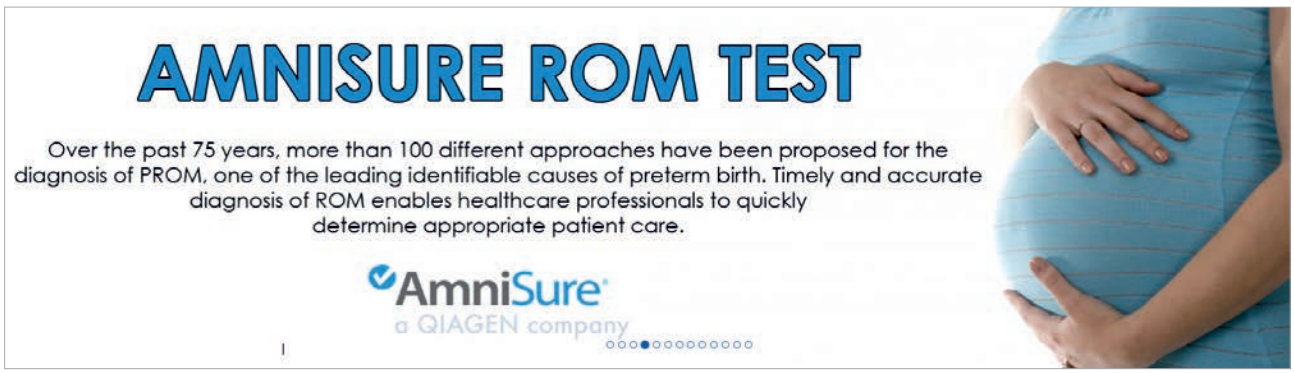
Thus it may be possible to detect viral presence much earlier than it can cause actual harm. This test, if negative for high risk viruses, can be reassuring and may allay the need for a repeat test for three to five years. Doctors have urged that there is need for a fresh perspective on screening, and hopefully HPV test can aid better and earlier diagnosis.

A free PAP smear camp will be held at Touch of Life clinic, East


Patients with lung cancer who are being considered for treatment with an **EGFR** antagonist
AYUSCREEN EGFR TEST FOR TREATMENT GUIDANCE


Breast cancer is currently the second most common cancers among Indian women.
AYUSCREEN BRCA TEST FOR HEREDITARY BREAST CANCER RISK


WHY LIVE IN FEAR
WHEN THE CURE IS HERE
In India, every day, 200 women die of CERVICAL CANCER & about 400 new cases are identified.
CERVICAL CANCER can easily be prevented.
Contact us today!
HPV DNA TEST


AMNISURE ROM TEST
Over the past 75 years, more than 100 different approaches have been proposed for the diagnosis of PROM, one of the leading identifiable causes of preterm birth. Timely and accurate diagnosis of ROM enables healthcare professionals to quickly determine appropriate patient care.
AmniSure
a QIAGEN company

3. Deepaarogya

Abhishek Kumar Pandey, Founder

Overview: Deepaarogya is an AI-based solution that predicts different diseases in their early stage based on Cough Sound data, X-rays, and CT Scans.

Social Challenge:

- Millions of People die every year because they know about these diseases in the very last stage where getting treatment is very hard and expensive.
- Many M.B.B.S doctors lack expertise in reading radiological data (X-ray, CT Scan)
- Unavailability of radiologist doctors in remote and rural areas

Solution:

- OurAI based solution can predict multiple diseases in their early stage in the same X-ray or ct scan report.
- We are also predicting different respiratory diseases from the cough sound.
- We can also send our AI-generated report in real-time.

Impact on Grassroots development:

- In rural areas many people mis diagnose by fake doctors (Quake) due to lack of doctors. Our solution can be integrated with any app or chatbot by which these people can know about their respiratory disease by their cough sound and It will tell them do you need to consult a doctor or not.
- In the rural area there is a lack of radiologists who make the report based on X-rays and Ct scans and many times M.B.B.S. doctors also lack in expertise reading these X-rays or Ct Scans So our solution helps these doctors by generating AI reports based on X-rays.

Implementation:

-We are developing a web app that can be installed on the radiologist's computer and It will Send AI-generated reports to doctors in real-time.

-We will also provide API service to different healthcare companies

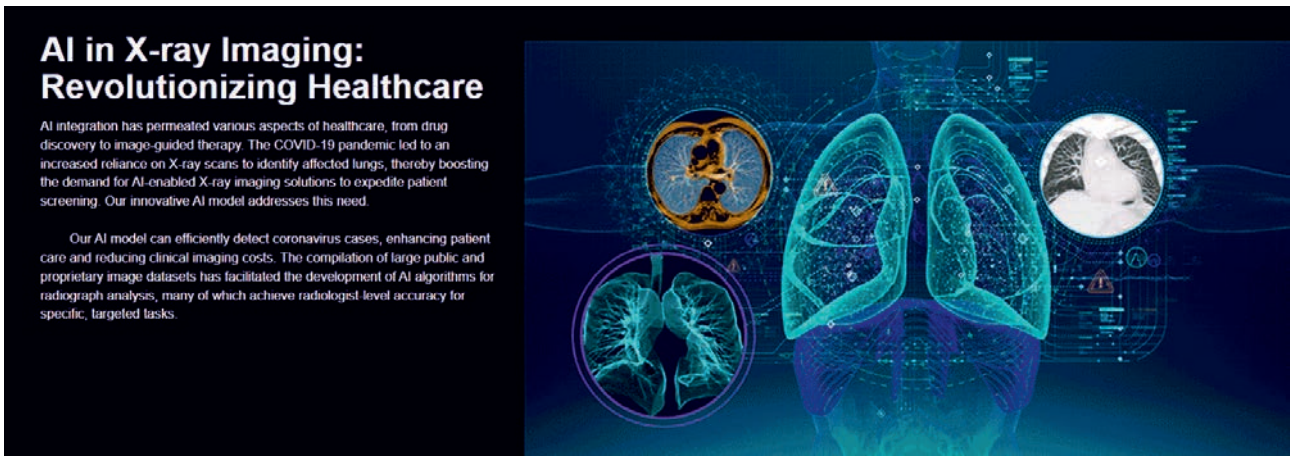
or chatbot companies to increase their appointment booking.

Challenges:

- Convincing Hospitals to provide their patient data (X-ray or CT Scan) although we have convinced 2 hospitals to provide their patient data by showing our basic working MVP and what we have planned to achieve.
- Collection of Cough sound data for different diseases with a consent letter.
- Making a Highly accurate model with fewer data
- Classification of X-ray data according to different diseases.

Sustainability:

- We have 2 healthcare companies who are excited to integrate our Cough based solution in their app or chatbot to increase their appointment booking.
- It will help M.B.B.S doctors who lacks in expertise of reading radiological reports(X-ray, CT scan)



Future Plans: We want to develop this solution and give it to Doctors or hospitals to get real feedback on our product within the next 6 months. We want to build a good tech team.

Performance and sustainability: Right now our model performance accuracy is 93% and It can predict 5 Different diseases in the chest X-ray. Right now our model can predict what type of disease have in the patient's body but we are developing a solution that tells are the reason behind it so doctors can diagnose according to that.

Associations & Capacity Building: We are incubated at Sharda University

Contact Information:

Plot No-40, VIP City, Roza Jalalpur

Email : **abhishekumar799@gmail.com**

Contact : **+91 8979523908**

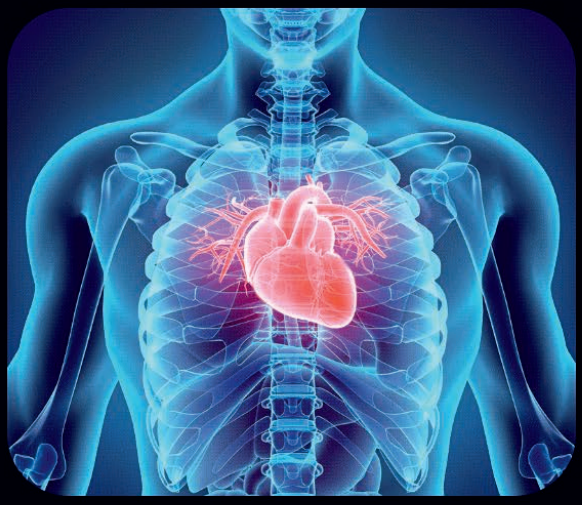
Website : **deepaarogya.com**

Chest X-ray Scanning

For the past 20 years, detecting pulmonary nodules on chest radiographs has been the focus of numerous commercial and research computer-aided detection solutions.

Recent studies exploring AI's potential to enhance radiologists' performance in identifying pulmonary nodules on CXRs have been limited in scope, as they lack diverse multisite readers with varying clinical experience, detection challenges, and settings.

To overcome these limitations in AI algorithm evaluation, our AI algorithm is designed to detect pulmonary nodules on chest radiographs across varying detection difficulty levels, encompassing both normal and abnormal images.



Detection of diseases from Cough Sound

Cough is a common symptom of many respiratory diseases, including COVID-19, and has been identified as a potential indicator of infection. Artificial Intelligence (AI) is being used to analyze cough sounds to detect and diagnose diseases. By using machine learning algorithms, AI systems can detect specific acoustic patterns in coughs that are associated with different respiratory diseases. The technology has the potential to provide a rapid, non-invasive, and cost-effective method of disease screening, particularly in low-resource settings.

AI-powered cough detection systems can be integrated into mobile applications, wearable devices, and even smart speakers, making it accessible to a wide range of users. As a result, cough analysis using AI has emerged as a promising tool for early disease detection and prevention.

4. GeeCom India Services Pvt. Ltd.

Yogesh Sahu, Founder

Overview: GeeCom India' is a transparent and democratic platform that connects Farmers and Rural Entrepreneurs (Sellers/Producers/Crafters) to Consumers, Cities, Businesses, and Industries. Our platform empowers Farmers and Rural Entrepreneurs to set up an 'Online Shop' just in 15 minutes.

The traditional approach adds layers, unwanted processes, etc., which results in lesser benefits for sellers and higher costs for buyers. Our platform enables Farmers and Rural Producers to connect & transact directly with buyers. This is truly a Win-Win platform. The direct connection enables Rural Producers & Farmers to get better prices and sell directly from Home, Farm, or Village.'GeeCom India' is a Complete Ecosystem for Farmers and Rural Economy,

Social Challenge: The price which Farmers receive is 10 to 40% of what the consumer pays Farmers do the Hardest Work, however, not rewarded accordingly Reward [Price] depends on Mandi, Govt. Policies and Luck

Lack of platform for 'Transparent Information', 'Marketing' and 'Sale the Products' Lack of options to Directly Connect with end consumers/businesses/industries Lack of platform to directly connect with 'Farm Workers' and 'Unskilled Workers' 'Rural entrepreneurs experience similar issues and challenges 'GeeCom India' platform directly connects Farmers and Rural Entrepreneurs to end consumer, therefore, they receive better prices than the traditional market. Improved income, therefore, better 'Quality of Life' and Employment Opportunities Some examples of transactions via 'GeeCom India' platform: 1) The farmers of Kashmir have sold saffron, almonds, figs, honey, etc. to customers in Kerala and Madhya Pradesh 2) Farmers of Uttarakhand have sold herbal tea, honey and products prepared by farmers to customers in Telangana, Kerala, and Madhya Pradesh. 3) The farmers of the North-East have sold Cinnamon, Black Rice to customers in Delhi, Madhya Pradesh, Uttar Pradesh, and Odissa 4) Moringa powder prepared by women farmers from Haryana has been sold to customers in Madhya Pradesh 5) Organic jaggery powder from the farmer of Tamil Nadu has been sold to a customer in Mumbai

Solution: 'GeeCom India' platform helps and supports 'Farmers' &' People in Rural India' and helps them to bring at par with the urban population. Our platform empowers them and brings them equivalent to well know online marketplaces which are not easily accessible to farmers and rural entrepreneurs. We have developed the platform keeping the diversity of India in mind; our platform helps in all possible scenarios, for example: - from a small-scale farmer who has marginal land holding - to a large-scale farmer who has large land and has resources - to someone who wants to do business in local geography – to someone who wants to do business in entire India - to someone who wants to do retail business - to someone who wants to do bulk business - There are 8 types of delivery options to handle the diversity of India - much more... GeeCom India' platform is available to all the Indian citizens without any discrimination in any form. People from the entire India are connected with 'GeeCom India'. GeeCom India Services Pvt. Ltd. supports all Indian citizens and hires employees without any discrimination in any form.

Farmers and Rural Entrepreneurs can set up an 'Online Shop' in a few minutes and they can start selling their products/produce online. Their 'Mobile Phone' can be transformed into a Virtual Shop via GeeCom India App.

- Farmer's 'Online Shop' setup just in a few minutes.
- Marketing to thousands of people just in a few clicks.
- Direct connection with end consumers / buyers
- Complete Digital Ecosystem for farmers
- Solution that caters diversity of India
- Ready solution for Farm Laws 2020
- Virtual Mandi, filling the information gap in the Agri ecosystem

Impact on Grassroot development: 'GeeCom India' is a transparent and democratic platform that connects Farmers and Rural Entrepreneurs (Sellers/Producers/Crafters) to Consumers, Cities, Businesses, and Industries. Our platform empowers Farmers and Rural Entrepreneurs to Setup an 'Online Shop' just in 15 minutes. The traditional approach adds layers, unwanted processes, etc., and this results in lesser benefits for sellers and higher costs for buyers. Our platform enables Farmers and Rural Producers to connect & transact directly with buyers. This is truly a Win-Win platform. The direct connection enables Rural Producers & Farmers to get better prices and sell directly from home, farm, or village.

Milestones & Validation:

Total Orders: 1050+
Total Transaction Value: 82L+INR
Users: 30000+
Transactions: 20+ States
Users from: 32 States & UT
Farmer Org. ready for IT Services: 50+

Challenges: Behavior Change is always challenging

- Farmer is not used to selling directly to end consumers, home delivery, packaging, shipping, etc.
- Consumers are not used to buying directly from Farmers
- Many Seller (Farmers and Rural Entrepreneurs) are not tech savvy
- 2020 Farming laws were aligned with what GeeCom India is trying to do, however, laws being suspended will continue to create hurdles
- Behavior change is always expensive, and requires lot of training, coaching, and guidance therefore huge fund requirement

Sustainability: Direct connection helps products travel less therefore smaller carbon footprint during the product life cycle. – Buyer doesn't know who is growing - Grower doesn't know where the demand is - Today products go from Village/Town to Mandi then it's brought back to the same village/town by the retailer from Mandi 'GeeCom India' fills the information gap, therefore, products travel from one point to another directly (instead of the traditional approach where it has been transacted via multiple layers / points / destination) India Agriculture is approximately 500 Billion dollar economy Empower and support the farmer to sort, grade and process their products directly to end consumers We are starting with Vegetables, Grains and Spices Focus on Organic and Natural Products. Focus on Niche Products

Awareness via marketing - Making farmers aware of how they can setup their online shop in a few minutes and start selling their products

Milestones & Validation

Total Orders: 1050+
Total Transaction Value: 82L+
Users: 30000+
Transactions: 20+ States
Users from: 32 States & UT
Farmer Org. ready for IT Services: 50+
Associations & Capacity Building:
Incubation: IIM Kashipur

Contact Information:

324, Shagun Tower, Scheme 54, PU4, AB Road, Vijay Nagar, Indore, MP - 452010.

Email : **yogesh.sahu@gmail.com**
Contact : **+91 7259931071**
Website : **geecomindia.in**

5. GreenDelight Innovations Pvt. Ltd.

Niveda R, Founder

Overview: Our Startup is a Mission to reduce 1,13,000 tonnes of feminine Hygiene products disposed of every year in India and to provide Natural hygiene and sanitation to all classes of people at affordable cost. Bliss Natural is India's First USFDA-approved and Biobased Certified Feminine hygiene product. For every 10 pads we sell, we donate a pad to women who cannot afford to end period poverty in India.

Social Challenge: One of the major challenges India is facing today is the disposal of plastic waste. Plastic: In India, Nearly 1,13,000 tonnes of sanitary pads are disposed of every year which does not degrade for years together. These napkins are also burnt which releases harmful gasses and toxins in the atmosphere. Chemicals: We also took a survey and found that nearly 80% of women were not satisfied with the existing sanitary pads in terms of itching, rashes, irritation, and to an extent cancer also. Our Solution made of Kenaf fiber is tested certified and patent technology is beneficial to women and the environment.

Solution: Our Solution is using one of the most sustainable indigenous fibers called Kenaf for feminine hygiene products because of its natural absorbency and antimicrobial properties. our products are certified USFDA and Biobased made with a chemical-free and plastic-free process that degrades within 6-12 months and is completely hygienic and safe for human use. Thus a win-win solution for both women's hygiene as well to the environment.

Impact on Grassroot development: We work towards 8 UNSDGs and 8 impact themes as a part of our inclusive Business Model. In the last financial year, 21 MHM awareness sessions were conducted in rural areas, in tribal villages, and orphanages, and Around 35000 pads were donated to 10000+ women. 3 Vending machines were Installed in Govt schools and conducted MHM Awareness sessions. Enabled 5 Micro entrepreneurs in rural areas with a total of 270 women entrepreneurs buying and selling our product and making decent economic growth. 18 Direct jobs were created with 85% of women employees. Around 15000 kgs of plastic waste were diverted.

Implementation: 21 MHM awareness sessions conducted in rural areas, in tribal villages, in orphanages, and Around 35000 pads donated to 10000+ women. 3 Vending machines were Installed in Govt schools and conducted MHM Awareness sessions. Enabled 5 Micro entrepreneurs in rural areas with a total of 270 women entrepreneurs buying and selling our product and making decent economic growth. 18 Direct jobs were created with 85% of women employees. Around 15000 kgs of plastic waste were diverted.

Challenges: Feminine hygiene and sanitation products are associated with a lot of taboo practices in India. Penetration is a challenge but once with convince women to try a product, we have a customer retention rate of 80% with a 4.8/5 online rating.

Sustainability: Our products are plastic-free and chemical free which is zero waste solution that is beneficial to women as well as to the environment.

Future Plans: We are planning to launch other feminine hygiene products that are chemical-free and plastic-free. We are planning to launch adult diapers and maternity pads that are more sustainable.

Green Delight Innovations Pvt. Ltd.

Performance and Sustainability: Approximately 50 lakh Bio-based Sanitary pads sold Plastic waste Diverted: Approximately 15000 Kgs of Plastic menstrual waste diverted 21 MHM awareness sessions conducted in rural areas, in tribal villages, in orphanages, and Around 35000 pads donated to 10000+ women. 3 Vending machines were Installed in Govt schools and conducted MHM Awareness sessions 18 Direct jobs created with 85% women employees

Associations & Capacity Building: We are looking for CSR collaboration and corporate connections. We are a team of 18 at present and looking forward to expanding upto 30

Awards

- TANSEED 3.0 winner from TAMILNADU CHIEF MINISTER M.K STALIN SWACHHTA startup challenge winners from MoHUA and AFD YASH Entrepreneurship grant from USAID and JHPIEGO TVARAN grant from CISCO CSR and VILLGRO HDFC parivarthan grant 1 st Chhatra Vishwakarma Award from AICTE India innovation initiative (I3)- Most promising innovation award by AICTE-DST-CII SIDBI Startup Mitra award Icreate Award(International Centre for Entrepreneurship award) Wonder woman 2K18 award. Coimbatore Science and Technology Festival Award 2019 award. Chinnikrishnan Innovation Award 2019 by CavinKare Private Limited. Homepreneur special recognition award by Naturals and Brand Avatar. Penn Sakthi Viruthugal from Padma Shri Kamal Hassan Homepreneur Awards 2021 from Brand Avatar Sooriya karigai Award from Suriyan Fm 2021 Women Entrepreneur talks in India Book of Records and Asia Book of Records CII industrial innovation award 2021 from DST-CII summit for the best project under Kumaraguru College of Technology.

