

Dedicated to the Late Sitaram Rao, mentor and guru of Indian microfinance and livelihoods movement, the Sitaram Rao Livelihoods India Case Study Competition aims at bringing together the collective intellect of the sector and assimilating innovative solutions, breakthroughs, good experiences and best practices that help in learning from diverse sector experience and impact poverty reduction. The competition was instituted as a pioneering initiative by ACCESS in 2009 as a tool to identify and collate models and practices that have significantly contributed to the livelihoods promotion of the poor in India.

The theme for Sitaram Rao Livelihoods India Competition 2021 was Agro and Food Processing for Advancing Rural Development. The compendium covers 10 best case entries to the competition from across the country that show evidences of sustainable rural development through promotion of agro or food processing enterprises.



Technical Partner

SITARAM RAO LIVELIHOODS INDIA CASE STUDY COMPENDIUM 2021

Sitaram Rao **LIVELIHOODS INDIA** CASE STUDY COMPENDIUM 2021

Agro and Food Processing for Advancing Rural Development

ACCESS KNOWLEDGE SERIES



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CASE STUDY COMPETITION
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ACCESS Development Services

ACCESS Development Services is a national livelihoods support organisation with a focus on incubating innovations for promoting sustainable livelihoods of the poor. Set up in March 2006, as a “not for profit” organization with support from DFID (Govt. of UK), ACCESS is structured uniquely, to work at all levels of the value chain - implementing programmes on the ground, working with Government, Corporate Sector, Multilateral / Bilateral Agencies and Civil Society organisations, to improve and enhance their programme implementation and also undertaking initiatives to support, inform and influence policies. The ACCESS mandate emanates from the analysis that the poor continue to teeter on the brink of subsistence due to lack of access to resources, services, information, finance and markets and composite models will deliver durable outcomes. The lack of social capital perpetuates their vulnerability. Several inventive and integrated models in livelihoods strengthening have been developed by ACCESS which have helped the poor to overcome these impediments.

Bulk of ACCESS’s portfolio is focused on supporting the livelihoods of small and marginal framers. India’s female labour force participation rate is abysmally low at 25%. At 17% of GDP, the economic contribution of Indian women is less than half the global average. Therefore, as a part of its 3rd 5-year Strategic Plan, a key focus is also to promote economic opportunities for poor women through owning and managing successful business enterprises. Guided by this, ACCESS has initiated several niche programs. Currently ACCESS works in 14 states in India.



Vaya Finserv Private Limited

Vaya Finserv Private Limited is a new-generation Microfinance Institution led by experienced management with strong capital backing that offers financial services to aspiring women entrepreneurs in rural areas to support their businesses and power their aspirations. Vaya was established in the year 2014 by a team of seasoned microfinance professionals.

Sitaram Rao Livelihoods India Case Study Compendium 2021

Agro and Food Processing for Advancing Rural Development

Preface

While the Indian economy contracted by 23.4 percent between April and June 2020 due to the global pandemic, the agriculture sector saw a growth rate of 3.4 percent, highlighting the crucial role that agri-sector plays in our economy. Several developmental programmes, schemes, reforms and policies that focus on higher incomes for farmers have been launched since. An increased focus is on growth of the agro and food processing sector as it is one of the most critical links in the agri-value chain that has potential to boost farmers' income and create employment opportunities in rural areas. Livelihoods of those involved in agriculture not only suffer from lack of resources and assets, they are also affected by major changes in the agricultural sector brought about by globalization and market integration. Within this context, agro and food enterprise development emerges as a way forward to improve their lives and livelihoods in rural India. In India, only about 3 per cent of the work force, compared to 14 per cent in developed countries, finds employment in this sector revealing its underdeveloped state and vast untapped potential for employment. In case properly developed, agro and food processing sector can make India a major player at the global level for marketing and supply of processed food, feed and a wide range of other plant and animal products.

For the year 2021 therefore, the Sitaram Rao Livelihoods India Case Study Competition invites cases from across the country that show evidences of sustainable impact to lives and livelihoods of the farmers & rural poor through promotion of agro and food processing enterprises and creation of efficient agri-value chain.