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Contact Information:

23 Boyer street singanallur, Cbe -641005

Email **: nivi1606@gmail.com**

Contact **: +91 9566826636**

Website **: blisspads.com**

6. Incredible Devices Pvt. Ltd.

Vikram Goel, Founder

Overview: Incredible Devices is a medical devices company with a mission to make healthcare safe, affordable & accessible for all; irrespective of patients' social status, economic class, and geographical reach. We deal in two domains: Cardiovascular & COVID - 19 with our innovative technologies CRS and ARS, respectively. We are an industry leader in developing automated reprocessing / disinfection systems using our patented technology, that optimizes the operational capacity at hospitals and ensures the safety of medical workers & patients. We have benefitted more than 9.5 lakh poor patients & medical workers across 11 states in India.

According to WHO, Cardiovascular diseases (CVDs) are the no.1 cause of death globally. 8/10 patients die because of unaffordable treatment. Moreover, unsafe dumping of Medical Waste is the leading cause of diseases & viral outbreaks infecting millions. People are dying in the absence of affordable and accessible healthcare.

Solution: Incredible Devices invention Catheter Reprocessing System (CRS, Patented) uses a patented process to clean catheters. Its Dynamic Fluid Cleaning process generates 74 times higher fluid pressure to remove biofilms. CRS generates mechanical vibration to remove surface-diffused proteins. It is a complex machine that ensures the safe reprocessing of catheters thus making treatment safe, affordable, and accessible for millions of poor patients. It also avoids hospital-acquired infection and the spread of antimicrobial resistance bacteria. CRS ensures safe disposal of catheters thereby avoiding any viral breakout. Since catheters are reprocessed and reused, biomedical waste generation is reduced by 90%.

Impact on Grassroot development:

- **Affordable Healthcare for All:** it reduces the cost of catheters by 99%. This helps us provide accessible, affordable, and safe treatment to millions of poor/ Base of Pyramid patients in India and other developing nations.
- **More than 9.5 Lakh lives already Touched:** CRS has already benefitted 9.5 Lakh patients across 11 states in India, out of which 4 are low-income states.
- **Reduce Antibiotic Dose:** CRS reduces Hospital Acquired Infection and as a result now, less antibiotic dose is required to treat patients. This avoids misuse of antibiotics.
- **Reduces generation of Biomedical Waste by 90%:** Now 90% fewer catheters are required which results in less generation of hazardous medical waste.
- **Avoid Disease/Virus Outbreak:** CRS provides a cost-effective clinically proven, fail-safe way to disinfect catheter waste at the point of source itself. This helps avoid viral outbreaks due to accidental pilferage of biomedical waste.
- **Saving 90% Foreign Exchange:** India imports Rs 272 billion in medical goods. CRS intends to reduce 90% the import of catheters and save FOREX.
- **Green Technology:** CRS promotes safe reuse, reduces carbon footprints and saves water
- **Swachh Bharat Abhiyaan:** Reduce waste generation and also ensures safe disposal.
- **Make in India:** 100% made in India & Indigenously developed Technology.

Implementation and challenges: The major challenge we faced is hiring talent. We overcame the challenge by hiring mid-level people and training them to be efficient and experts in their field of work at the company.

Performance:

- **Lives Saved:** > 9.5 lakh poor patients benefitted
- **States Covered:** 11 states in 4 years
- **Investors:** IIT Kanpur, Social Alpha
- **Expansion Partners:** NHA PMJAY, MSInS

Sustainability and Future plans: Incredible Devices is focusing on developing as reprocessing brand. We are developing similar products which can reprocess almost all kinds of medical instruments.

We have expanded our range of products to ARS, and BDS and are in the process of developing a reprocessor for OT and ICU Instruments.

Associations & Capacity Building: Incredible Devices is incubated and supported by IIT Kanpur and TATA Social Alpha. We are backed by Millennium Alliance for Capacity Building.

Awards

- D. L. Shah Platinum Quality Awards by Quality Control of India
- DST LOCKHEED MARTIN India Innovation Growth Programme 2016 (First Prize)
- CII India Innovation Initiative 2016 (First Prize, Rs 50,000/-)

Contact Information:

B-156, 1st Floor, Sector 63, NOIDA – 201301, Uttar Pradesh

Email : **vikram@incredibledevices.in**

Contact : **+91 8699011990**

Website : **incredibledevices.in**

LinkedIn : **vikram-goel-462517141**

चंडीगढ़ के विक्रम गोयल को दिल्ली में मिला आईसीटी स्टार्टअप्स अवॉर्ड

सिटी रिपोर्टर | चंडीगढ़

देश के यंग साइंटिस्ट अंडर 35 के तौर पर चुने गए चंडीगढ़ के विक्रम गोयल को एक और उपलब्धि मिली है। इनक्रेडिबल डिवाइसेज के फाउंडर और सीईओ विक्रम गोयल को आईसीटी स्टार्टअप्स अवॉर्ड मिला है। ये अवॉर्ड एसोचैम ने मिनिस्ट्री ऑफ इलेक्ट्रॉनिक्स एंड इंफॉर्मेशन टेक्नोलॉजी, भारत सरकार और एरिकसन द्वारा प्रदान किया गया। केन्द्रीय इलेक्ट्रॉनिक्स एंड इंफॉर्मेशन

कैथेटर रिप्रोसेसिंग सिस्टम (सीआरएस) क्या है ?

विक्रम गोयल ने बताया कैथेटर को मुख्य तौर पर हार्ट के ऑपरेशन्स में उपयोग किया जाता है और मेरी डिवाइस से उनको फिर से साफ कर दोबारा से उपयोग में लाया जा सकता है। जिससे सर्जरी की लागत में काफी बचत हो जाती है।

7. KidEx Venture Pvt. Ltd.

Kapish Saraf & Amritanshu Kumar, Founder

Overview: India is the World's 5th Largest Economy but we do not feature even amongst the Top 100 Countries in terms of GDP per Capita. To improve India's positioning as a Global Super Power, we need a 10X jump in our GDP per capita. To achieve this result, Indian youth should be skilled to take up Global Jobs, especially in a Work-From-Anywhere. Access to such skills should not be constrained by schools, colleges, etc. but should be free-flowing for anyone to access basis their interests and ever-evolving competencies. This is the same vision captured in the NEP 2020 to transform the Indian Education system. Our company is working towards making such a system easily accessible for everyone in the country including the economically most disadvantageous to help them upskill themselves, become better employable, and improve their standard of living sustainably.

Solution: Our company has created World's First Experiential Learning Platform to teach learners the "Application of Knowledge" rather than limit themselves to "Knowledge Gathering". The platform recommends any learner (K12 students, college students, professional workers) suitable projects to practice & execute from home without incurring any procurement cost. For every project, suitable learning videos are available for the learner to watch & trigger ideas. The learner performs the project independently & makes a video submission demonstrating the application of knowledge. Such submissions are graded/reviewed through a combination of manual assessors & AI tools to provide real-time EVIDENCE-BASED skill certificates to the learner. Every completed project improves the learner's overall development profile & further recommends additional skills to develop for improving self-employability. We are making this solution available at scale for every Indian at a very affordable cost which makes skill development delinked from school/college & available on demand.

Impact on Grassroot development: Our solution has been adopted by 3,250+ schools all over India to initiate the implementation of NEP 2020 Section 4.35 & Section 4.46. Approx. 3 lacs+ children in the age group of 3 to 17 years have benefitted from the program to date. 52% of the schools/children are from Tier 2/Tier 3 cities & rural villages. E.g., global Social Organizations like Sulabh International School have implemented our program for their school to improve the employability of children of scavengers' families. The platform has been used by NITI Aayog Atal Innovation Mission to conduct their flagship event ATL Tinkerpreneur for school students in Std. 6 to 12 across 10,000+ schools all over India. ISRO has conducted its prestigious National Space Quiz event on our platform for children all over India to increase interest in Space Tech space. We are in the advanced stages of Go-Live with ISKCON India to offer a Management Version program on Bhagavad Geeta for children aged 6 years & above. We are in the advanced stages of Go-Live with Baichung Bhutia Football Schools to conduct digital talent scouting for gifted individuals in Football to identify & promote Football talent in the country.

Implementation and challenges: The biggest challenges we faced were (1) rapidly evolving customer behavior & expectations in a pandemic era, (2) mental inertia in the minds of most organizations (schools, colleges, companies) to try new solutions on a paid basis & (3) limited openness of investors to support an innovation not previously executed in US or China. Our key learning was (1) Make time your friend and not enemy i.e., manage your financial survival thoughtfully (2) Don't push your product on customers and innovate low cost-low effort SKUs to help drive product trials conveniently (3) Offer subsidies to promote your product but in a limited fashion and to strategic customers only (4) Leverage partnerships to strengthen the brand in a bottom-up, organic manner rather than in an aggressive top-down sponsored marketing manner & (5) Aim not just to build a great company but be a role model to other companies that commercial innovations can happen from India.

Performance:

- Schools on the platform: 3,250+
- Learners served to date: 3L+
- Unique Holistic Progress Card generated to date: 5L+
- Cumulative revenue to date: INR 1 Cr+
- B2B Order book for FY23-24: INR 20 Cr+
- Paying schools on the platform: 500+
- Cumulative EBITDA loss to date: INR 6 Cr+
- Funding raised to date: INR 11 Cr+
- Net Promoter Score: 80%+

Sustainability and Future Plans: The core offering of the company is the company's social innovation practice itself. The sustainability of the company is the same as the sustainability of the company's social innovation practice. To ensure the company's sustainability, the company has secured adequate funds from investors to run the company for the next few months till the company's business turns operationally profitable & sustainable without being dependent on funds for survival. To become operationally profitable, the company has (1) automated business operations to delink growth from team size (2) upskilled team members & onboarded topic specialists as advisors to keep the team rightsized & (3) focus exclusively on the school's segment as a priority focus area to drive short term business revenues through direct outreach to private schools and serve government schools through corporate CSR initiatives & government partnerships. We have plans to go aggressively after colleges & corporate training as well in the next 1 year after achieving an operationally profitable business position in the Schools segment.

Associations & Capacity Building:

- Sulabh Public School (Sulabh International Organization) by Shri Bindeshwar Pathak Ji. To achieve holistic development of children of scavengers.
- Dumka District, Govt. of Jharkhand. Spoken English skills improvement for Class 9-10 girl students across 10+ Govt. schools in the district to improve their employability.
- NITI Aayog Atal Innovation Mission. Conduct ATL Tinkerpreneur to promote Innovation & entrepreneurship amongst school students all over India including rural India.
- ISKCON Ayodhya. Co-offer the Bhagvad Geeta Management Version program all over India to school students aged 6 years & above to help Indian youth internalize the key learnings & life lessons of Geeta.
- Baichung Bhutia Football Schools. Co-conduct a digital talent scouting program to identify budding football talent across India & support them in pursuing Football professionally.
- Many others. Confidential.

Awards

- Top 30, Google & MeITY Appscale Academy, 2022
- Top 100 TIE Global Summit, Hyderabad, 2022.
- Top 50, Yourstory Tech50 Startup, 2021.
- Top 100, NASSCOM Emerge100, 2021

Contact Information:

Saraf Building, A.T. Road, Guwahati – 781001, Assam

Email : **kapish@kid-ex.com**

Contact : **+91 8800201291**

Website : **kid-ex.com**

LinkedIn : **kidex**

8. NeeRain Pvt. Ltd.

Amit Doshi, Founder

Overview: NeeRain is Government Of Gujarat backed, Government Of India approved startup at GIAN , i-Hub and CrAdLE, secures water for common-man; With 3000+ installations, NeeRain saved 90 crore litres water at 250+ habitats across India, Asia, Africa & America in two and a half years.

Social Challenge: Depletion of ground water level and deterioration in the quality of ground water is most common problem across India. We are facing worst ever water crisis in the history of our Nation. Borewell as a resource is drying and our common man is facing acute crisis of fresh water. The result is women and kids have to walk 2 to 3 hours everyday to fetch fresh water. In summer months when the heat becomes intolerable walking for water becomes a risk and this situation makes the life extremely difficult.

Solution: The global problem of water has no global solution, a local adoption of harvesting free fresh water at each habitat is a way forward. This starts with individual, institution and industries. Catch the rain where it falls, go closer to the resource as a borewell or tank. This reflects the purpose of our innovation. NeeRain rainwater filter empowers common man to capture, filter and store free, fresh water in the form of rain in his borewell without cost of electricity, headache of maintenance and without human intervention. NeeRain can be installed by village plumber in 2 hours of time and it has 2 stages of filtration up to 200 microns and can be monitored live. NeeRain is truly modular and plug and play device that can be maintained by any individual. NeeRain saves around 1 lakh litres of water in one season of rainfall of 1000 mm from roof of 1200 sq. ft. NeeRain pays for itself within 1 year.

Impact on Grassroot development: We have provided safe drinking water to several thousands in tribal areas of UP and Rajasthan. We have established 80 Rain Water Harvesting Units in government schools, socio religious centres, village Panchayat Bhawans, and in the rare pukka houses in villages. Rainwater is collected by a series of pipes, then passed through NeeRain rainwater filter, and stored in water tanks. From here it will be made available to all who need it. This is the purest form of water, and a double filtration process makes it safe to drink, thus minimising the chance of water borne diseases like diarrhoea, dysentery, cholera and jaundice. Drying borewells due to depletion is successfully addressed in the state of Gujarat, Maharashtra, Rajasthan, Odisha and many other states have improved availability of water from borewells which has considerably reduced the cost of buying tanker water and also improved life of home borewells

Implementation: Neerain collectively has saved about Ninety crore litres of water. About 60% of the domestic beneficiaries have collectively saved around eighteen crore litres of water. The calculations are derived according to the rooftop area under harvest with the rainfall received in the region. The remaining contributions come from industrial and commercial installations which have larger surfaces and boast more water harvesting capacity. In today's date, over 3,500 individuals across the country, 200 in North America, 250 in Africa and 100 in Asia have benefited from it.

Challenges: Mass Awareness about such simple solution to address the most critical problem of modern India.

Sustainability: Rapid population growth combined with industrialization, urbanization, agricultural intensification, and water-intensive lifestyles is resulting in average 15% borewells running dry on yearly basis and hence acute water crisis. This is why the per annum water withdrawal rate has witnessed a robust increase in the last 10 years, leading to severity in ground water tables and freshwater resources for edible uses.

Rainwater storage in resource like borewell through NeeRain is the most sustainable water management practice that anyone can implement on a variety of levels, from a simple home rooftop to medium institutional roof and large industrial roof. This avoids drying of borewell and improves the quality of borewell water as well as it's efficiency.

Future Plans: India currently has approximately 33 crore borewells. States like Gujarat, Rajasthan, Tamil nadu, Karnataka, north east, Punjab are the ones who are suffering from major problem of depletion of groundwater. We aim to reach out to important pockets i.e. urban, semi-urban and rural area of these states to not only address the problem but also to fulfil our vision of four times the growth of the current revenue.

Performance and sustainability: Empowering common man thrives family and community that transform nation to a water secure and water surplus nation. This sustainable, local, practical, profitable and economical approach will drive the water positive journey of our nation.

Associations & Capacity Building: Association with GIAN, i-Hub, Cradle, Parul University, IIT Hyderabad, Treewalk, MoHUA – Government of India, Government of Telangana

Awards

- Neerain has won CII's national Award for Excellence in water management 2022 for the innovative water saving product category
- NeeRain was selected as one of the 10 startups in the Real Estate sector of Mahindra Startup Leap held on 20th February 2023.
- NeeRain had the opportunity to be a part of Zydus Innovation Day on 16th March 2023.

Contact Information:

I-29, Tulsi Estate, Opp. Bhagyoday Hotel, Changodar, Ahmedabad, Gujarat-382213

Email **: admin@neerain.com**

Contact **: +91 9662351406**

Website **: neerain.com**

9. Samsara Paediacare OPC Pvt. Ltd.

Nameeta Sohoni, Founder

Overview: Samsara PaediaCare is the maker of Boond®, an AdditionalNeeds® feeding aid specifically designed to help feed babies born with the condition of a cleft lip and palate. Cleft lip and palate is a condition where the oral cavity of the infant fails to gain complete closure, therefore, rendering the mouth and the nasal passage open. A cleft presents itself in various formations and is unique to every child.

Statistically, 1 in 800 infants in India is born with a birth anomaly called 'cleft lip and palate'. A condition that manifests itself in various presentations. According to some organizations, there are over 2 lakh babies born with this condition worldwide and it is the second most common birth anomaly in the world.

Hundreds of babies in India are born to unaffording families, hence we endeavor to work with hospitals and cleft support foundations directly so that the unaffording cleft community can receive Boond® at an early stage at a heavy subsidy or no cost.

Solution: The first in our portfolio, Boond® is a 'Paced' feeding device, that maintains a balance between the quantity of feed and the pace at which the feed is dispensed. Its various attachments ensure that the baby is fed by safe feeding practices. The feeder is intuitive to the caregiver and sensitive to the babies' unique cleft anatomy. Boond® will support cleft babies from day one until their cleft repair surgeries are completed at the end of year one.

Its various attachments help feed cleft babies from day one, through post-surgical feeding and up until palate repair.

Currently, a lot of cleft parents struggle to feed their babies with a 'vaati and chamcha' or other complex feeding devices. With our ergonomically designed product Boond®, we hope to bring some relief in the process and effectively support babies as well as their parents.

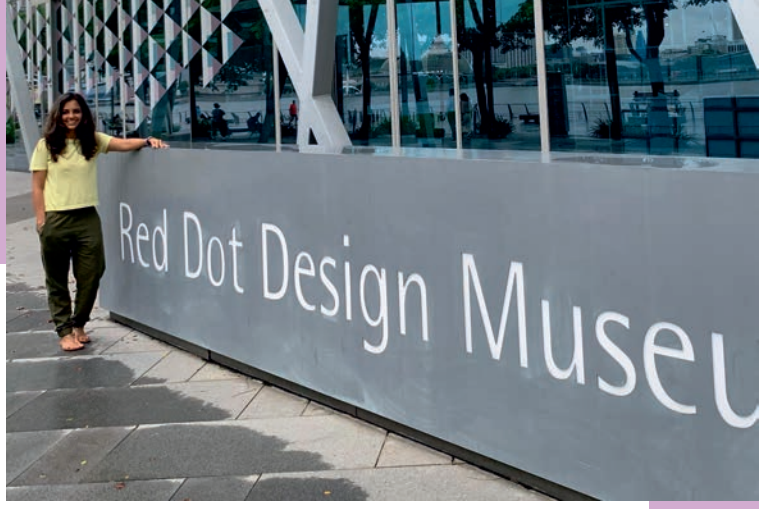
Impact on Grassroot development: Provide evidence of the impact of your social innovation practice and explain how your innovation has made a positive difference in the lives of the intended beneficiaries.

Implementation and challenges: Currently, our challenge would be getting our foot in through the doors of the foundations that service a large number of cleft populations.

We want to also work with the Public health or the Women and child welfare department of the government of India to be able to make Boond® available at hospitals & cleft repair camps.

Performance: Our slow-growing repeat orders and recent involvement with Rotary Club Nagpur as well as ABMSS foundation, Bangalore are indicators of Boond®'s efficacy.

Sustainability and Future plans: Detail the steps that your start-up has taken or plans to take to ensure the sustainability of your social innovation practice. Describe in brief the future plan for the start-up, including any plans for scaling up the innovation or expanding into new areas.