The Sitaram Rao Livelihoods India Case Study Compendium 2021 has brought together ten such cases from across the country that show evidences of sustainable impact to lives and livelihoods of the farmers & rural poor through promotion of agro and food processing enterprises and creation of efficient agri-value chain. Overall 70 cases were received. The cases were put through a rigorous evaluation process and were assessed by an expert jury comprising of Dr. Madhu Sharan, Naresh Gupta, Sivani Sankar, Kartikay Rai and Meenal Patole who adjudged them and came up with the top 3 winners.

On behalf of ACCESS, I express my sincere gratitude to the Jury Members for volunteering their time and efforts for deliberating and collating the final list. I'm sure that their critical examination and their expertise has contributed to bringing the best cases to the fore.

My sincerest thanks to our Technical Partner IRMA and Prof C Shambu Prasad for helping us narrow down the best ten cases. I would also like to thank those who have shown interest in the case study competition and submitted their cases.

I'm deeply indebted to Mr. Vikram Akula and Vaya Finserve for their invaluable support to the Case Study Competition and their efforts to perpetuate the memory of Sitaram Rao

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who was both his mentor and also a founding Board Member of ACCESS. I also express my gratitude to the Livelihoods India Advisory Group and our CEO, Vipin Sharma for their guidance in the conduct of the Competition. Last but not the least I would like to thank the Livelihoods India team of Shruti, Parul and Lalitha for facilitating the process in a seamless manner. I hope this compendium will prove to be a useful resource on rural agro and food-based enterprises and prove to be of value to the sector.



Puja Gour
Vice President

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SEWA Transforms over 15000 Smallholder Farmers and Landless Laborers into Successful Entrepreneurs, Leaders and Managers of their Individual and Collective Social Enterprises

Reema Nanavaty

1. Background

“Poverty is the worst form of violence perpetuated by the consent of the society.”

- Ela Bhatt, Founder, Self Employed Women’s Association (SEWA)

With the thought of helping the poor fight poverty and lead a life of self-reliance and dignity, Shri Elaben Bhatt founded SEWA, a registered trade union in 1972, that has been organising women workers for the last four decades and empowering them through full employment and micro-entrepreneurship opportunities.

SEWA follows the Gandhian philosophy that includes valuing simplicity, honesty and non-violence. The philosophy plays an important role in developing the capabilities of women as leaders to their economic and social empowerment. By organising the informal women workers to attain full employment, SEWA helps them become autonomous and economically self-reliant, both individually and collectively. Following an integrated approach, SEWA’s strategy involves helping women achieve the twin goals of:

- a. **Full employment**, i.e., employment that provides work, income and food security.
- b. **Self-reliance** in financial matters and decision-making abilities.

SEWA believes that economic power cannot only be left in the hands of those who have capital or to governments; but workers should design, build and expand their own economic strength by establishing their own economic institutions. SEWA has been facilitating women members to build and manage various forms of members-owned organizations that includes producers’ collectives/service provider groups, cooperatives, for-profit and not-for profit companies that directly link with the economic mainstream. Each form of organisation promoted by SEWA and its members has the following characteristics:

- They exist for the benefit of the self-employed women members.
- They are owned by the self-employed women.
- They are managed by them.
- They are democratically run.
- They aim towards self-reliance, both financially and managerially.

In the last five decades, SEWA has grown into a family of member's organisations as a Banyan tree with numerous branches including member's own groups, federations and co-operatives that provide livelihood security, reduce vulnerability and lead to economic empowerment. Currently, SEWA has 3200 self-help groups (SHG), 110 cooperatives, 15 economic federations and 3 producer companies under its umbrella.

This case study focuses on SEWA's three producer companies, i.e., three agri-social food enterprises of SEWA that have transformed smallholder women farmers and landless labourers into successful owners, leaders and managers of their individual and collective enterprises.

2. Introduction

2.1 The Challenge

SEWA currently has a membership base of 1.8 million women workers of the informal economy, across 18 states of India. With two-third of this member base comprising of rural women workers and agriculture being one of their primary occupations, SEWA has been working relentless over the years to resolve the burning question of *"why does the farmer remain hungry?"*

The members of SEWA in the rural areas include small and marginal farmers as well as landless agricultural labourers with little or no land and share croppers. The reality of these rural workers is that they are the poorest of the poor. Although agriculture forms the backbone of the Indian economy, it is only the large farmers who benefit and prosper. The smallholder agriculturists, plagued by untold hardships and difficulties have been pushed further into a depressing abyss of poverty. Having a very small marketable surplus, they are forced to sell through 'distress sell' at the time of harvesting due to lack of access to markets and proper storage facilities. They are also subjected to exploitation by a chain of middlemen or intermediaries between the producers and the market- from improper weighing to low prices and delay in payments. All of this is augmented by the increasingly frequent climate and market shocks has made agriculture unprofitable, unsustainable and unviable.

The conditions for the women smallholder farmers are even worse. Historically, despite taking care of major on-field and off-field activities, women have struggled to find a voice, a recognition of their contribution or an identity as a farmer in mainstream agricultural practices. The lack of visibility has resulted in disempowerment to benefits as well as lack of access to agricultural extension services, thereby, reducing their overall income from agriculture. The employment opportunities available in rural areas are not constant due to severe competition, market trends and changing economic policies leading to landless labourers and daily wage earners barely eking out a living.

2.2 The Solution

To address the challenges and enable real and sustainable progress for women farmers, wage earners and landless laborers, SEWA realised there was a need for a comprehensive and inclusive approach that would radically transform the food system and integrate the small women marginal farmers and landless laborers seamlessly across the food value chain and provide game-changing solutions that would achieve the triple goals of building gender equality, sustainability and healthy food systems. Over a period of time beginning 2004, SEWA conceptualised, designed and delivered three innovative women-led, for-profit, smart food¹ based social enterprises namely RUDI (Rural Distribution Network), Kamla and Fresh Greens. These enterprises integrated small marginal farmers and landless laborers, and connected them directly to the end-users through an innovative value chain led, owned and operated by themselves. Through these social enterprises, SEWA empowered women farmers and landless labourers as change agents and critical market actors, giving them entrepreneurship, employment and decision-making opportunities, enhanced their income generating potential and created a healthy, sustainable, resilient and equitable food system.

These social enterprises have catapulted into a movement with rural women smallholder agriculturists and wage-earners metamorphosing into confident, self-assured and successful entrepreneurs of their individual and collective enterprises. Their voices are being heard, their roles are being recognised and they are emerging as key decision-makers and influencers in their families, communities, villages and districts. This has led to normalising the participation and involvement of these groups in mainstream agriculture and food processing system.

3. The Three Agri-Food Social Enterprises of SEWA

SEWA, through **RUDI, Kamla and Fresh Greens** is targeting a systemic transformation in the agricultural processes while catering to nine out of the 17 UN Sustainable Development Goals (1,2,3,4,5,8,10,12,17). The models enable women agriculturists and labourers to acquire new skills and technology, market collectively, eliminate the chain of middle-men between the producer and market and increase their earnings. They provide end-to-end agri solutions to ensure food security for all, provide livelihoods and encourage consumption of healthy, nutritious and smart foods. A distinctive feature of these models is the seamless integration of digital technology in creating an efficient value chain through a customized mobile application.

The guiding principle of the three business models is to meet the four bottom lines of livelihood, sustainability, empowerment and environment while simultaneously providing innovative, game-changing solutions of directly linking the small marginal farmers to

¹ (*) Smart Food is described as that which is good for the farmer, the consumer and the planet.

the landless rural labourer, cultivating and processing healthy, nutritious food locally, generating multiple employment and livelihood opportunities for rural people at each stage of production, processing and creating enterprises led, owned and managed by smallholder farmers and landless women labourers.

3.1 RUDI

RUDI is an innovative business model for small and marginal women farmers with the objective of providing direct market linkages to get better price for their products and value accruing activities by setting up processing and distribution centres managed by rural women.

It is an integrated food value chain, fully owned and operated by over 250,000 small and marginal women farmers. This for-profit agri-business enterprise directly connects farmers