Associations & Capacity Building: Associations with civil society organizations, women self-help groups, farmer producer organizations (FPO), etc. for social transformation and grassroot development.

Awards

- Lexis Design Award India, 2020
- CII Design Excellence Award, 2020
- Red Dot Design Award, 2021
- Mphasis Design Award, 2021
- Legasis World IP Day, Young Innovator of the year award, 2022

Contact Information:

Email : **boondfeeder@gmail.com**

Contact : **+91 9987757555**

Website : **boondfeeder.com**

LinkedIn : **/nameeta-sohoni-925b8b2?original_referer=https%3A%2F%2Fwww.google.com**

10. Shakti Wearables

Srishti Sharma, Founder

Overview: Shakti is India's first women's safety smart band that can electrify an attacker and sends SOS messages with a button press, it is India's first anti-rape device and has been made to prevent women-centric heinous crimes like rapes, eve teasing, domestic violence, and more.

Solution: Shakti intends to not just speak about women's empowerment and safety but aims to realistically make Indian women independent in a true sense by giving the power of their safety in their hands. Shakti is a women's safety wearable that is a defensive accessory when in use fashion accessory/bangle when not. Shakti is a women's safety bangle that assists women's safety a user in 2 ways –

1. It electrifies an attacker when the user turns the button attached 'ON' and releases a small nondeadly current when comes in physical contact with the attacker while keeping the user safe due to its insulation inside.

2. It immediately sends your last detected live location to your nearby top 3 contacts via WhatsApp and text message.

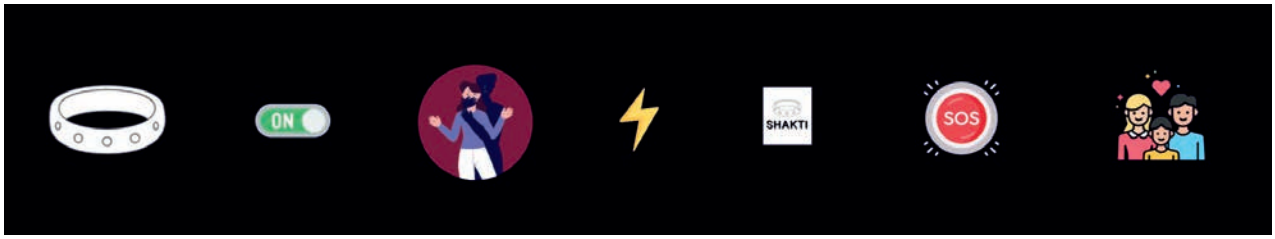
Impact on Grassroot development: Shakti aims to provide the basic right of safety to every Indian woman irrespective of their economic status hence Shakti is provided free of cost to the underprivileged women under CSR funds raised and at subsidized rates to the working class women that have to pay capacity

Implementation and challenges: The biggest challenge for Shakti was to build the invented technology in a wearable format like a smartwatch, a lot of time and money was invested, and post 16 months we were successfully able to invent our patented technology.

Shakti – Fashion Meets Safety

Performance: Market size - a product catering to more than 43% of India's population to one of the major problems of our country - women's safety encourage and support extended by various governmental bodies like WCD, women commission cell

Sustainability and Future plans: Technology always ensures sustainability. We do not intend to restrict ourselves to just one women's safety product rather aim to become a nonlethal weapon startup that innovates a series of street smart products to cater to multiple real-life issues like elderly fall detection, kid safety, electrical defense weapon for police, etc



Associations & Capacity Building: soft commitment with state governments, multiple NGOs working in women's safety, etc

Awards

- Asia's most innovative women entrepreneur of of the year 2020 by Yeforum.

Contact Information:
S-20/6 DLF Phase 3, Gurgaon , Haryana
Email : **sharmasrishti42@gmail.com**
Contact : **+91 9999939102**
Website : **shakti.digital**
LinkedIn : **srishti-sharma-469983135**

11. Swasthmanthan Meditech Pvt. Ltd.

Ms. Deepti Bhatnagar, Founder

Overview: Social innovation practice that your start-up is engaged in SWASTHMANTHAN MEDITECH PVT.LTD. is a company to pioneer a medical revolution that ushers in doorstep solutions for preventive, curative, and diagnostics services to populations in Rural and demographically remote locations through its DrLaBike - Portable Compact Pathology Lab Equipment with online Doctor Consultations. It is a unique diagnostic laboratory system designed in a box with an additional provision to mount it on a bike for on-site testing/analysis with digital recording. This product is researched and innovated by Accuster Technologies Pvt. Ltd. The product has potential advantages by way of technology, product, or process. Swasthmanthan Meditech provides solutions for diagnostics healthcare keeping in mind the challenges of rural India without depending on the urban workforce to solve them.

Social Challenges: Social Challenges in Rural India: accessibility to a diagnostic facility, portability of lab equipment, affordability of tests, awareness of diagnostics tests, availability of power to operate device, temperature controlled environment, a compilation of lab findings

Solution: Scientific Innovation through R&D led to Portable Compact Lab to provide On-Location Diagnostic test results. Around 102 tests can be performed.

ROBUST & CONVENIENT: A portable pathology setup that is strong & rugged and best suited for remote locations, disaster zones, and other field-based operations. It can be operated in a very small space. A cost-effective & convenient "Point of care" Testing solution saves on transportation costs due to advanced & Innovative Technology enabling minimal use of reagents. DrLaBike enables doorstep services of Portable Pathology diagnostic care which strengthen preventive healthcare resulting in the detection of an ailment in its early stages with simple treatment. Also relieves the patient load on next-level healthcare units. The Power consumption is 50 times less and also provides power backup through battery & solar panels offering 7-8 hours of power backup.

Impact on Grassroot development: We wish to quote a Healthcare scheme "Anemia Mukt Haryana" floated by the Government of Haryana which was assigned to Medanta Hospital for execution. Under this scheme, the population of 2-3 villages is being screened w.r.t Haemoglobin testing. After knowing the robust technology of DrLaBike and the potential for greater outreach, Medanta delegated the project to us for execution. The project has been ongoing and now they wish to increase the scope of testing Liver Function Test(LFT) and Kidney Function Test (KFT) also. The test findings were coupled with doctor consultations from community doctors.

Implementation and challenges:
Conventional Labs: If we can make a lab that is Lightweight, Compact, Portable, Power efficient, Cost-effective, Works as per Indian geological circumstance, Occupies the least space possible, and Reduce operation downtime

Challenges: Reducing Weight & Size Making it Rugged so it can be taken to a required field site

Reducing Operational Cost To find out what causes the high operational downtime & how to reduce it Our Technology addresses the various challenges namely geographical, infrastructure maintenance & handling, and electricity consumption, and brings affordable & viable solutions with accountable and quality monitoring systems.

Performance:

Low Operating & Maintenance Cost: The innovative technology makes it affordable to the mass population. Less power consumption, No special temperature conditions, and less requirement of reagents.

Accuracy & Reliability: The stringent quality control checks coupled with skilled manpower ensures accuracy and reliability leading to increased revenue generation.

Easy to Operate: The user-friendly device and procedures ensure quality and greater patient satisfaction with less turn-around time.

Regulatory Compliances: The device meets all regulatory norms and necessary certifications. e)Competitive in Pricing: the technology ensures test results at affordable prices providing the edge as similar services available in urban locations are available in rural with drastically reduced prices.

Patient Satisfaction ensures repeatability: A satisfied patient and Healthcare provider leads to the building of trust thereby ensuring repeatability and increase in revenue generation manifold.

Sustainability and Future plans: The unique & Innovative technology DrLaBike-Portable Pathology Lab equipment has been sold to more than 5000 DrLabikes to 100 Institutions PAN India and overseas. However, this is just the tip of the Iceberg. With more than 78% rural population deprived of Diagnostics facilities, the scope for aggressive rural outreach is the need of the hour. With the increase in heart, kidney & liver-related ailments among the rural population, the need for preventive diagnostic care is very essential.

To work as a Solution Provider, we have recently launched a Franchise-Model on a revenue-sharing basis to be scaled up on a PAN India basis:–

- Empower the Rural Youth with DrLaBike-an Innovative Technology and Provide Skill development to Rural Youth to be market ready.

With this Franchise model, the rural skilled Healthcare Workforce will impart advanced diagnostics tests at affordable prices within their native village instead of migrating to urban metros/cities.

- We plan to be a "One-stop solution" providing the DrLaBike Rural Franchise with Supplies to Operate the lab: Reagents & Consumables to operate DrLaBike
- Patient Management System [PMS]: Access to an application (app)-based Patient Information System [PMS] to login Incoming patients and retrieve reports at a later stage.
- Online Pathologist Support: to monitor the reports which are saved on the main server due to cloud-based technology. Marketing Support.
- Awareness about Lab Services: Hand-holding the new Lab Entrepreneurs and marketing their labs through various modes viz. banners, pamphlets, digital marketing, etc.
- Services to Hospital: Tie-ups with corporate hospitals & companies who wish to organize rural healthcare camps, who will save a lot of expenses on account of logistics, medical personnel, cost of tests, etc.
- Services to NGOs: Tie-ups with various NGOs who wish to organize rural healthcare camps Services to Doctors: Tie-ups with nearby doctors for prescription-based business.
- Health Packages: Floating various preventive Healthcare packages for Senior citizens, Expectant Mothers, Cardiac Care, etc.

Associations & Capacity Building: The DrLaBike labs are currently being operated by various reputed Institutions viz. Reliance Foundation, Tata Cares, Hans Foundation, Wish Foundation, etc., and serving rural/remote locations in close cooperation of Self Help Groups (SHGs), Civil Society & Farmer Producers Group (FPOs) to offer meaningful and lasting impact in rural communities

The SHG contributes to social transformation and grassroot development leading to improved health outcomes and economic empowerment.

Increased Accessibility: The diagnostics services reach deprived communities and provide trust and credibility to the pathology labs.

Empowerment of Local Communities especially women providing opportunities for skill development and income generation.

Grassroot Healthcare Status – Provides insights into the requirements and challenges of rural communities. Help to devise tailor-made tests for specific community groups.

Sustainability: Help build local demand with a steady flow of patients and revenue.

Awards

- Portable Compact Lab Equipment is validated by ICMR and many renowned Govt. & Pvt. Hospitals- AIIMS, Medanta, Fortis, etc. It is ISO & CE certified and US FDA approved.
- The scientific Innovation promoted by us was inaugurated by then Hon'ble President Sh. Pranab Mukherjee on National Technology Day [11th May 2013].
- The product specifications have been used as a benchmark and included as guidelines for free diagnostics initiatives launched by the Ministry of Health & Family Welfare (MOHFW).
- The Department of Science & Technology (DST) of the Government of India has showcased this product innovation to other countries in various events jointly organized by the Ministry of Science & Technology & Ministry of External Affairs.
- The various models of DrLaBike are listed on GEM Marketplace
-

Contact Information:

Plot.no.424, CMR Building, Ghitorni, New Delhi- 110030.

Email : **support@drlabike.com**

Contact : **+91 85278 95901**

Website : **drlabike.com**

LinkedIn : **drlabike**

12. Tenon Meditech LLP, Pune

Jaydip Deshpande, CEO

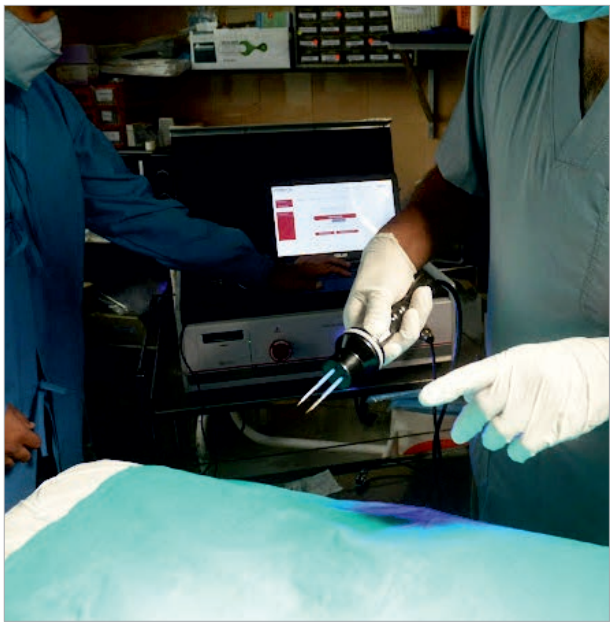
Overview: Out of 1.2 million new cancer cases every year, about 30-40 % are head and neck cases in India. This means about 400,000 or more new cases every year which are diagnosed late every year. Out of these, at least 1/3 can be treated using Electrochemo therapy.

Many of these cases are in stage 4 and no other treatment is offered currently. 'ECT' can be offered to them at every stage for tumor regression, less secretion, and blood loss, and in General better quality of life at all stages – less pain.

Oral Cavity cancer is found more in Rural areas and more so in lower strata of society – i.e. people coming from the lower-income group

Solution: Electro-chemotherapy is a combination of high voltage short duration electric impulses and low-dose chemo therapy. The application of electro-chemotherapy transiently changes the cell-membrane permeability of cancer tumor cells. Changed permeability results in a high uptake of chemotherapeutic drugs. It delivers good tumor regression, tumor pain management, and bleeding and secretions control. It's a short-duration safe treatment with no/ negligible side effects.

Impact on Grassroots development: Intended beneficiaries – Head and Neck cancer patients and other cutaneous and subcutaneous malignant tumour patients.



Many of these patients are benefitting from

- Tumor regression
- Reduction in pain
- Reduction in blood loss and secretion reduction
- In General Better Quality of life
- This can be given before or after - established modalities like surgery, radiation, or chemotherapy

Implementation and challenges: Though this is a predicate device the testing was a challenge and Tata Cancer Hospital, Mumbai helped us with this.

Performance: We are currently working on self-funding and Support provided by the Government of India for Start-ups.

This product was evaluated by DST and supported by them.

Sustainability and Future plans: We are currently working on the support by BIRAC for the development of Variable voltage support and the development of an appropriate applicator with electrodes for a certain type of deep-seated tumors like 'Gliomas' (Brain tumors), Colorectal cancers, etc.

Also different types of innovations in applicators etc

Associations & Capacity Building: We do not have any association with an NGO etc but this product provides the common man possibility of having a better quality of life

Honorable Shri Sharad Pawarji with Mr. Jaydip Deshpande at the Tenon Meditech Stall at the STP Exhibition, Pune.

Implementation and challenges: The major challenge we faced is hiring talent. We overcame the challenge by hiring mid-level people and training them to be efficient and experts in their field of work at the company.

Performance:

- **Lives Saved:** > 9.5 lakh poor patients benefitted
- **States Covered:** 11 states in 4 years
- **Investors:** IIT Kanpur, Social Alpha
- **Expansion Partners:** NHA PMJAY, MSInS

Sustainability and Future plans: Incredible Devices is focusing on developing as reprocessing brand. We are developing similar products which can reprocess almost all kinds of medical instruments.

We have expanded our range of products to ARS, and BDS and are in the process of developing a reprocessor for OT and ICU Instruments.

Associations & Capacity Building: Incredible Devices is incubated and supported by IIT Kanpur and TATA Social Alpha. We are backed by Millennium Alliance for Capacity Building.

Awards

- We were evaluated and provided support by Dept of Science and Technology.

Contact Information:

Shashi-Neel 7-8, 425/22 TMV Colony, Gultekadi, Pune 411 037, Maharashtra

Email : **Jaydip.deshpande@gmail.com**

Contact : **+91 98678 81682**

Website : **permeos.co**

13. Urdhvam Environmental Technologies Pvt. Ltd.

Rahul Bakare, VInit Phadnis, Dr. Vyankatesh Ghorpade, Ramchandran, Smita Bakare & 10+ MSc Hydrogeologists
Founders

Overview: Using IT, IoT, Robotics, and Technology as enablers Urdhvam develops innovative, affordable, and scalable products that would revive fast-depleting groundwater resources in India, thereby providing safe and sustainable water for drinking, domestic and irrigation needs of farmers and make villages/habitations sustainable for future generations.

Social Challenge: 80% of India depends on groundwater for Agriculture / Industrial / Domestic purposes. India has more than 5 Cr. Uncontrolled pumping rates and lower groundwater recharge rates fail low-yielding & dry/dead borewells. Resulting in farmer suicides, unviable businesses, drinking water scarcity & quality issues. In search of water, Borewells are drilled that tap deeper aquifer systems. Natural recharge of deeper borewell sources is very less and slow. Abstraction of groundwater through borewells using electro-mechanical pumps is very fast and hence this imbalance causes borewells to become seasonal or dry. Unregulated rapid pumping without any harvesting of rainwater and storage in deeper aquifers results in Borewells going dry and failing eventually.

Solution: BoreCharger is a smart, patented smart rainwater harvesting technique that undertakes “Angiography” & “Angioplasty” of an existing low-yielding or dead borewell and “perforates” impervious PVC or MS Steel casing pipe at ”HydroGeologically Appropriate” depth from inside using a robotic arm.

The topmost aquifer has a tremendous amount of porosity and is exposed to rainfall every year. It stores a large quantity of rainfall but cannot feed the borewell due to the impervious casing pipe. The BoreCharger technique allows water from the topmost unconfined aquifer to enter the borewell through the perforations. Bypassing the rock material this fresh water directly reaches deeper levels and stores water in the aquifers that feed water to the borewell. This direct injection recharge of the deeper aquifers increases the yield and quality of water given by the borewell. It potentially converts every borewell into a self-recharging structure thereby reviving dry dead borewells and increasing the water supply of low-yielding borewells.

Impact on Grassroot development:

Socio-Economic and Ecological Impact of BoreCharger:

1. Increases recharge rate of borewells 4 to 20 times compared to natural recharge
2. Potentially recharges 4 Lac to 80 Lac Litres of rainwater in the borewell per year
3. Increases water level in borewell by 4 to 20 m
4. Improves water quality by reducing dissolved salt content or salinity
5. Increases duration of water borewell water supply by 1 to 6 months
6. Reduces cost spent on Tanker Water.