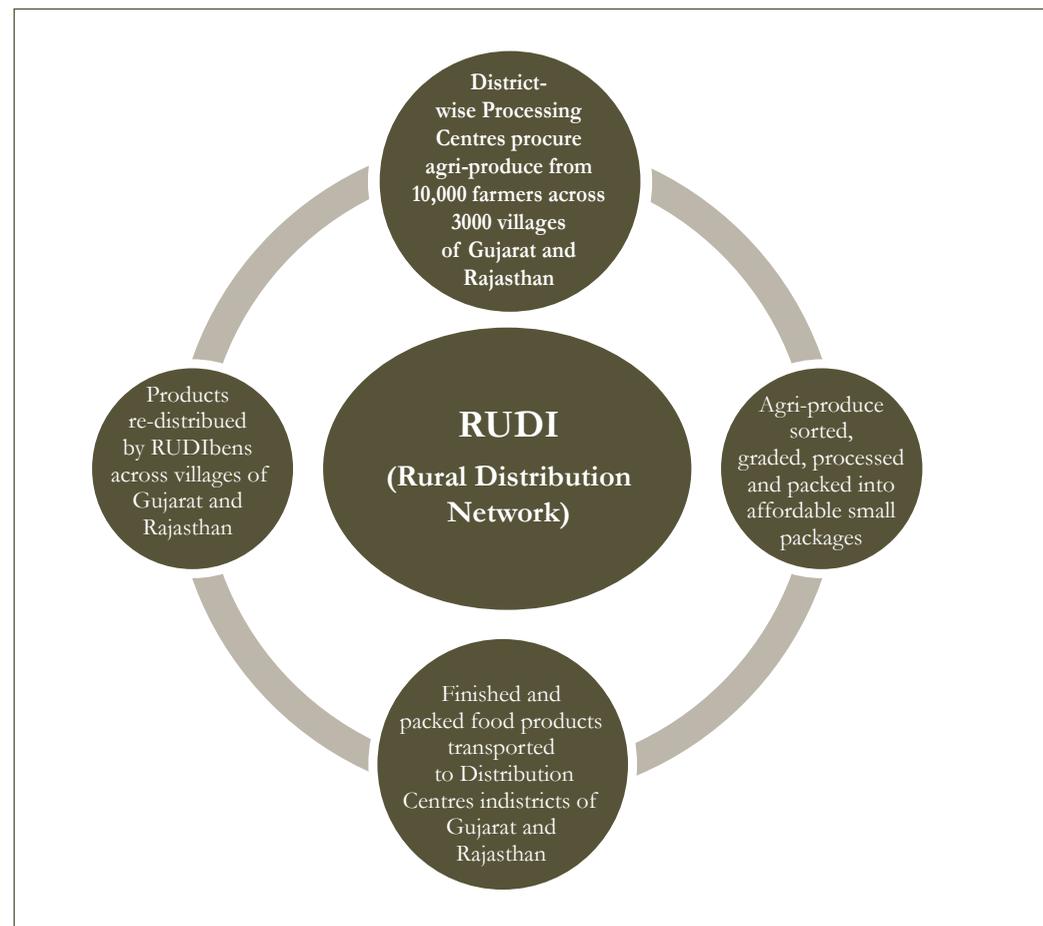


Figure 1: RUDI(Rural Distribution Network)

to the end-users, using its own procurement channels, processing centres, packaging units and a distribution network. Through RUDI, SEWA procures agri-produce from nearly 10,000 small and marginal farmers across 3,000 villages across Gujarat and Rajasthan. This agri-produce is graded, processed and packaged into affordable small packages and redistributed into the villages by *Rudibens* (SEWA's women sales-force).

RUDI's objective is to internally rotate the scarce funds of the rural producers in their own villages in a way that fetches them maximum benefit and brings positive changes in their lives. This, in turn, helps to reduce incidental expenses and build an integrated value chain which enhances the efficiency of agricultural activities, reduces hardships of the producers and processors and creates multiple employment opportunities in addition to an efficient supply of agri-products to rural population. RUDI helps farmers access current market information to help them make informed decisions and create awareness about the relevant state and central government schemes and interventions. It promotes usage of hybrid seeds, organic fertilizers, organic pesticides to improve the quality of produce. The enterprise uses latest technology for inventory management, sales and marketing activities.

The uniqueness of the model lies in the fact that in addition to building a collective supply chain, it has an integrated rural distribution network for consumption products. The value proposition for the retail customers of RUDI's products is quality and quantity, which is a big challenge for people in rural areas.

Conceptualised in 2004, RUDI has grown multi-fold and currently has an annual turnover of ₹ 10 crores. It has generated employment opportunities for more than 5,000 rural women who earn an average monthly income of ₹ 8,000 to ₹ 10,000. RUDI procures agri-produce directly from around 20000 smallholder farmers across 1300 villages of Gujarat, Rajasthan, Uttar Pradesh and Madhya Pradesh.

Additionally, in order to strengthen the livelihoods of small and marginal farmers in Jammu and Kashmir, RUDI facilitated direct linkages of these farmers to urban niche market in Gujarat. Produces like apples, peaches, jams, and dry fruits grown by farmers in Kashmir and Ladakh were also sold through RUDI in Ahmedabad, resulting in a 30% increase in profits for the farmers. Over 3116 boxes of apples (5 kgs each), strawberries (1 kg each), plums and cherries (1 kg each) grown by farmers were sold through RUDI.

3.2 Kamla

With RUDI proving to be a success in integrating smallholder farmers into the food system, SEWA started focusing on integrating them with the landless laborers into an innovative “smart food” chain system. It established Kamla in 2015, through which, the landless women labourers become the owners, planners and managers of their “smart food” processing enterprise by procuring “smart” ingredients (whole food grains, millet, sorghum) directly from the marginal farmers and processing them into traditional, nutritious delicacies, snacks and meals for self-consumption and consumers.

| Year | RUDI | Number villages covered | No of farmers agri-produce procured from | Number Employed | Average salary range(Rs) | Annual Turnover (Rs) |
|------------|---|-------------------------|--|-----------------|--------------------------|----------------------|
| 2004 | - Established one processing unit in Surendranagar district of Gujarat with 65 products | 50 | 1500 | 8 | 10,000 | 1 Crore |
| 2010 | - No of Processing Centers increased to 9 - RUDI's presence extended to 9 districts of Gujarat - Product range extended to include over 100 items | 900 | 15,000 | 125 | 10,000 – 25,000 | 8 Crore |
| 2015 | - Initiated a Processing Center in Rajasthan State Expanded RUDI's activities in 1 district of Rajasthan Product range extended to include over 145 items | 25 | 200 | 12 | 10,000 | 25 Lakhs |
| 2020 | Expanded RUDI's operations to UP and Mp states. 4 Processing centers in each state - Rajastha, UP and MP Each Processing center covers around 25 villages | 200 | 2000 | 45 | 8,000-10,000 | 10 Crores |
| 2021 (est) | - Scaled up processing activities in UP, MP and Rajasthan to reach out to more small and marginal farmers | 1000 | 5000 | 60 | 9,000-10,000 | 15 crores |

Through Kamla, SEWA was able to bring the rural micro-entrepreneurs who were involved in making *papad*, pickles and other local, traditional items into the mainstream food system by organising them and offering them a platform to sell their nutritious products on a large scale.

With a current annual turnover of ₹ 1.25 Crores, Kamla provides entrepreneurship opportunities to over 1000 women and employment opportunities to 75 women and youth. The enterprise procures the ingredients directly from over 1500 small-holder food producers.