Town Municipal Councils Impact:

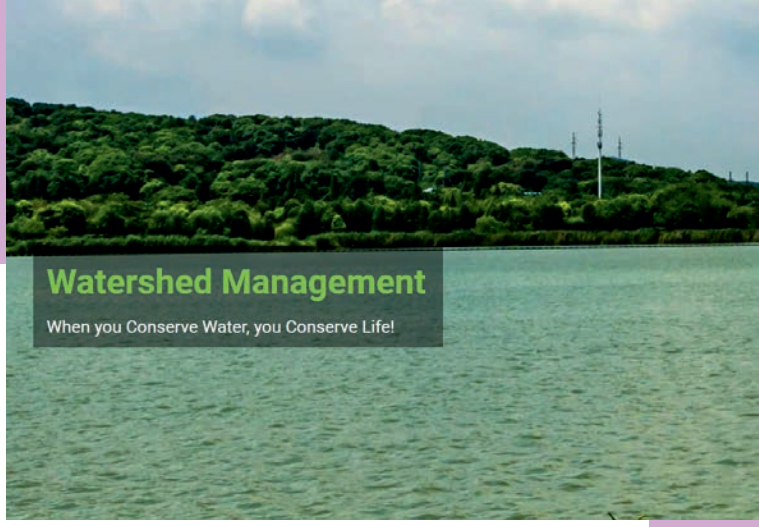
- Number of Borewells Recharged: 2200+
- Number of Farmers: 1539
- Number of Beneficiaries: 85000+
- Cumulative Potential Recharge: 287 Crore Liters

Geographic Spread:

- Indian States: Rajasthan, Maharashtra, Gujarat, Telangana, Karnataka, Tamil Nadu, Madhya Pradesh, Orissa, Haryana
- International: Benin, West Africa

Challenges: Challenges in Customer Acquisition, Marketing, Sales & Scale Up Strategy:

- Due to a lack of awareness & understanding of Hydrogeology (the science of Groundwater) and the behavior of Groundwater, amongst most of the stakeholders the decision-making cycles are longer. Hence Customer Acquisition Costs too are higher.
- Due to on-field operations that are spatially distributed logistical costs are higher
- Lack of Trained manpower in the field of Hydrogeology
- Sustainability



Socio-Economic and Ecological Impact of BoreCharger: 1. Increases recharge of borewell 4 to 20 times compared to natural recharge 2. Potentially recharges 4 lacks to 80 lakh liters of rainwater 3. Increases water level in a borewell from 2 to 10 m 4. Provides 3 lacks to 40 lakh liters of extra water to borewells 5. Improves water quality by reducing salt content 6. Increases duration of water borewell water supply by 1 to 6 months 7. Makes the borewell sustainable 8. 90% success rate in a revival of failed and low-yielding borewells 9. Improved irrigation & drinking water quantity & quality 10. Improved farm output productivity, production, and farm income 11. Reduction in salination of soil due to dissolved salts 12. Improvement in soil health 13. Lesser vulnerability of farmers due to weather shocks 14. Improved health of water consumers due to lesser dissolved salts, fluorides, etc. 15. Reduced pumping energy costs and competition for water 16. Reduced cost of tanker water supply and water treatment for urban population 17. Three to Five times cheaper than competitive Pit-based Borewell Recharge Structure (Costs Rs 50000 to Rs 200000) 18. BoreCharger implementation is a one-time operation and doesn't need any maintenance 19. Perforations made by BoreCharger have 7-10 years of life

Future Plans: Plan to address the problems:

- For early adoption & scale-up of BoreCharger Technology we are using the "Influence the Influencer" strategy. By collaborating with local partners such as NGOs, FPOs, SHGs, Agri Extension Service Providers, etc. who have built Trust and Social Capital over the years among the communities, the customer acquisition time and costs can be reduced
- Target wealthy, educated, needy farmers that can be easily converted and are potential influencers in the community
- To get into a new territory Language is a major problem hence having a local partner improves the probability of conversion.
- For faster customer conversion at scale "Word-of-mouth" is the best marketing strategy hence undertaking successful pilots helps in demand generation
- Higher logistic costs (due to distance from Head Office) and unavailability of the trained Hydrogeologists have driven us towards scale up strategy using Franchising:

Target Customers:

- B2C: Farmers, House Owners, Apartments
- B2B/B2B2C: Farmer Collectives, Milk Federations, FPOs, SHGs, Sugar Industries, NGOs, CSRs, Mining Companies, Environmental Consultancies, Agri Universities, Foundations, Rural Banks, Townships, Industries, Educational Institutes, Universities, Hotels & Resorts
- B2G: Gram Panchayats, Line Departments, Housing Schemes, Water Department, Groundwater Boards, Zilla Parishads, Collectorates, Municipal/Town Councils, etc.
- In Short Term – 1 Year >> Provision of Service through BoreCharger, Focus on B2B/Bulk Order approach, Low Cost for Bottom of Pyramid

Associations & Capacity Building: NGOs, CSRs, Foundations, FPOs, SHGs

Awards

- Maharashtra State Innovation Society, Columbia Global Center, Cliamte LaunchPad, FICCI, Pune
- International Center, Rotary International, Aegis Graham Bell, Indigram Labs - Adhunik Gram, Chimanbhai Gujarathi Trust, DBS Bank - Singapore

Contact Information:

Row House 5 & 7, Shroff Soleno, Opp Orchid Hotel, Mahalunge, Pune, Maharashtra 411045

Email : **rahul@urdhvam.com**

Contact : **+91 77740 34634**

Website : **borecharger.com**

LinkedIn : **rahul-bakare-b349322**

14. Vitalis Technologies LLP, Pune

Ms. Manjiri Deshpande, Partner

Overview: Giggles are our novel neonatal phototherapy eye cover with high safety and comfort features. Its unique bubble design allows a comfortable eye-opening space for the neonate. This design eliminates forced eye closure. Eye irritation and infections due to forced eye closure that has been long-standing issues in neonatal phototherapy eye protection gear.

Made in silicone, Giggles is a global first in terms of material. Silicone is, by its very nature, bacteria-resistant. Giggles are easily washable and can be safely reused multiple times for a single baby.

Solution:

- 'Giggles' is a novel neonatal phototherapy eye cover with a high level of safety and comfort features. It is for use on neonates having high Bilirubin levels and needing blue rays therapy.
- Its unique bubble design allows a comfortable eye-opening space for the neonate. This design eliminates forced eye closure. Eye irritation and infections due to forced eye closure have been long-standing issues in neonatal phototherapy eye protection gears.
- Made in silicone, Giggles is a global first in terms of material.
- Silicone is, by its very nature, bacteria-resistant. Giggles are easily washable and can be safely reused multiple times for a single baby.
- Giggles have been tested at government-approved facilities for blue-light opacity and skin safety. All these tests are very important to ensure that it blocks blue light and is safe for the neonate's skin. It has been clinically validated through a trial at Deenanath Mangeshkar Hospital, Pune, a reputed hospital in Western India.
- Giggles are recognized as innovative product. It is supported by the Science & Technology Park, Pune, under the Nidhi Prayas Programme (NSTEDB, DST) Govt. of India.

Impact on Grassroot development: This provides a local product and thus low-cost product for a medical situation in about 10% of fully grown babies and about 50% babies born in 7-8 month.

Implementation and challenges: Some babies developed red skin and for that purpose, we developed an elastic band that is not as strong as a silicon band.

Performance: This product can ensure that there is no medical problem with the kids and thus can ensure possibly better costs with much higher safety for all.

Sustainability and Future plans: We are coming out with different sizes for different kids and thus ensuring better safety for all new borns who undergo blue rays' therapy.

Associations & Capacity Building: We are trying to develop association with different NGOs etc to make it available 'Free' in government and charitable hospitals

Contact Information:

Shashi-Neel 7-8, 425/22 TMV Colony, Gultekadi, Pune 411 037, Maharashtra

Email **:manjiri.dharmadhikari.deshpande@gmail.com**

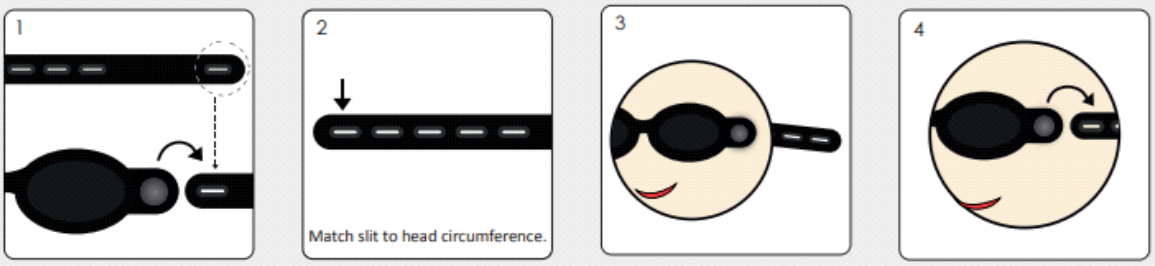
Contact **: +91 98678 81682**

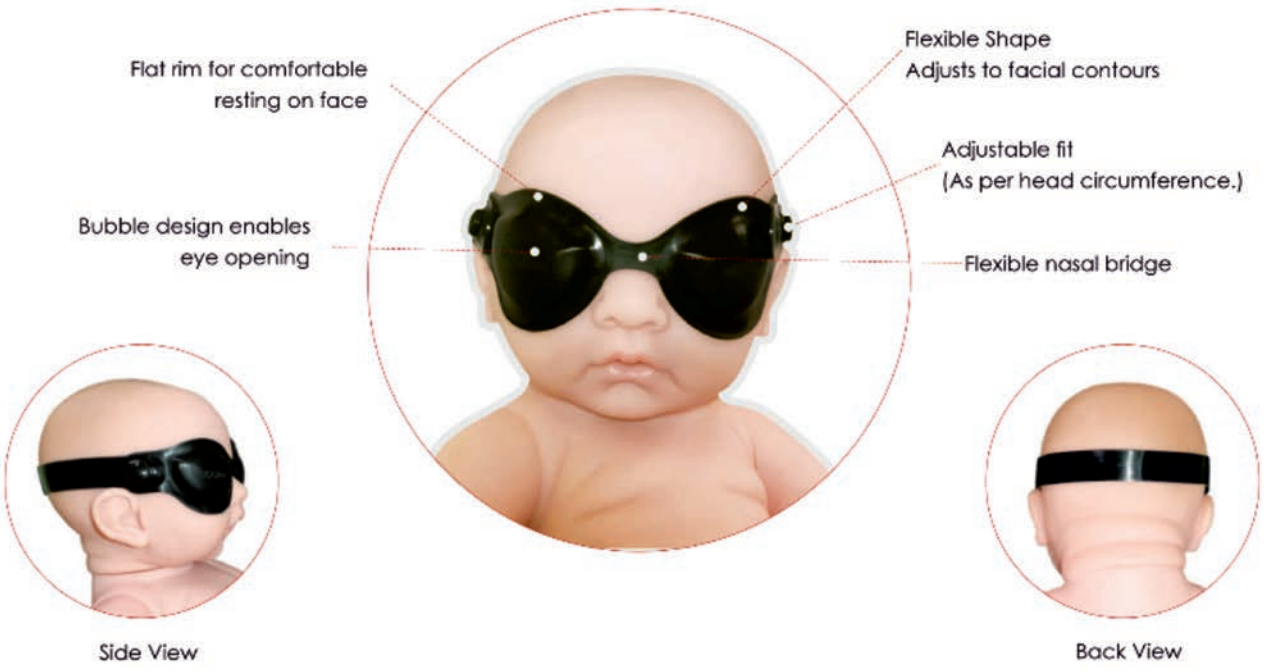
Website **: giggles-goggles.com**

Giggles

neonatal phototherapy goggles

EASY TO USE





15. Vrudhi Educational and Technological Services P. L.

Dr. Dhaval Mody, Founder-CEO

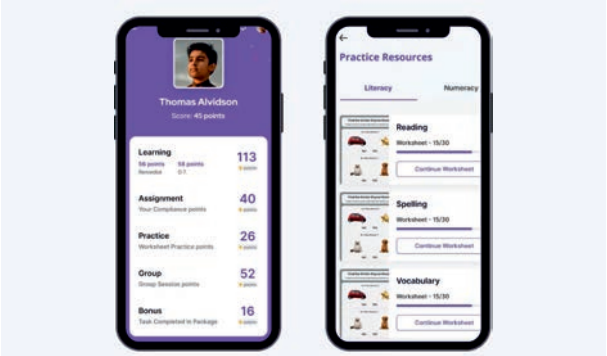
Overview: SpEd@Home is a dynamic startup passionately dedicated to driving social change through its innovative approach. We firmly believe in leveraging technology to address critical educational needs and create a positive impact on society. By focusing on special education, SpEd@Home aims to provide inclusive learning opportunities for students with diverse learning needs and empower them to reach their full potential.

Our core mission is to bridge the educational gap and ensure equal access to quality special education services regardless of geographical constraints. Through SPEED 2.0 our online platform, we connect qualified special education teachers with students who require personalized instruction and support. This virtual classroom environment allows for flexible scheduling and eliminates the limitations posed by physical distance, making education accessible to students in remote areas or those facing mobility challenges.

Our commitment to social change is reflected in its comprehensive approach to education. SpEd@Home not only focuses on academic development but also emphasizes the holistic growth of each student. By fostering a nurturing and inclusive environment, we encourage the development of social and emotional skills alongside academic achievement. This approach promotes a sense of belonging, self-confidence, and empowerment among students, contributing to their overall well-being and long-term success.

Solution: SpEd@Home ‘s innovation addresses many relevant issues for social change;

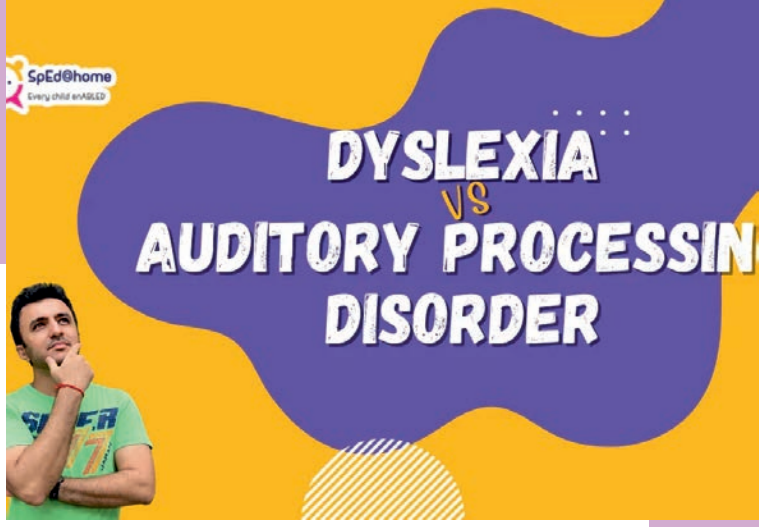
Awareness: SpEd@Home 's innovation increases awareness about the needs and rights of students with diverse learning needs. By actively engaging with schools, communities, and stakeholders, we raise awareness about the importance of inclusive education and the benefits it brings to both individual students and society as a whole. SpEd@Home educates and advocates for the understanding and recognition of diverse learning needs, reducing stigma and misconceptions surrounding special education. SpEd@Home 's solution promotes the acceptance of students with diverse learning needs within mainstream educational settings. SpEd@Home 's virtual platform breaks down geographical barriers and improves access to specialized care for students with diverse learning needs. SpEd@Home 's solution offers personalized instruction tailored to the unique learning needs of each student.



Impact on Grassroot development: we have worked with over 2,000 children from across seven countries. This wide reach demonstrates the global impact of our programs and services in providing inclusive educational opportunities to students with diverse learning needs. We are actively engaged with over 30 schools. This level of school engagement indicates the widespread recognition and adoption of our product and services within educational institutions.

The fact that we have presented two research papers in peer-reviewed journals showcases our commitment to evidence-based practice and the advancement of knowledge in the field of special education. By conducting and publishing research, we contribute to the broader educational community, disseminate best practices, and raise awareness about the importance of special education and social innovation.

Implementation and challenges: One of the initial challenges was reaching out to parents of children with special needs and convincing them to avail of online services. To overcome this challenge, we focused on raising awareness about the benefits of online education for their children. Some children with special needs exhibited behavioral issues and were less compliant during online sessions. In response, we developed an online occupational therapy assessment and



were less compliant during online sessions. In response, we developed an online occupational therapy assessment and implemented tabletop activities for occupational therapy. As most schools lack special educators, offering the SPEED platform to schools required training teachers to effectively utilize the resources. To bridge this gap, we created teacher training courses in collaboration with Missouri's State University and Hashu Advani College of Special Education. We identified that many schools lacked resource rooms, which are essential for providing specialized support to students with special needs.

Performance: Starting with a pilot of 13 children in 2020, the startup has now expanded to serve over 2,000 children in the last 30 months. This growth indicates the increasing demand for our services and our ability to reach and engage with a significant number of students. Additionally, our active engagement with over 30 schools and the training of over 2,000 teachers further demonstrates our wide-reaching impact. Our growth rate for FY 2022-2023 has been four times higher compared to the previous year, and we are set to achieve an even more significant 10x growth for FY 2023-2024. This revenue growth showcases our financial performance and our ability to generate substantial income. We have raised Rs 3,65,00,000/- from private investors and an additional Rs 30,00,000/- through Seed Fund India through Scitech Park, Pune.

Sustainability and Future plans:

Financial Sustainability: SpEd@Home recognizes the importance of financial sustainability to support its operations and continued growth. The startup has raised substantial funding from private investors and seed fund organizations. We will continue to explore additional funding opportunities to secure the resources necessary for scaling up their operations and expanding our impact.

Associations & Capacity Building: Civil Society Organizations (CSOs): SpEd@Home actively collaborates with CSOs that are dedicated to social causes and community development. These partnerships aim to leverage the collective expertise and resources of both parties to address the needs of children with differential needs and promote inclusive education. By working together, SpEd@Home and CSOs like the Rotary club of Mumbai Airport we can enhance their impact and create a more inclusive and equitable society.

Women Self-Help Groups (SHGs): SpEd@Home recognizes the crucial role played by women in community development. By providing teachers training most of whom are women, SpEd@Home aims to empower women by providing them with opportunities to contribute to the education and well-being of children with special needs. These collaborations involve training teachers in relevant skills, creating employment opportunities, or engaging them as support staff in educational initiatives. Such partnerships contribute to grassroots development and also foster women's empowerment and social change.

Contact Information:

6, Margaret House, Sheikh Mistry Dargah Road, Antop Hill, Wadala, Mumbai- 400037

Email : **dhaval.mody@vrudhiedtech.com**

Contact : **+91 9920619739**

Website : **spedathome.com**

LinkedIn : **drdhavalmody**


ECO

Social Innovation & Environment

Social innovation in the environment category for grassroots start-ups refers to the development & implementation of innovative solutions that address environmental challenges while creating positive social impact. These grassroots start-ups recognize the interconnectedness of social and environmental issues and aim to promote sustainable practices, conserve natural resources, mitigate climate change, and improve the well-being of communities. Grassroots start-ups focusing on social innovation in the environment category work at the intersection of social & environmental challenges. They recognize that environmental sustainability is crucial for the well-being of communities and strive to develop innovative solutions that promote sustainable practices, protect ecosystems, and create positive social change.

1. Ashaya Recyclers Pvt. Ltd.

Anish Malpani, Founder

Overview: We are a social enterprise that is focused on fundamentally increasing the value of waste through deep science, creating lifestyle products by recycling MLP (multi-layered plastic) packaging. After our research, we were surprised to find that in India, ~60% of all plastic is recycled thanks primarily to waste-pickers. But the 40% that is not recycled mainly comprises MLP.

This is mainly because it is considered "impossible" to recycle. It has 3-5 different types of materials including plastics, cellulose, and metal, and is high-volume-low-mass making transportation of it very expensive. This material is also inconsistent, making it hard to standardize any processes. Ashaya aims to solve the waste management problem in India, recycling MLP is a starting point to eventually tackle the larger waste management space in India, including waste-pickers in the process by providing them with a fair wage and a higher price for the waste raw material collected.

Revenue Model And Target Audience: We will be selling both B2C and B2B.

- Our B2C strategy around upcycled sunglasses (gateway product) is conventional. For this, our beachhead market is climate-conscious, affluent GenZs-Millenials (ages 24-30) based in tier 1 cities.

- From a B2B perspective, we are selling the entire vertically integrated solution to governments, foundations, and corporations. This includes the tech, the machinery, the design, the process, and the setup.

Solution: The identified social challenge in India is waste pickers living multi-dimensionally poor lives and climate change mostly affecting the poor due to the burning of unrecyclable plastic waste.

Our Solution: We chemo-mechanically upcycle metalized multi-layered plastic packaging waste (MLP) into premium products (like sunglasses) using rapid manufacturing (3D-printed injection molds) while incorporating waste-pickers into the process (50%-75%). We have fully integrated the supply chain and optimized it for waste-picker incorporation. Our overall upcycling technology has 3 concrete steps:

- Chemo-mechanical extraction of raw materials/building blocks from MLP: We use a proprietary process to extract raw materials from MLP where the metal and cellulose get removed, and the aromatic polymers (PET) get separated from the aliphatic polymers (PE, PP). We end up with 2 raw materials: a monomer of PET and a mixture of polyolefins (PE+PP).
- Chemo-mechanical upcycle of extracted materials: The extracted materials then get chemo-mechanically upcycled into high-quality materials. The monomer of PET gets repolymerized into regenerated PET and the mixture of polyolefins gets compounded into high-quality material.
- Rapid, custom manufacturing: These high-quality materials then get injection molded into premium products (like sunglasses and other sustainable lifestyle products). We use 3D-printed molds to do this.

We have designed the process so that 50%-75% of it can be handled by waste-pickers, thus incorporating them formally into the supply chain, while also working towards their long-term overall well-being.

Value Proposition: The high effectiveness and circularity of our MLP recycling technology set us apart. More specifically:

- We extract materials from MLP versus conventional end-of-life solutions, making our MLP recycling solution one of the most circular solutions out there.
- The quality (mechanical properties) of our upcycled materials is far superior to other MLP recycling tech and is comparable to virgin plastics.
- Our process is robust. It is built to handle almost all types of contamination including up to 5%-10% of Tetrapak, metalized paper plates, PVC, and any quantity of all other mono-plastics such as PP, PE, and PET.

Impact on Grassroot development: We involve waste-pickers in our innovative recycling process, providing them with 2x-3x higher wages, and believe that a higher wage won't eradicate poverty from India, this is why we are in association with Kashtakari Panchayat for donating 10% of our profit

- margin to provide scholarships for the waste-pickers children, recently 14 children will get a scholarship from sales of our beta program. We have hired 5 full-time waste-pickers giving them training and dignified work. We pay a 3x premium for the waste directly to the waste-pickers for the waste that is not recycled.

Implementation and challenges: When we first started in India, our attention was drawn towards the poor waste-pickers, who worked long dangerous hours without proper precautions and still lived multi-dimensionally poor lives. We found out that 60% of all plastic waste is recycled in India which is much higher than the global average of 9%. Our challenge was the question that how we can fundamentally increase the value of waste to uplift the poor. After 20 months of R&D, we managed to build our micro-pilot plant from scratch. We cracked the recycling of arguably the hardest type of waste (MLP) out there, and in a fashion that makes the new outputs (materials and products) more recyclable and for longer use. We landed up with a mixture of Polypropylene and Polyethylene and ran several tests both physical and chemical to check the tensile strength and elongation of our material. Now, the problem was material distribution because in B2B no one orders 5kg of material, which is our current capacity. So, we came up with a solution to follow a B2C model and make sunglasses out of our material, as a proof of concept. The actual finding here was that our B2C demand increased our material value as we started receiving offers from Lenskarts and Titan eyes of the world. Also, the B2C launch gave us a chance to receive feedback on our sunglasses as well as our material quality.

Performance: We launched our beta version on 16th Feb 2023 and received instant market validation by selling 500 sunglasses in just 6 days. 50 orders of our new improved sunglasses launching in June 2023 have already been pre-paid. We also went viral on LinkedIn and Instagram and have currently spent Rs 0 on marketing costs. To date, we have recycled 265 kgs of non-recyclable plastic, and have patented our technology. We have generated Rs 12 lakhs in revenue within just 2 months. We are also looking to commercialize our tech for not just MLP but all plastics (and eventually all waste) through decentralized recycling centers that employ waste-pickers who contribute 50% - 75% of the entire process. And our long-term goal is to work with all types of waste while formalizing and empowering the informal sector (more here: https://ashaya.in/utopia).

Sustainability and Future plans: Despite the rigorous chemical process, we have achieved breakthroughs in scaling the business by reducing the manufacturing cost of the raw material through consistent R&D work. We are currently in the process of finding the right investor/partners to provide cheaper raw materials to further reduce the cost of manufacturing and raise a round of funds as well. We believe that our vision can be accomplished by selling our material in a B2B model. Since MLP (multi-layered plastic) cannot be available all in one location, our long-term play is derived through setting up decentralized manufacturing units all over India, with R&D labs at centralized locations to consistently improve the lifecycle of plastic and support this complex socio-economic and environmental problem.

Associations & Capacity Building: We collect our waste raw materials from Swach Cooperative and Kagad Kach Patra Kashtakari Panchayat (KKPKP). We also hire and train former waste pickers in our supply chain.

Awards

- PMC Swach Technology 2022 Award
- TECHTONIC
- AIC ISB Startup India Seed Fund
- Shortlisted in the Top 20 in the 2021 India plastic challenge run by the govt of India.

Contact Information:

Gala A56, Pavana Industrial Complex, S-34, MIDC, Bhosari, Pune – 411026

Email : **anish@ashaya.in**

Contact : **+91 9082984789**

Website : **without.live**

LinkedIn : **company/ashaya/**

2. Bi-Sons Pvt. Ltd.

Lalbiakzuala Ralte, Founder

Overview: Bi Sons Private Limited is an organization driven by a mission for sustainable growth and optimum utilization of the resources available. We derive this idea from local observation and research and successfully turned it into an enterprise. Bamboo is our core industry and we are in the development of machinery and technology to process bamboo to be more specific Bi Sons Private Limited produces bamboo stick machine which is used for manufacturing agarbattis. With this machine, we want to reduce the human labor in the whole process of agarbatti making, therefore, agarbatti manufacturing units are ideal users of our machine and we want to enlarge this enterprise due to the availability of ample amounts of bamboo in the region and the ever-growing market of global agarbatti making. We also aim to create micro entrepreneurship for the unemployed by which they can produce bamboo sticks and sell them to agarbatti manufacturing units in bulk. This business plan is know-how about the organization and its future ambitions.

Solution: India is a nation of diverse cultures, traditions, and religions, where people speak numerous languages and follow varied customs. Despite such diversity, one common thread that binds all communities together is the use of agarbatti or incense sticks. These fragrant sticks hold a special place in the hearts of the Indian people and are used in places of worship, religious ceremonies, and social functions such as weddings and festivals. The fact that agarbattis are ubiquitous in India speaks volumes about their importance. Incense sticks are an integral part of religious practices in India and are believed to purify the air and infuse positive energy into the surroundings while dispelling negativity. They are used in various religious ceremonies and rituals across temples, churches, mosques, monasteries, and other sacred spaces. Over the last decade, the Indian incense sticks market has experienced exponential growth and currently caters to over ninety countries worldwide.

The market for agarbattis continues to expand in India and globally, driven by the increase in the quality and variety of products. As the popularity of agarbatti continues to grow, it remains an essential part of India's rich cultural heritage.

India stands tall as one of the world's largest manufacturers and exporters of incense sticks, surpassing other major players such as the USA and Brazil.

Impact on Grassroots development: The incense stick machine industry is a thriving billion-dollar sector in India, with a Compound Annual Growth Rate (CAGR) exceeding 10%. India is also the global leader in this industry. However, due to quality constraints and the absence of processing units for raw materials, locally available resources are sometimes overlooked in favor of imported ones, particularly bamboo sticks, which are often sourced from countries like Vietnam, Myanmar, and China, among other Southeast Asian nations.

Pain Points:

- Inefficient technology for standardizing incense stick output.
- Uneconomical available technologies.
- Transportation and servicing challenges due to Northeast India's unique terrain.
- Natural resources underutilized

Implementation and challenges: During my time as a part-time instructor under World Vision India, the first challenge was the plight of the Agarbati Stick. Manufacturers, as the labor rates in the state (Mizoram) were high as the industry suffered a great setback in making ends meet. These Agarbatti Stick collectors approached us to design a portable machine to make the sticks from bamboo. I have no machines nor funds to take up this project even though I was motivated, so I gathered all my available sources by begging, borrowing, and requesting people to have workshops till my dreams become a reality.

The first machine was a failure, so it had to be discarded. The second was somewhat operative but this process had to undergo two stages viz. slicing and splitting, so, two machines were required. I then combined these two machines into one and was Successful.We also developed many other machines, including the Arecanut processing machine, which is used by many families for their livelihood. Not only in India but also in Myanmar and Bhutan, many people are using it for their livelihood. The machine can be easily used by the disabled and the elder.

Performance: Bamboo, with its abundant resources, has the potential to generate significant income for the entire nation. The Indian government has taken several measures to tap the full potential of bamboo and its processing, which could generate large-scale employment opportunities. Lalbiakzuala Ralte, the founder of Bisons Private Limited, has developed a manually operated incense stick machine that produces bamboo incense stick machines at a lower cost. The machine has a substantial market demand in India, Asia, and beyond, making it imperative to pursue such a project with utmost dedication. This project has the potential to uplift the economic conditions of the country, particularly in rural areas, by providing more livelihood opportunities.

Sustainability and Future plans:

Vision: Our vision is to establish Northeast India as the foremost supplier of bamboo sticks for agarbatti production.

Mission: Our mission is to empower the people of Northeast India, beginning with Mizoram, by providing affordable and eco-friendly technologies.

Quality Policy: Our primary objective is to reduce regional imbalances, while our core value is to create economic prosperity in less-developed areas.

Associations & Capacity Building: Bi Sons Private Limited will make the machine available to Indian consumers starting from the Northeastern part of the country and then moving westwards. Moreover, bamboo stick making is not only limited to the geography of India. The presence of bamboo is visible vastly in China, Myanmar, Thailand, Laos, and other Southeast Asian nations. Making our machines available at these places is our long-term vision. If we can place our machines exactly where the bamboo is harvested it will result in the reduction of wastage and cost of transportation for the bamboo processing units making it more profitable.

Awards

- In 2012 I was awarded "Best Bamboo Product Award (State)
- In 2013 I was awarded the 7th National Grassroots Technological Innovation and Traditional Knowledge Award. This Prestigious Award was presented by the then President of India at Rashtrapati Bhavan.
- In 2016 I was selected for the "Third Batch of Innovation Scholar in Residence Programmed at Rashtrapati Bhavan" for 2 weeks. My works bags a place at the Rashtrapati Bhavan Permanent Exhibition Hall among the very few others.
- First Prize in the Idea Category (Aizawl District) of the indigenous Grassroots Technology & Innovation competition in 2016.
- Second Prize in Prototype Category (Aizawl District) of the indigenous Grassroots Technology & Innovation competition in 2016

Contact Information:

Y-137D, Luangmual Vengthlang, Aizawl-796009, Mizoram

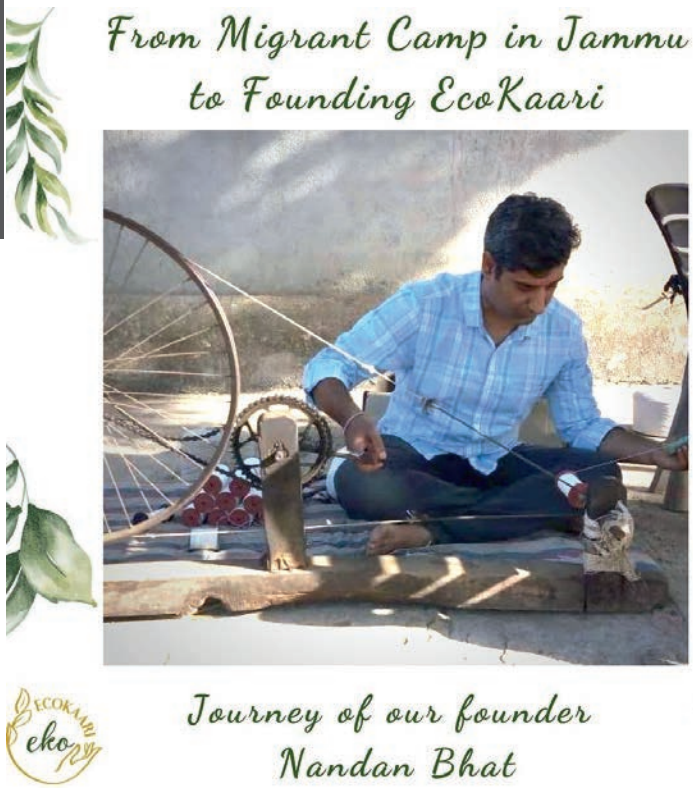
Email : **raltebz@gmail.com**

Contact : **+91 9436197191**

LinkedIn : **Lalbiakzuala Ralte**

3. EcoKaari Pvt. Ltd.

Nandan Bhat, Founder



Overview: About 9.4 million tonnes of plastic are generated annually in India. The waste plastic gets dumped in already mounting landfills, where it is burnt which pollutes the air. If left to itself, wind or water takes them 'away' to nearby water streams, then into the rivers, and finally into our world's oceans; in the process harming so many of our co-inhabitants!

EcoKaari is providing a sustainable solution to this waste problem through an innovative, socially conscious green upcycling process. EcoKaari aims to resolve waste management especially that of the nonbiodegradable and difficult-to-recycle waste plastic. We rely on ethical sourcing of waste plastic from waste pickers and emphasize women and youth employment that are from humble backgrounds. We solve the often-ignored, yet growing problem of waste plastic by UPCYCLING waste plastic into the beautiful, handcrafted fabric using the traditional CHARKHA (spindle) and HANDLOOM.

Solution: EcoKaari is providing a sustainable solution to the often-ignored, yet growing problem of single-use waste plastic by an innovative, socially conscious green upcycling process in India. We solve the waste management problem by UPCYCLING single-use waste plastic such as plastic carry bags, multi-layered packs, glittery gift wraps, and old audio/video cassette tapes into beautiful, handcrafted fabrics using the traditional CHARKHA (spindle) and HANDLOOM.

We ethically source waste plastic from organizations that work with the waste picker community in Pune. Our entire weaving process is manual to enable livelihoods for individuals belonging to humble backgrounds. We are aiming to bring meaningful positive change through our empowerment programs for individuals who do not belong to the weaving community to learn and acquire new skills.

The Upcycled-Handwoven fabrics are transformed into various types of products.

What is innovative about your project?

EcoKaari's UPCYCLING waste plastic green process is unique as we use a traditional Charkha and Handloom to weave fabric from waste plastic which enables livelihoods for women and youth from humble backgrounds. Our artisans support their families financially and their children's education, or their education. During our weaving process we do not use any heat, chemicals, or electricity, thus not harming the environment, animals, and humans further. We ethically source waste plastic from organizations that work with the waste picker community in Pune because it provides an alternative earning medium for them. At present, we support 100 artisans who during this difficult period are financially supporting their families as many of their family members have lost jobs due to Covid19.

Impact on Grassroot development: EcoKaari believes that sustainable development is possible only when it begins at the grassroots level. We connect with the market first; the more we sell, the more livelihoods we support.

- 100 artisans who belong to humble backgrounds, support their families and education or both.
- We source single-use waste plastic from waste pickers which don't fetch them any monetary benefits. Our purchase of waste plastic from the waste-picking communities becomes an alternative to earning channel for them.
- Dialogues with targeted groups at an individual, educational institution, community, and corporate level via workshops, and seminars on waste disposal.

Implementation and challenges: We have shortlisted some of the challenges we are facing in reaching to wider market and scaling up our innovation which are listed below, - Cash flow issues continue - Processes are set but weak implementation - Systems and technologies are still being set - Financial planning/budgeting, Accounting, Legal, Low barriers of technology replication - No IPRs/Patent possible

Performance: Our product falls under the Handicrafts sector and the Fashion industry, which gives us a unique advantage in tapping both these markets. Handicraft market: The Global handicrafts Market reached USD 583.4 Billion in 2018 and was projected to double by 2024, expanding at about 11% CAGR because of the growing Commerce sector. In 2019, India exported handicrafts worth INR 128 Billion (USD1.67 Billion @ 1 USD = 76.8 INR), with an annual CAGR of 9%. Fashion Industry: Worldwide, the Bags and Accessories segment stood at USD 142.37 Billion in 2020, expected to grow by a CAGR of 10.8% to reach USD 214.3 by 2024, with an average revenue per user (ARPU) of USD 90.6. About 60% are females, and 60% are in the age group of 25-44 years. In 2020, only 26% market was online, set to rise to 37% by 2030. We are looking at capturing the above two markets and tapping into the wave of sustainability, eco-friendly products that consumers now want to use and invest in. Consumers also want to empower underprivileged individuals and support local businesses, which works to our advantage as the consumers become an internal part of our initiative and create a significant impact.

Sustainability and Future plans: Our company's next 12 months' plans are Social Impact: Generation of Livelihoods - We plan to double our livelihood impact by increasing the number of artisans from 25 to 200 by March 2023. Environmental Impact: Waste Plastic Offset: Currently, we upcycle approximately 1000 plastic bags daily. We would like to take it to 6000 per day and around 200,000 per month by the end of March 2022 Revenue: We're aiming at 3 CR from EcoKaari's Plastic Offset and Enabling Livelihoods Program by March 2023. Scalability: We are talking with several companies under their CSR initiatives to replicate our Plastic Offset and Enabling Livelihoods Program (domestic and international). If successful, we shall have five replications in the next year.

Associations & Capacity Building: We engage at different levels with our local partners/stakeholders. Our first activity of the upcycling process is waste collection, hence we have decided to partner with organizations who have the best capacity to do so and are themselves creating impacts on the Environment and the lives of Waste Pickers. Hence, we partner with organizations such as Poornam, Rudra, Sahaas, Sarasvati traders, Jalaram traders, and Kohinoor enterprises. They collect various types of plastic waste for us, including plastic bags/polybags, multilayered wrappers of biscuits, gift wrappers, and more.

Contact Information:

Warje, Pune, Maharashtra

Email : **nandan@ecokaari.org**

Contact : **+91 9702422111**

Website : **ecokaari.org**

LinkedIn : **company/ecokaari**

4. Gd Environmental Pvt. Ltd.

Ajit Gadgil and Abhijit Datar, Founders

Overview: We work in the waste management sector benefiting society by stopping landfill and generating employment in the unskilled sector with good pay jobs.

We make value-added products like a drop in fuel (Bharat VI diesel substitute), and waterproof paint. Energy generation and overall, a pride to our workforce who were treated as ragpickers and now command respect in society as we were the only people working 24 hr in covid times. They can show our products changing society's attitude towards waste. We cater to industrial, municipal solid, and organic waste and are carbon negative.

Solution: We employ the technology of gasification, dehydration, and pyrolysis for 100% recycling of waste into value-added products.

Impact on Grassroots development:

- We have saved 210 tons of waste in Delhi from Landfill.
- We have cleared 1000 tons of landfill waste in Pallakad, Kerala.
- We have processed 5475 tons of waste in Hinjewadi, Pune
- We have processed 9125 tons of waste in Pirangut Grampanchayat till handover to a local body.
- Evidence is a live plant demo and a letter from the PSA office of validation.

Implementation and challenges: We started with the aim of turning plastic waste into oil. We started in 2015 and crude prices went all-time low. So, we started searching for free good plastic.

But found that of total municipal waste only 3% of waste inclusive of cardboard, glass, and plastic is recyclable. The rest 70% is mixed waste and 27% is hazardous municipal and dry waste.

This led to the development of gasification technology for turning all other waste into heat energy. We were able to generate fly ash bricks, fuel pallets, hot water, hot oil, and air conditioner application.

- We understood one thing waste generator has to pay for waste recycling.

- Every step is treated as a cost center and interdependent on others.

- A lot of patience is needed to prove the technology and your investments.

As of now, we are approved by the waste-to-wealth mission of the government of India.

We have zero landfill waste.

Performance:

- Waste processed is charged initially at Rs 4.2/kg for municipal and Rs 10/kg for industrial sorting. The end product is resold back to the waste generator at a below-market price
- Diesel price Maharashtra 92.5 our substitute Drop in fuel 72.5+18% GST, so companies save Rs 20/liter for genset use.
- Waterproof paint is 490 Rs/litre our price is Rs 290/litre so urban bodies can save 200 Rs litre on street, pavement paint.
- Organic waste to compost Rs 2/kg. Our Biochar is Rs 100-200 /kg

So as we make value-added products it is sustainable.

Sustainability and Future plans: We are in the initial stage of discussion with the Industry for the use of our equipment for people-centric, agricultural applications.

Associations & Capacity Building: We are associated with NGOs like Athak Foundation in waste disposal.

Awards

- We are chosen among the first 75 promising startups by the Government Of India.

Contact Information:

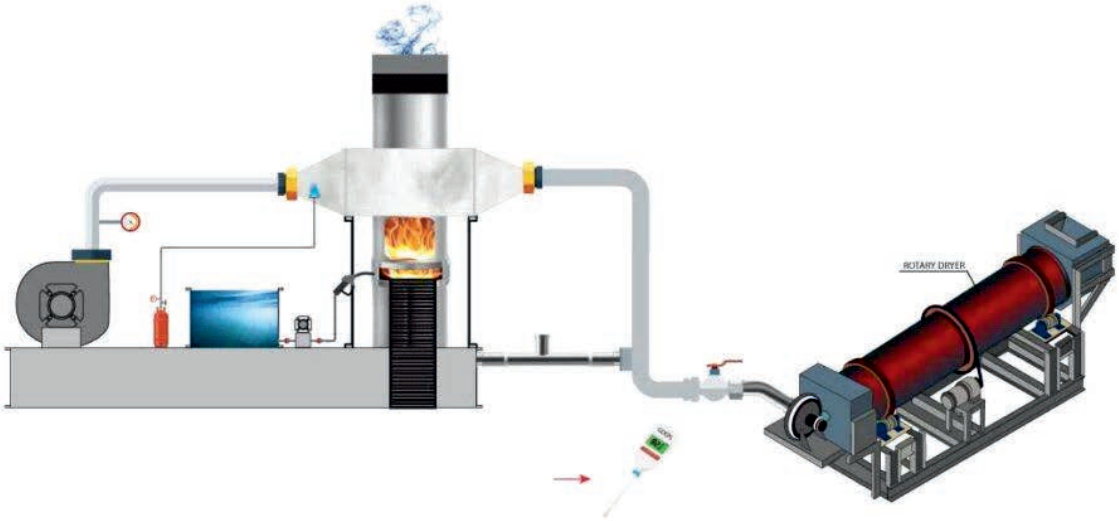
Flat no 114, Madhav Park, Bhelke Path, Kothrud ,Pune-411038

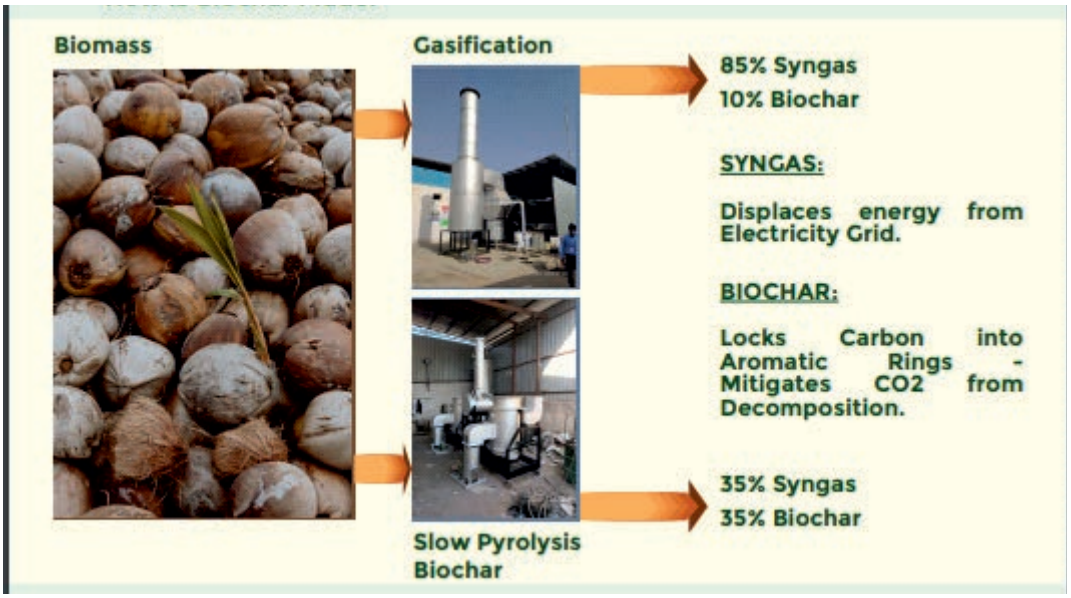
Email **: contact@gdepl.org**

Contact **: +91 9922752760**

Website **: gdepl.org**

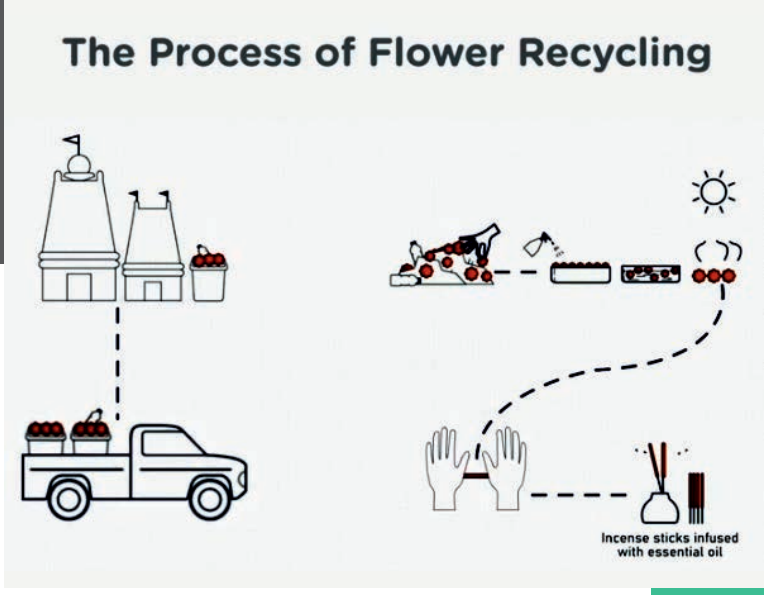
MULTIJET UPDRAFT GASIFICATION PROCESS





5. HelpUsGreen LLP

Karan Rastogi, Founder



Overview: 1.21 billion Indian population religiously showers flowers as a ritual at places of worship. These flowers are then dumped into the Ganges as a gesture of belief. The religious discharge might sound like a speck in the ocean of tonnes of industrial waste but according to the UN, more than 80,00,000 metric tons of flower waste is dumped into the holy river choking the aquatic life and causing turbulence in the entire ecosystem. This amounts to a whopping 16% of the total pollution caused in the river Ganges. Sadly, today the Ganges is the 2nd most polluted river in the world, which affects 400 million people. With the enormous pollution levels, diseases like dysentery, hepatitis, and severe diarrhea continue to be the leading causes of child mortality in India. Harmful pesticides and chemical fertilizers like arsenic, lead, and cadmium used to grow flowers mixes with the water bodies making them highly poisonous (pH4.7-6.8)

Social Challenge: HelpUsGreen LLP addresses the social challenge of waste management and environmental pollution caused by floral waste from temples. In many religious institutions, large amounts of flowers are offered daily, leading to the accumulation of waste that is often disposed of unsustainably. HelpUsGreen LLP tackles this challenge by collecting floral waste and repurposing it into organic fertilizers and natural incense products. By doing so, the startup not only promotes responsible waste management but also creates sustainable livelihood opportunities for women in rural areas.

Solution: Karan Rastogi has a passion for business design that makes a direct impact on people's lives. He has always been inclined to do something meaningful in life with a mission to give back something to society. The seed of sustainability was sown while he was pursuing his master's from Warwick Business School where he was doing the thesis on sustainability practices of Fortune 500 companies. It was after returning to their hometown in 2012, he started a mission of "Zero waste to landfill" where he was successful in preventing 1 million pairs of shoes from landfill and implemented it in more than 500 schools across UP.

While he was in Kanpur, he used to visit temples regularly and there he came up with a unique idea of making religion sustainable. He was adamant to start a mission of keeping temples clean and empowering rural women.

Upon days of introspection or rather worry, a very pertinent question stuck in his mind. How can we prevent people from offering flowers into the river to please their 33 million Gods and Goddesses? Pondering over it day and night, he realized he CANNOT.

Offering flowers to Gods has been a tradition in the Indian customs and we are doing our best to preserve it irrespective of the damage it causes. We cannot change the religious sentiments of the people but we can change its repercussions on the society and environment. He believed that it was unrealistic to ask people to alter their faith so why not take an initiative that changes the way of flower disposal? The mission took a formal shape in 2015 when he founded HelpUsGreen® with his friend. The mission has been awarded by the UN and many other international organizations for its unique approach to Circular Economy.

Impact on Grassroots development: HelpUsGreen® is a perfect example of a social enterprise that is enabling the "circular economy"—an economy that is restorative and regenerative by design. The circular economy aims to keep products, components, and materials at their highest utility and value at all times while addressing deep-rooted economic, environmental, and social challenges via innovative processes and community engagement.

Since their incorporation in 2015, they have:

a) 'Flowercycled®' 7353 metric tonnes in temple waste to date

b) Saved more than 7300 kgs of chemical pesticide (>10ppm) from entering the Ganges

c) Provided direct Livelihood to more than 49 rural families whose income has increased by a minimum of 6 times

d) The project has attracted interest across the country thus highlighting the issue of "temple flower disposal"

e) In the manufacturing facility, the company provides the workers with all basic facilities like clean drinking water, Implementation

Challenges: HelpUsGreen® was established in 2015 with the concept of making religion sustainable. It is now a self-sustaining social enterprise that prevents the river Ganges from becoming a religious sewer by flower-cycling the waste from the places of worship and converting them into lifestyle products with the help of 49 rural women. Every day, HelpUsGreen® collects more than 2.5 tons of flower waste from the places of worship in and around Kanpur and converts them into lifestyle products like organic fertilizers, aromatic sticks, and colors.

COVID-19 was the best time for business. It helped them to think deeply about how they can reduce waste and benefit the community by creating a circular economy. HelpUsGreen® collected flowers directly from the farmers as they did not have a market to sell. Since its inception, HelpUsGreen® has helped stop (2.4 tonnes/day) flower waste going into the river and polluting them. Being a social enterprise, they have been working with underprivileged women, providing them basic hygiene facilities at the workplace along with basic minimum wages as per government norms and training to give our clients hand-crafted aromatic sticks.

During Covid-19 HelpUsGreen® collaborated with the Uttarakhand and Karnataka government where they provided online training sessions to the farmers under the project Sustainable Flowers. Under this initiative, they taught the farmers about sustainable farming and helped them to generate income by developing final products such as incense sticks, dyes, and herbal Holi colors. Sharing a link here to get an insight into collaboration with these two states.

HelpUsGreen have been constantly promoting zero waste and to do so they also launched seed paper packaging as it becomes impossible for devotees to throw away something featuring Gods. To help with the dilemma, HelpUsGreen® developed a new range of incense packaging that uses seed paper made out of garment waste with basil seeds infused in it. Sharing a YouTube link that will help you understand our product even better.

Sustainability: HelpUsGreen LLP is committed to promoting sustainability through its operations. The startup collects floral waste from temples, which would otherwise end up in landfills or water bodies, and transforms it into organic fertilizers and natural incense products. By recycling and repurposing floral waste, HelpUsGreen LLP reduces environmental pollution and promotes sustainable waste management practices. The use of organic fertilizers also helps in promoting chemical-free and eco-friendly agriculture.

Future Plans: HelpUsGreen LLP has ambitious plans for the future. The startup aims to expand its operations and reach more temples across India to collect floral waste. By scaling up its activities, HelpUsGreen LLP intends to have a larger impact on waste reduction and environmental conservation. Additionally, the startup plans to explore new product lines and market opportunities to further promote sustainability and generate livelihood opportunities for women in rural areas.

Performance and sustainability: HelpUsGreen LLP has demonstrated strong performance in both social impact and sustainability. Since its inception, the startup has collected significant amounts of floral waste, preventing it from polluting the environment. By converting this waste into organic fertilizers and incense products, HelpUsGreen LLP has contributed to reducing waste, conserving resources, and promoting sustainable practices. The startup's commitment to sustainability is reflected in its operations and the positive environmental and social outcomes it achieves.

Awards

- United Nations Momentum of Change Award, Poland 2018
- GSG Millennial Global Honors 2018
- Fast Company World Changing Ideas 2018
- Forbes 30 Under 30 2018
- Unilever Young Entrepreneur Award 2017
- TiE UP Entrepreneur of the Year 2017
- TiE Global Spirit of Manufacturing for Social Impact 2016
- UNEP Young Champions of Earth 2017 (Asia-Pacific)
- Gifted Citizen 2017 by Ciudad le das Ideas Mexico 2017

Contact Information:

C-8, Panki Industrial Area, Kanpur-208022
Email : **karan@helpusgreen.com**
Contact : **+91 7607880044**
Website : **helpusgreen.com**

6. Pani Foods

Mayank B Nagori, Founder

Overview: Regular chewing gums are all made of plastic. They stick around in our surroundings for 100s of years micro fragmenting into microplastics- polluting our water & air. Moreover- regular gums are 100% synthetic- the colors, flavors & sweeteners are all artificial. Gud Gum is India's first 100% natural & biodegradable chewing gum. It has no artificial colors, flavors, or sweeteners. 100% plant-based. Not just good for you but even the planet.

Social Challenge: Chewing gums are the second most common form of litter after cigarette buds. These plastic gums, once spat cannot be recycled at all. It is the worst form of single-use plastic. Moreover, the education among users is zero. People don't know what they have been eating in the name of chewing gums and how harmful they could pose to be if not disposed of safely. Because of the harm to public property that these gums cause- countries like Singapore have banned chewing gums and the UK spends a good fortune to clean up these gums from public spaces.

Solution: Gud Gum is India's first 100% biodegradable chewing gum. Once spat, these chewing gums just disintegrate into our surroundings like vegetable peels. The gums are sugar-free & have no harmful artificial chemicals- this makes the gum safe to consume for people of all age groups and lifestyle constraints. Moreover, we creating a brand that just doesn't sell chewing gums but also helps create activism amongst people to be curious and conscious about what they eat & the plastic pollution around them. We want to educate consumers to make educated choices about the food they buy & eat.

Impact on Grassroots development: We have a team of 8 people from backward classes who we have trained to manufacture, pack & despatch orders. We have saved close to 700kg of single-use plastic in the form of chewing gums to stick onto the planet. We have educated close to 15000 users about the plastic in chewing gums & the plastic pollution around them. We are looking to develop the gum base in India which will give chikoo farmers an added source of revenue and help uplift their communities.

Implementation: We launched the product in 4 variants in April 2022. In a year of operation- we have sold over 5 lakh chewing gums to more than 20000 consumers. We are retailing in about 120 stores across the country & on 15 online marketplaces.

Challenges: The cost of the product is 2.5x the price of our competitors due to the costly nature of our ingredients. This is one big challenge to convert mass consumers to buy our product. Because of the plastic-free nature of the product, our packaging is also plastic free but that reduces our volume in the single-use chewing gum space. The majority of Indian buy single-pack chewing gum for 1-2 rupees but finding a plastic-free alternative to launch our gums in that pack size is a challenge as well.

Sustainability: We have saved close to 700kg of single-use plastic in the form of chewing gums to stick onto the planet. We have educated close to 15000 users about the plastic in chewing gums & the plastic pollution around them.

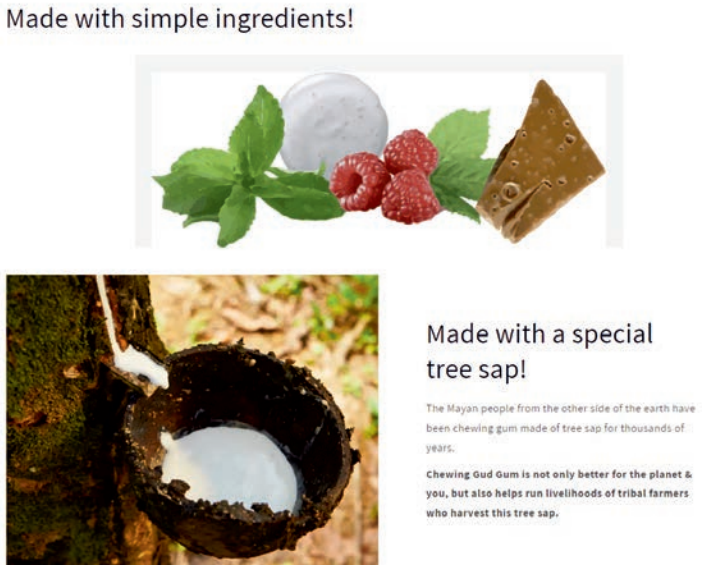
Performance & Sustainability: Our company has been scaling sustainably. We are a bootstrapped company and we have a monthly revenue rate of 6.5L (Net) as of April 2023. We want to grow 5x in the coming year with funding & partnership opportunities.

Future Plans: We want to develop the main ingredient- the gum base in India. This will increase revenue for chikoo farmers and open export doors for us. Moreover, we want to drive the upward trend in chewing gums sales by making value-added chewing gums with ingredients specific for sports, multivitamins, sleep, stress, etc.

Associations & Capacity Building: Incubated at NSRCEL, IIMB

Awards

- We have been incubated by the prestigious NSRCEL in the Indian Institute of Management (Bangalore) in the Circular Economy Cohort. Pernod Ricard India Foundation also awarded us with a grant of 5 Lakhs.



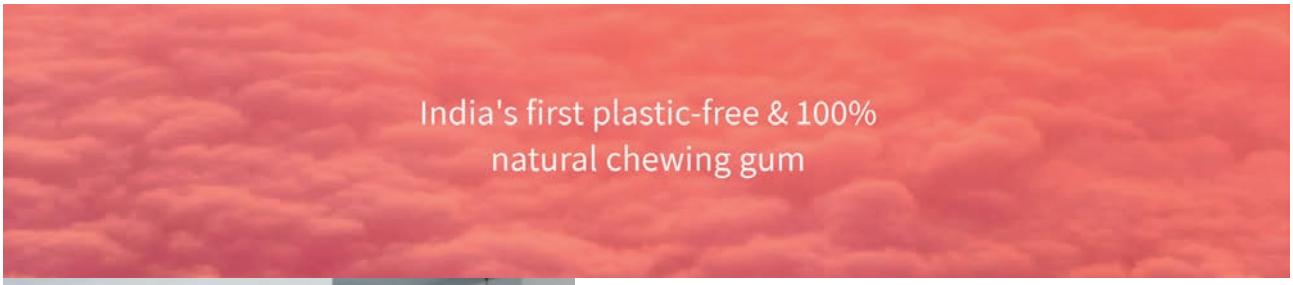
Contact Information:

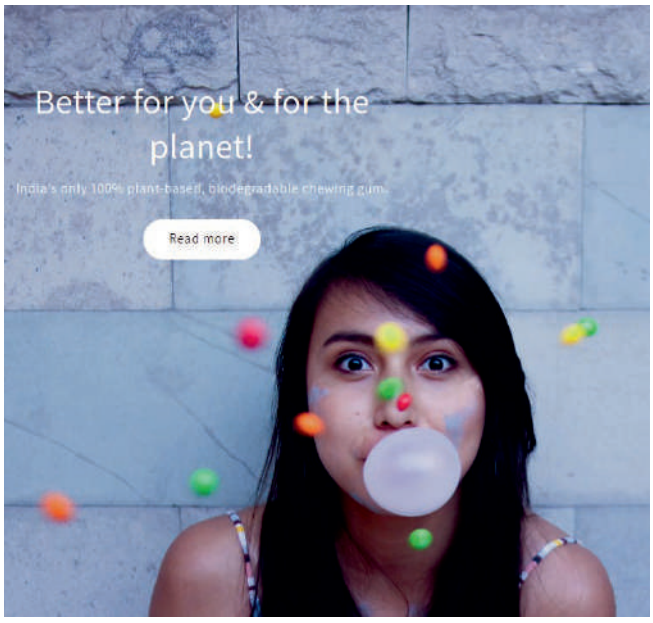
Pani Foods, #82, 1st Floor, 3rd Cross, NTY Layout, Bangalore-560026

Email : **founders@gudgum.in**

Contact : **+91 9900043427**

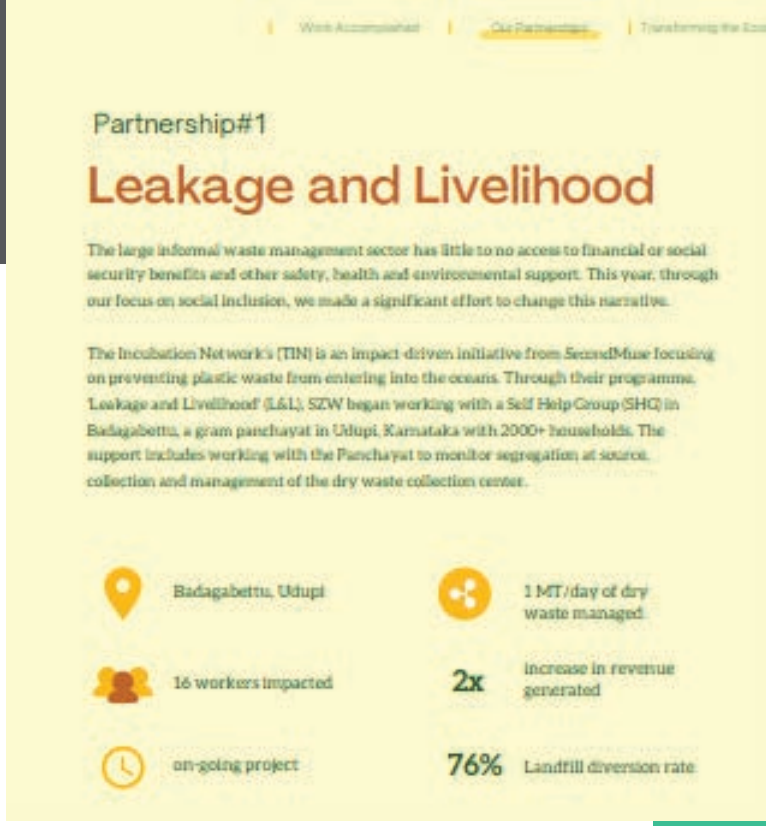
Website : **gudgum.in**





7. Saahas Zero Waste

Wilma Rodrigues, Founder



Overview: Saahas Zero Waste is an innovative start-up founded by Wilma Rodrigues. The company focuses on creating sustainable waste management solutions to minimize environmental impact. Saahas Zero Waste aims to transform the way waste is managed and disposed of, with a strong emphasis on zero-waste principles.

Solution: Saahas Zero Waste offers comprehensive waste management solutions that include the collection, segregation, processing, and recycling of waste materials. They work closely with residential complexes, commercial establishments, and local communities to implement efficient waste management systems. The company utilizes advanced technologies and processes to ensure maximum resource recovery and minimal landfilling.

- Electronic waste management is a phrase that carries a lot of weight in the present-day context. Technology has made our lives easier, however, tech products have a limited lifespan – either because we consumers like our new shiny toys or because of planned obsolescence by the manufacturers. Once their utility is served, these products are often dumped along with other waste streams or sold to the informal processors of e-waste.
- The informal sector utilizes crude extraction and recycling methods, which release harmful toxins in the open environment leading to the deterioration of nature and human health. Consumers must ensure that their e-waste disposal is done responsibly and scientifically through authorized channels.
- Saahas Zero Waste is one of the few e-waste management companies in Bangalore that is working towards scientific and sustainable disposal of electronic waste.
- Under the E-Waste Management Rules, 2016, Saahas Zero Waste is authorized as a Producer Responsibility Organisation (PRO) to assist producers and manufacturers in fulfilling their Extended Producer Responsibility (EPR). We do this by establishing a true reverse logistics chain for e-waste from the end-consumer to formal e-waste recyclers.
- Impact on Grassroots development:
- Saahas Zero Waste has a significant impact on grassroots development. By promoting the principles of zero waste, the company encourages individuals and communities to adopt sustainable waste management practices. This leads to reduced pollution, improved sanitation, and the creation of green jobs at the local level. Additionally, Saahas Zero Waste actively engages with communities to raise awareness about waste management and environmental sustainability.

- 32,222 MT of waste managed

- 76,876 MTCO eq. of GHG emission reduced

- 16K+ MT of plastic recovered from coastal regions

- 65000 KG - Waste diverted from landfills every day

- 37400+ MT CO2e - Greenhouse gas reduction every year

- 252 People employed from the lower socio-economic groups

Implementation and challenges: The implementation of Saahas Zero Waste's solutions involves setting up waste collection centers, implementing segregation mechanisms, and establishing recycling facilities. The company faces challenges such as changing people's behavior and mindset towards waste, ensuring effective segregation at the source, and managing the logistics of waste collection and processing. However, Saahas Zero Waste tackles these challenges through community engagement programs, awareness campaigns, and continuous improvement of its operational processes.

Performance: Saahas Zero Waste has demonstrated excellent performance in waste management. They have successfully implemented their solutions in numerous residential complexes, commercial establishments, and municipalities. By adopting a holistic approach to waste management, they have achieved high rates of waste diversion from landfills and significant resource recovery. The company's performance is measured through metrics such as waste reduction, recycling rates, and customer satisfaction.

Sustainability and Future plans: Saahas Zero Waste is committed to sustainability and has long-term plans for expanding its impact. They aim to collaborate with more communities and organizations to implement effective waste management systems. The company also focuses on research and development to explore innovative recycling technologies and processes. Saahas Zero Waste envisions a future where zero-waste practices are the norm, leading to a cleaner environment and a more sustainable society.

Associations & Capacity Building: Saahas Zero Waste actively collaborates with government bodies, non-profit organizations, and industry stakeholders to drive change in waste management practices. They participate in capacity-building programs to train individuals and organizations on efficient waste management techniques. By fostering partnerships and knowledge sharing, Saahas Zero Waste contributes to the overall capacity building and development of the waste management sector.

A recognised member of the BCtA initiative

Awards

- Saahas was awarded the Swachh Best Practice Award by Swachh Bharat Mission and Daily Dump the Swachh Entrepreneur Award.

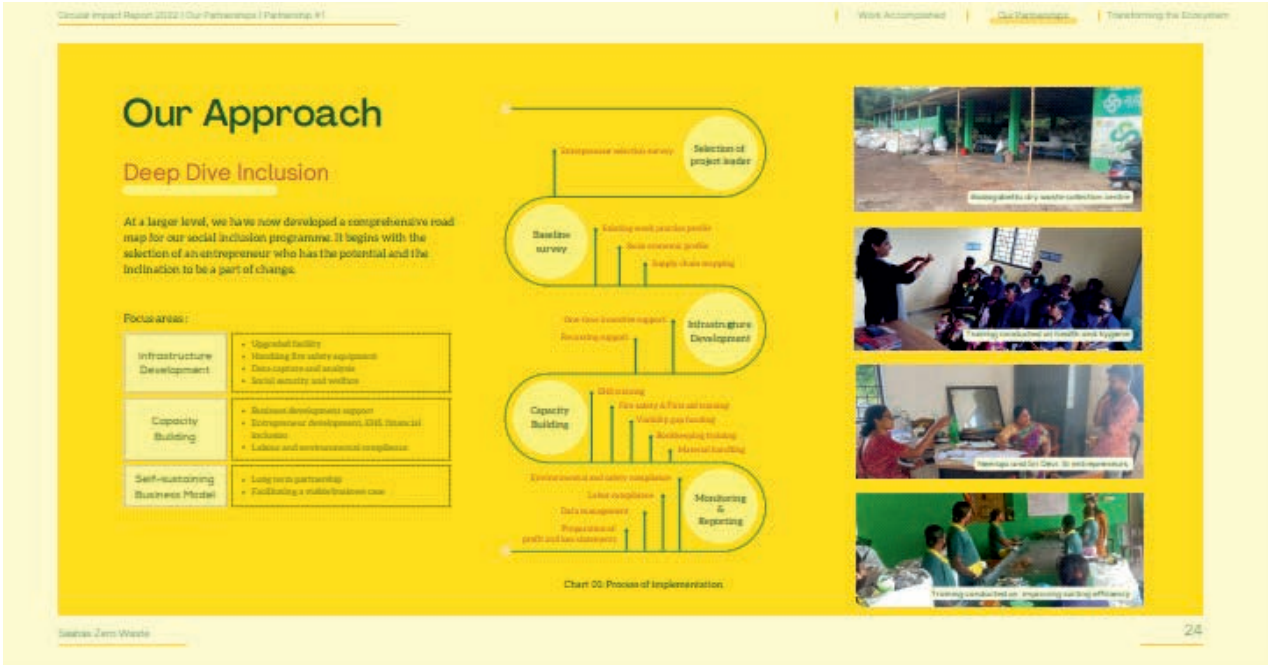
Contact Information:

#32, 5th B Cross, 16th Main Rd, MCHS Colony, Stage 2, BTM Layout, Bengaluru, Karnataka 560076

Email **: info@saahaszerowaste.com**

Contact **: +91 1800 258 6676**

Website **: saahaszerowaste.com**



Social Innovations to Promote Culture & Arts

Social innovations in the "Promote Culture & Arts" category for grassroots start-ups refer to the development and implementation of innovative solutions that support and promote cultural expressions, artistic creativity, and the overall development of the arts within communities. These start-ups recognize the power of culture and arts in fostering social cohesion, community engagement, and individual well-being. They work towards preserving cultural heritage, empowering artists, enhancing access to artistic opportunities, and promoting the transformative potential of arts. Grassroots start-ups focusing on social innovations to promote culture and arts aim to create a vibrant arts ecosystem within their communities. They understand that culture and arts play a vital role in shaping identities, promoting social cohesion, and fostering a sense of belonging.

1. Xomoy Innovatives Pvt. Ltd.

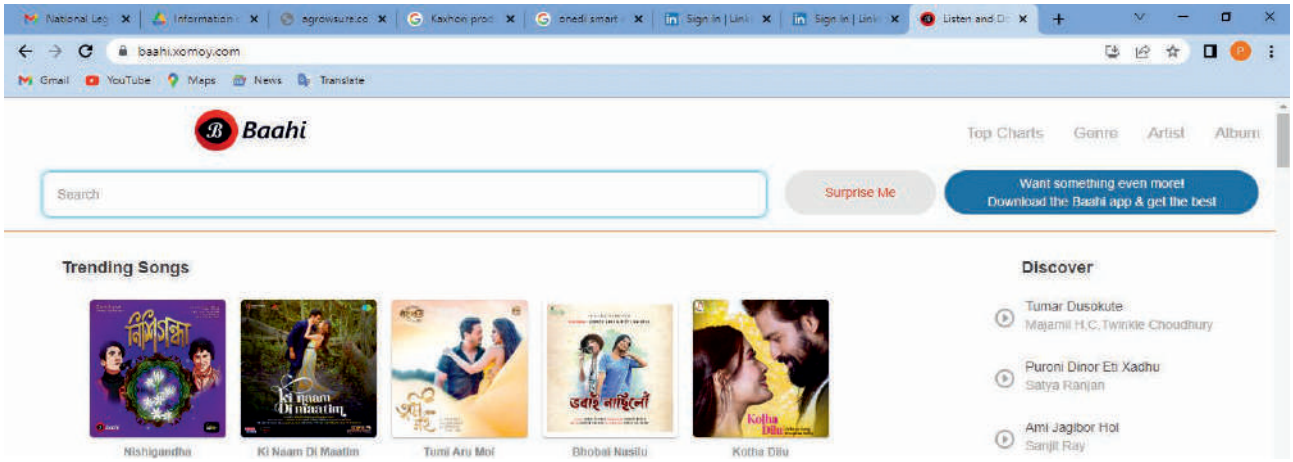
Mrinmoy Kumar, Biswajit Baruah, Krishanu Kashyap
Founders

Overview: Our brand - Baahi, is a regional music streaming platform focusing on the vernacular contents of Northeast India. We have been working with more than 7000+ artists, hundreds of record labels, and music distributors and bringing their songs and music under a single platform. We are providing a platform for regional artists to showcase their music to a larger segment of people and helping a budding artist to gain a good audience. We are also involved in bringing out lost golden music and songs digitally and preserving them for the future. We aim to promote our cultural diversity of North-Eastern languages in the music industry more broadly. Apart from music, we are also working on podcast services and online radio services in collaboration with local FM stations and podcast hosts. Our target segment is northeast India.

Solution: We have developed a dedicated Android app along with an ios app and a website with the latest technology incorporated with advanced AI. We have collaborated with various content producers, artists, and labels, and onboard them in our platform provides us with their songs and music in this we under a single platform have been able to provide 18000+ music and songs from 5 di□erent languages to date. In return, the content providers are also benefited from revenue share based on the number of streams. It will also create awareness of the different languages spoken in the North East and empower regional artists. We have also been producing our original content under the name Baahi Originals which are available only on our platform to stream.

Impact on Grassroot development: Baahi app has crossed over 150k downloads and has gained an audience from foreign countries as well, which has created a positive impact on the culture and languages of the region. We have been the representative of the songs and music from di□erent communities, and di□erent dialects. It has also helped artists and musicians reach better focus and a platform for a better audience along with better revenue. We have been able to bring various unorganized songs and music together under a single umbrella focusing on various cultures and languages.

Implementation and challenges: We have been facing some challenges to bring a few left over songs into our platform, due to the high cost of copyright as those songs are currently under companies outside the northeast region. Since we all were students at the time of the launch of the product without any outside income so funding was another problem for us, but fortunately, we have got two grants and seed funding. By improving our pitch deck and better innovation we have been able to get the grants and funding. Also with the help of funding money, we have been able to bring more leftover songs as well with improving connections and networks in the industry and companies involved in this. Still, there are a few leftover songs, we are working on those as well and hopefully, very soon we will cover 100% of the targeted songs from our current 85% availability.



Performance: Baahi has crossed over 150k downloads in both Android and IOS platforms. We also have 20k+ monthly website visitors. We have been rated 4.7 star by 3500+ users in the stores and have 18000+ songs from 7000+ artists and have made deals with 100s of record labels and music distributors like HMV Saregama, Inreco, RDC Media, Dhwani Records, etc. We are currently in the early revenue stage and generated revenue of 2,50,000.

Sustainability and Future plans:

- One of our goals includes the complete expansion to entire NE states and bringing the music and songs of every tribe, community, dialect, and language.
- Also, nowadays in our busy life, due to lack of time, even if we are interested in reading articles, stories, novels & other books we are unable to read them. So, we are working to convert various books into audiobooks to overcome this problem and bring more ways of engaging entertainment.
- We will also be producing 'original podcasts', just as we are doing with 'Baahi Originals', the exclusive contents of Baahi, which will be available only on our platform.
- We also have plans for music distribution and work to provide NFT's of songs on the Web
- 3.0 technology which will open up a new source of revenue stream and provide better sustainability ways. We are also working on new sources of income and revenue apart from our ad revenue and subscription revenue model like the promotion of songs, direct local ads, etc.
- Currently, we have also been testing out a new beta feature in our app of providing music event tickets and registration of dance/music reality shows, which is accelerating our revenue.
- Associations & Capacity Building:
- We will be promoting music and songs of various vernacular languages of di□erent ethnicities of our regions, thus relieving the dying languages and folklores and also preserving the lost songs digitally for future. This will be creating a huge impact on the social aspects of various regions. We are also helping content creators, musicians, artists, etc to gain popularity and also giving them a better way of revenue through our platform. Our audiobook service in the future will also be having a separate section for textbooks for school students, thus it will help our youngest minds to find education more interesting and a better understanding of their books. It will also be a great help for students without any private tutors to learn better. Along with our growth, we will be able to provide jobs in the technology sector in our region.

Awards

- Won the third prize in startup pitching at North East Startup Festival 2022
- Won several national-level competitions like Chunauti 3.0 and Octane.
- Part of the meity Samridh Deep Tech Acceleration Program, NRL Ideation, NEEDP, Assam Startup, STPI, etc.

Contact Information:

Dihinga Kalita Gaon, B.P Tiniali, Tezpur, Assam - 784154

Email : **contact@baahi.xomoy.com**

Contact : **+91 7002059686**

Website : **baahi.xomoy.com**

LinkedIn : **company/baahi**

2. Bhuyan Industries
(Maina Automatic Handloom)

Deepak Bhuyan, Founder

Overview: The Maina Automatic Handloom, designed and developed by Dipak Bhuyan, has gained widespread popularity among the weavers of North East India since its inception in 2017. This semi-automatic handloom has emerged as a game changer, offering a tenfold increase in speed compared to traditional handlooms commonly used in the country. Recognized by the Commissioner of Handloom and Textile, Govt of India, the Maina Automatic Handloom has become a preferred choice for weaving enthusiasts and entrepreneurs alike. The Maina Automatic Handloom has garnered attention not only for its speed but also for its quality handloom products. Weavers using Maina Automatic Handlooms can produce a wide range of textile products including sarees, shawls, stoles, scarves, and fabrics with intricate designs and patterns. The semi-automatic nature of the loom allows weavers to significantly increase their productivity, enabling them to meet the growing demand for handloom products in the market

Solution: Maina Automatic Handloom (MAH) has revolutionized the traditional handloom weaving process by offering significant advantages over common handlooms used in India and abroad. One of the most notable advantages of MAH is its exceptional speed, being ten times faster than traditional handlooms. This remarkable speed enables weavers to significantly increase their productivity and meet the growing demand for handloom products in the market. One of the key differences in the weaving process of MAH compared to traditional handlooms is the way the cloth is wound on the cloth roller. In traditional handlooms, weavers wind the cloth on the cloth roller manually, which can be time-consuming and monotonous. However, in MAH, the take-up and let-off motions of cloth and warp are performed mechanically through gears and pinions, eliminating the need for manual winding of cloth. This not only saves time but also ensures uniform winding of cloth, maintaining the required picking density of the fabric. Moreover, the mechanical take-up and let-off motions of MAH also help in maintaining a constant warp tension throughout the weaving process. This ensures consistent quality in the woven fabric, as the warp tension plays a crucial role in determining the strength, durability, and overall appearance of the finished textile product

Impact on Grassroot development:

- Employment opportunities: MAH has the potential to generate employment opportunities for skilled weavers at the grassroots level. With its higher production output, more weavers will be needed to operate the looms, which can lead to job creation.
- Increased income: By producing more cloth in a shorter period, MAH can help weavers increase their income. This can have a positive impact on the livelihoods of weavers and their families, contributing to poverty reduction at the grassroots level.
- Improved efficiency: MAH's efficient warp preparation process and automatic take-up and let-off motions can reduce the time and labor required for weaving. This can help weavers increase their productivity, leading to more income and better living standards.
- Technology adoption: By using MAH, weavers at the grassroots level can adopt new technologies and techniques for weaving. This can lead to better quality products, more diverse product offerings, and increased competitiveness in the market.
- Local development: MAH's space-saving design can enable weavers to set up workshops in limited space areas, contributing to local development at the grassroots level. This can create more opportunities for local businesses and entrepreneurs, leading to economic growth and development.

Implementation: One of the key challenges that we have faced during the implementation is Funding. The development and manufacturing of the MAH required a significant amount of funding. However, the handloom industry in India is often overlooked by investors, and securing funding was a challenge for the MAH start-up.

To address this challenge, we are trying to apply for government grants and subsidies. Another issue that we have faced is Marketing and Sales. The handloom industry is highly fragmented and dominated by traditional methods, making it difficult to convince weavers to adopt a new technology like the MAH. To overcome this challenge, we focused on building strong relationships with their customers and providing them with

their customers and providing them with exceptional after-sales support. We have also invested in targeted marketing campaigns, leveraging social media and word-of-mouth to reach potential customers.

Through the implementation of the MAH, the start-up learned several lessons, including:

1. The value of government support: The MAH start-up learned the importance of leveraging government grants and subsidies to secure funding for their innovation.

2. The power of marketing and customer relationships: Focusing on building strong relationships with customers and providing exceptional after-sales support was crucial in convincing weavers to adopt the new technology.

Challenges:

- Leveraging social media and crowdfunding platforms to raise awareness and funding for the MAH.
- Develop targeted marketing campaigns to reach potential customers.
- Providing exceptional after-sales support to build strong relationships with customers.

Sustainability:

Reduced Resource Consumption: The automated features of MAH, such as automatic take up and let off motions, reduce the manual effort involved in weaving, leading to reduced energy consumption and material waste. This helps in conserving resources and reducing the carbon footprint of the handloom industry.

Preservation of Traditional Weaving Techniques: Despite being automated, MAH still retains the essence of traditional handloom weaving techniques. This ensures that the cultural heritage of the handloom sector is preserved, and traditional weavers are not displaced by modern technology.

Empowerment of Local Communities: The adoption of MAH can lead to increased employment opportunities in local communities and contribute towards sustainable development by empowering marginalized and vulnerable sections of society.

Future Plans: The MAH start-up plans to expand its reach by targeting new markets and increasing its production capacity. They aim to provide training and technical support to weavers and entrepreneurs who wish to adopt MAH technology, thus contributing to the growth of the handloom sector.

In addition, the MAH start-up plans to introduce new features and technologies in its handloom machines, such as digitization and automation of design and pattern making, to enable weavers to produce more intricate and complex designs with ease. They also plan to incorporate eco-friendly materials and sustainable practices in their manufacturing processes to ensure that their products are environmentally responsible.

Awards

- MAH has received recognition from various government and non-government organizations including:
- Ministry of Textile, Government of India
- Office of Assistant Director of Sericulture, Dima Hasao, Assam
- Office of the Assistant Director Handloom and Textiles, Sivasagar, Assam
- COHORT 4.0, Assam Start-up Nest
- NEEDP, IIM Kolkata Innovation Park

Contact Information:

Bhuyan Industries, Melachakar, Sivasagar, Assam-785640

Email : **pr.bhuyanindustries@gmail.com**

Contact : **+91 9435912345**

Website : **baahi.xomoy.com**

LinkedIn : **company/baahi**

3. Brahmaputra Fables (BFABLES Pvt. Ltd.)

Dhruba Jyoti Deka, Founder

Overview: We are focussing on the lack of artisan friendly platform for global market access of Artisans of northeast India and Their handmade products, we are changing the supply chain with technology.

Target Customers - Annual Income above 6 Lakhs, who are into art and craft, Millennials & GenZ.

Solution: TECH ENABLED MARKETPLACE- Technology based Social Commerce platform of Handicraft and Handloom Product through which we connect artisans and weavers to the end consumers.

Artisanal Tourism about experiencing the magic behind craft making.

Impact on Grassroot development:

- Grass root Employment generation
- Improvement in Rural Livelihood
- Revivement of Endangered craft
- Impacted income directly of 20 Artisans at Sarthebari Assam.
- Touched more than 3500 artisans income.

Implementation and challenges: Challenges came in terms of Scaling, Market penetration, Logistics and supply chain along with cash flow finance problems.

We learnt that with technology and proper use of logistics we can overcome the problems along with superior inventory management with the help of technology. The logistics enabled with technology could track the products and QR code enabled authenticity and origin of the product.

Performance: The More products we sell through our platform by B2C and B2B channels, more revenue we make and hence this is the path to sustainability.

Sustainability and Future plans: We have started a D2C brand called "The Bellsmith Co." to keep inventory which enables fast shipping which will be available in online marketplaces and offline stores.

Future plan is to set up Tech enabled fables Kiosk at Tier 1 cities Mall where customers can experience (Touch n Feel) the craft and place the order at the store itself, then that will be delivered to their home within 3 days.

Associations & Capacity Building: We are associated with Northeast Network, Balipara Foundation, Various NGOs like AVA creation, Sneha Karma Foundation etc, Self help group producing gamosa and FPOs producing raw spices like Elephant country are our as

Awards

- "Top 10 Under-30 Entrepreneurs Awards 2017" by The Indian Awaz.
- Brahmaputra Fables is Mentored by IIM Calcutta Innovation Park
- Brahmaputra Fables is incubated at Govt of Assam incubator - The nest

Contact Information:

Guwahati, Assam

Email : **brahmaputrafables@gmail.com**

Contact : **+91 6000404454**

Website : **brahmaputrafables.in**

LinkedIn : **dhruba-jyoti-deka- 004838150**

4. House of Locals

Swagata Gautam, Founder

Overview: House of Locals is a sustainable initiative that focuses on empowering artisans through contemporary crafts of India while protecting the core traditional essence. We curate products that focus on design development, innovation, and zero waste with eco-friendly materials. We aim to bring handicrafts onto the mainstream canvas, bridge the gap between the artisans and the market and build a circular community. We also work on events/spaces keeping the same principles in mind.

House of Locals began their journey with an Idea, to showcase Indian craft traditions with contemporary designs keeping in mind our core principles; sustainable solutions, artisanal empowerment, and product development. The brand focuses on design innovation, zero waste, and using eco-friendly materials. We aim to bring handicrafts onto the mainstream canvas and bridge the gap between the artisans and the market while building a circular community. We also take up projects such as events/spaces keeping the same principles in mind

Solution:

- Creating unique and innovative products with waste that have very low to zero carbon footprint
- Working towards a sustainable eco-system and eco-friendly packaging
- Collaborating with Artisans in Northeast region, by training them in creating new designs and techniques
- Setting up HOL design development centers for research and development which will involve a community of artisans and designers
- Creating a greater market demand through innovative designs which Involve more product designers working along with artisans
- Currently working on 4 SDGs

Impact on Grass root development: House of Locals is a premier platform, which is trying to create a space dear to the local artisans and vendors to promote their products, raising the bar of the economy for them and bridging the gap between the small-scale producers and the consumers. We work with materials that have zero carbon footprint – currently also employing 60+ artisans through our brand. We have also helped and influenced other people to spread awareness in the matter and purchase consciously. HOL's mission is to create a responsible, ethical, and vibrant global marketplace for the benefit of all its (handicraft workers, lifestyle customers) stakeholders.

We involve artisans from villages and parts of Northeast India training them in "HOL - Design Innovation & Development Centres (DIDCs)". The products are then sold under one union which is HOUSE OF LOCALS through social media/ D2C website.

Implementation and challenges: Being the first generation in the business, Swagata had to face a lot of challenges. Currently, the brand is engaged in building a team as well as looking for funds to scale up and market its products pan India. Another major hurdle is finding the right kind of artisans who could deliver the products on time. Even though there is a demand for the goods, at times due to the lack of skilled artisans it becomes difficult to meet those needs.

Also, price points are always a challenge – convincing someone to buy a more expensive and durable product compared to something machine-made or cheaper. That is why finding one's niche is important in this aspect.

Performance: The company has the following revenue model in place.

We have our B2C Consumer Segment, which generates revenue by selling locally made handicraft products to customers through Website and social media

- Bulk Orders or Customized Bulk Orders for Brands and Businesses in the Space of Gifting Solutions, Events, Wedding Planning, etc.
- We also provide design and production services to restaurants, spaces, and other businesses, which generate revenue from our B2B structure and also bulk orders.
- Skill Development Workshops - Till 2022, most of our Sales were channeled through social media. Our website will be launched in 2023 June. With increasing our Marketing Efforts, our D2C sales should scale up by 2x.

Sustainable materials & Innovative Design Philosophy: Firstly, leveraging sustainable materials like Bamboo, Cane or Water Hyacinth, etc. to position as a High Value Brand in India & abroad.

Secondly, achieving world-class quality standards through high quality artisan involvement in the production process and through skill development workshops. Thirdly, through contemporary design thinking, introducing the sustainable products in the niche market and uplifting their value with current & future designer products.

Stage wise planning:

Stage 1 – Go Pan-India and create a Customer Base of 15,000. Capture the 25% of this Target in the Year 2023-24 and achieve 100% by 2025 through Ecommerce store/Website, Marketing Activities, Media and creating Sales Channels.

Stage 2 – Go Global and create a Customer Base of 30,000 by 2025-26. International scaling up by our Investment in IOT as well as Innovation in Product Designs through DDICs. Diversify our product lines in this Stage.

Associations & Capacity Building: We work with 60+ artisans currently in Assam, Arunachal, Manipur and Himachal Pradesh. In Himachal, we work with a SHG of 20 women.

Awards

- Awarded the Young Achiever's award in Guwahati by Prag

Contact Information:

House no. 21, bylane 7, Natun Sarania, Guwahati – 781003, Assam

Email : **houseoflocaldesigns@gmail.com**

Contact : **+91 8374493680**

LinkedIn : **www.linkedin.com/in/swagata**

5. Kaxhori

Jonali Khargharia, Founder

Overview: The rich handloom culture is witnessing a downfall due to various reasons, resulting in the weaver's migration to other fields of job. Kaxhori creates a platform to Preserve, Protect & Promote the craft of handweaving in Assam, North East India. We offer authentic Silk Women's wear by engaging the local silk weavers of Assam. Our target audience is every woman who wears Silk Saree (7.6 Bn) & men who prefer to give such unique & elegant gifts to mark a special occasion.

Solution: An online platform offering ethnic Women's attire Mekhela Chador (two-piece Saree)-exclusive, timeless, unique & authentic handwoven by the local weavers of Assam is given access to anyone & everyone who can access the Internet.

Impact on Grassroot development: Kaxhori was born during the pandemic in the year 2020 to sustain a small home-based business & support the livelihood of the weaver families who were affected. An online platform to promote & display such exclusive creations to earn revenue seemed like the perfect solution at the given time. We have been able to engage a couple more weavers & provide employment to this skilled community.

Implementation and Challenges: The product was new for the audience outside Assam although it's one of the easiest drapes. We used our platform as a medium to create product awareness & promote the traditional yet chic collection through Tutorials, Care-Tips, and One-on-one guidance from the selection of the product to accessorizing. We are available over Chat Messenger for assistance. In the process, we succeeded in gaining the confidence & trust of our audience.

Innovation: To enhance the online shopping experience we plan to come up with an application for design customization which is not yet introduced in this category of apparel. Wherein customers can customize as per their requirements, wherein can pick a shade from a palette, motif, pattern, etc. & get a fair idea of the final product. Post this we'll use our expertise to curate an exclusive pair of Mekhela Chador which would then go for weaving in the loom. This innovative idea offers transparency & makes the process of placing a customized order hassle-free from any part of the country.

Performance: Kaxhori was launched on Instagram (social media) during the pandemic we not only sustained but we thrived. We started earning revenue within the 1st month. The audience appreciated our products, promotion & the awareness we were able to create. We earned 16 lakhs in the 1st Financial Year. We have built an organic community of 52,000 audiences on our platform across the Nation (& handful Globally). We have 100% satisfied customers & 98% returning customers.

Contact Information:

Dhansiri Apartment 3B, Lamb Road,
Guwahati-781001

Email : **kaxhori@gmail.com**
lee.khargharia@gmail.com

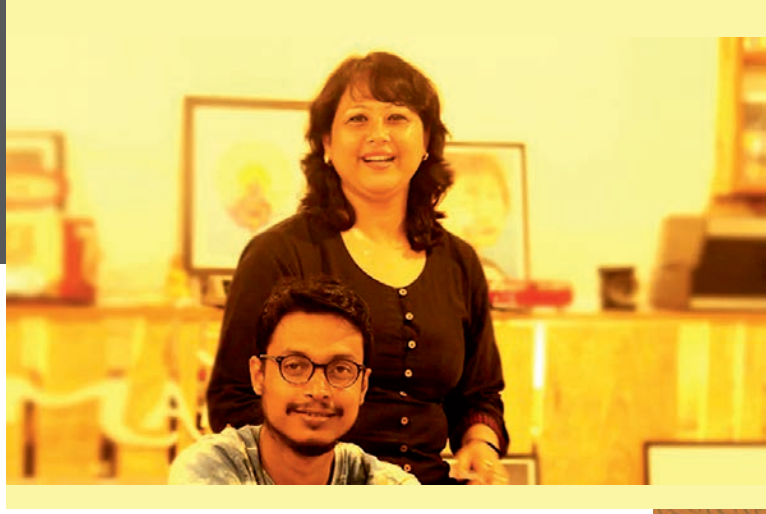
Contact : **+91 9911051227**

Website : **www.instagram.com/kaxhori**

6. XUTA (The Thread Bank Initiative)

(Implemented by Maati Community)

Pabitra Lama Sarmah, Founder



Overview: Xuta, The Thread Bank Initiative is a sustainable livelihood model of an indigenous women weaver's community of Assam. It's a physical yarn bank from where each weavers get 3 kgs of yarn as a loan and when the final product weaved by the weavers reaches the bank, within 3-4 days the project credits the amount of the weavers to their bank account. The objective of the model project is to create a wholesale model from a village that can lead to forward linkages with the urban cities of entrepreneurs, institutions, and production houses. The project aims to build an ownership model at the village label which will establish a strong financial interdependence among the women weavers communities.

Solution: Assam is the largest weaver's community in India the challenge is that not a single model has been initiated so far to create a direct supply chain and value chain from the villages. In Assam Agriculture weaving is the second largest source of livelihood for indigenous communities. Xuta model can, not only create livelihood but also it will create socio and economic upliftment of the state. The Xuta model also focuses on employment opportunities for the village youth along with the presence of the rich culture and heritage of Assam. Xuta's model will create empowerment of women's communities along with sustainability.

Impact on Grassroot development: We have started this project in a village called Pathorichuk which is situated in Majuli, Assam with Mishing Community. We have started with 10 beneficiaries in the project as a pilot in the year 2021. Today we have 50+ beneficiaries in the project who are getting regular income from the weaving. XUTA project also gave them training on product diversification which helped them to understand the market need and the knowledge of products. XUTA project also enables the weavers to connect with the people and institutions of the project who are looking for sustainable practices, slow fashion, and sustainable materials. Apart from livelihood, we are also focusing on the recognition of a weaver as an artisan. In Assam, weavers do not have a fixed remuneration but the XUTA project has made the benchmarking of the remuneration of the project weavers. The project has been documented by the British Council as among the top 10 sustainable social projects in India. We have achieved a fellowship program called Women Lead India of Reliance Foundation and Vital Voices among the top 50 Women across India. In May Her Circle founded by Nita Ambani of a socially conscious digital movement is featuring our weaver which will create a new avenue for the project. The whole impact analysis of the project along with insights can be understood through the attached researched document mentioned below.

Implementation and challenges: Being a grass root organization in the social sector for the past 12 years working in a village has always inspired us more than challenges. Connectivity is what hindered the reach out to the location which was keeping the communities far from reaching out to the market. Secondly, the availability of quality yarn in a village is a great challenge which turned out to be a model of the yarn bank initiative, XUTA. The major challenge as an entrepreneur is the accessibility of the funds for the project and the collaborative effort of the allied sector, govt. institutions and policy making. This year XUTA project has received a grant from North Eastern Council as a pre-incubation.

Performance: We have a buy-back mechanism from the project as we also have 2physical stores in Assam, one in Guwahati and the other one in Kaziranga. As we are also impaneled with the Ministry of Tribal Affairs, GOI as 100% of weavers are of ST Tribes. Apart from it, we have a corporate gifting section that absorbs the highest number, and the entrepreneurs from major cities get connected with us as a B to B and wholesale model.

Recently Xuta got an opportunity to be a part of the IPL game 2023 to create a gift hamper for team Rajasthan Royal which was from XUTA The Thread Bank Initiative Project.

Sustainability and Future plans: Next 3 years we are targeting to reach out to 1000 weavers in Assam with 5 Major Indigenous communities, which will also impact the lives of 5000 family members directly and indirectly.

Associations & Capacity Building: 1 year Fellowship program of Reliance Foundation and Vital Voices on Women Lead India has been great learning connecting with the global leaders on Social Sectors.

Contact Information:

House: No.43, Kahilipara Road, Jatia Dispur, Guwahati Assam-781006

Email : **maaticommunity@gmail.com**

Contact : **+91 9365030502**

Website : **maaticommunity.com**

LinkedIn : **maati-community-9752501b5**

WAY FORWARD

Empowering and Encouraging the Start-ups for Grassroot Development

As we conclude this compendium on start-ups for grassroot development, we recognize the incredible potential of the start-ups and other similar ventures to drive positive change at the grassroots level. It is important to provide them with the necessary support and encouragement to thrive and make a lasting impact. Through the discussions and deliberations, we present an appeal to all stakeholders, urging them to rally behind these start-ups and foster an environment that nurtures their growth, innovation, and social impact.

In the efforts to advance the start-ups for grassroots development, there are multiple strategies that revolve around strengthening the support mechanisms, knowledge sharing, and cooperation. Additionally, it requires increasing visibility and impact through improved access to funding opportunities and collaborative partnerships. By combining these elements, we can create an environment that empowers and encourages start-ups to thrive and prosper. Understanding their unique challenges, we can address their needs effectively by creating platforms that connect investors with grassroots start-ups, we can bolster their growth potential.

A tailored support will play a pivotal role in nurturing the growth of grassroots start-ups. The efforts by NLC, Bharat is a one such effort in this direction to help provide a platform for these start-ups. We trust the legislators find this compendium useful. In case of positive outcomes and results from interaction with the legislators, the entities referred in the compendium may kindly share their success with the NLC, Bharat. Let us unite in our commitment to grassroots development and work together to unlock the potential of these start-ups, leading to a brighter and more equitable future for all.

Jai Hind!

RESEARCH & ACADEMIC SUPPORT TEAM

Core Research Team

- Prof. Gopal Wamane, Asst. Professor, School of Public Policy, MIT- WPU
- Ms. Sanika More, Research Associate, School of Public Policy, MIT- WPU

Research Inputs

- Prof. Dr. Milind Pande, Pro-Vice Chancellor, MIT- WPU
- Shri. Pravin Patil, Advisor-Industry Collaboration, MIT-WPU
- Prof. Sridhar Pabbisetty, Senior Director, MIT- SOG
- Shri. Kapel Malhotra, Chairman & Managing Director, Total Solutions Group
- Shri. Puneet Talwar, Director - Strategy, Growth & Partnership, Total Solutions Group

Expert Selection Committee

- Dr. Rajendra Jagdale, Director General & CEO, Science and Technology Park, Department of Science & Technology GoI
- Shri. Kamlesh Thakur, Chairman, Prime Investrade Limited, Strutured Finance
- Dr. Abhijit Sathe, Chief Executive Officer, TBI MIT Pune

Overall Coordination

- Dr. Parimal Maya Sudhakar, Associate Director, National Legislators & Conference, Bharat
- Shri. Sankalp Singhai, Officer on Special Duty, MIT-WPU

॥ विधानं राष्ट्र-धर्मः ॥

राष्ट्रीय विधायक सम्मेलन | ৰাষ্ট্ৰীয় বিধায়ক সন্মিলন | জাতীয় আইনসভার সম্মেলন |
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