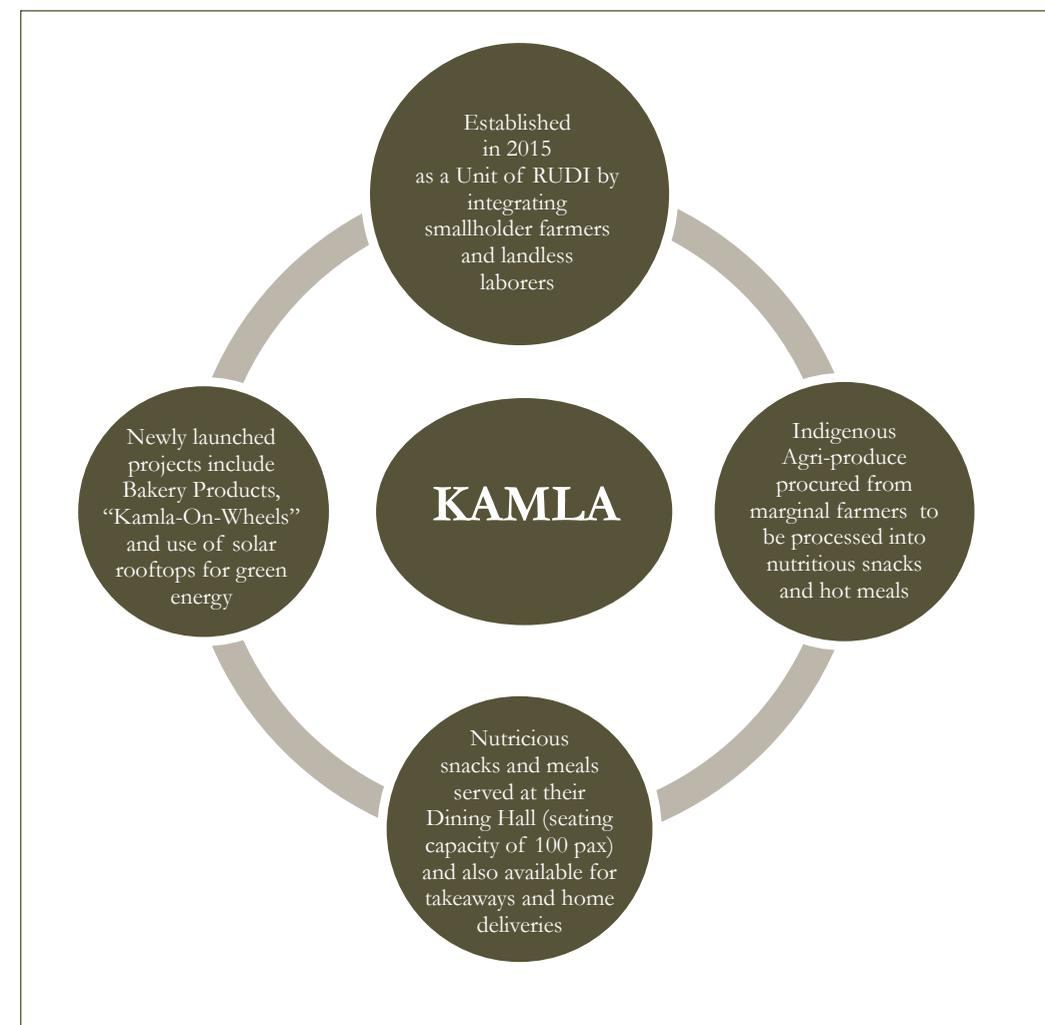


Figure 2: The Kamla Model

| Year | Milestone/Activity | Number of villages covered | Number of farmers reached to procure agri-produce | Number of Employees | Average Salary (₹) | Annual Turnover (₹) |
|------------|---|----------------------------|---|---------------------|--------------------|---------------------|
| 2015 | Established one processing unit in Ahmedabad district of Gujarat with 10 products | 100 | 700 | 10 | 10,000 – 20,000 | 25 Lakhs |
| 2018 | Trained over 500 women workers across 5 districts of Gujarat in food processing Number of processing increased to 5 across 5 districts of Gujarat Product range increased to include snacks / bakery / regular course of food | 150 | 750 | 75 | 12,000 – 20,000 | 55 Lakhss |
| 2020 | Started marketing on social media | 500 | 1200 | 35 | 15,000 – 25,000 | 1.25 Crores |
| 2021 (est) | 2500 sisters trained till date Trained sisters run their own Kamla centres in their villages | 1000 | 1500 | 75 | 20,000 – 30,000 | 1.5 Crores |

3.3 Fresh Greens

In the last few years, the demand for organically grown, indigenous fresh vegetables and fruits has been on the rise. Since RUDI and Kamla firmly established the benefits of self-ownership and direct market linkages in the lives of marginal farmers, SEWA began thinking about connecting the vegetable growers directly to rural and urban consumers. This need was particularly felt during the COVID-19 pandemic when the farmers were under tremendous stress as the local demand for fresh vegetables dropped drastically and they did not have economically viable means to transport their produce to urban areas where the demand was high. In this scenario, during the peak of the pandemic, “Fresh Greens” was piloted by SEWA as an innovative supply chain solution in Gujarat, linking the vegetable growers directly to urban consumers, using the existing redistribution channels of RUDI and Kamla.

The pilot has been successful in overcoming the challenges of the non-marketability of the modest produce of small-holder vegetable growers and providing them an assured ready market, fair returns and direct linkages to end consumers. With the elimination of the exploitative middlemen, the earnings of the vegetable growers have increased by ₹ 8000 to ₹ 10000 per month.



While the demand for organically grown, fresh vegetables has been on the rise for the past few years, the pandemic has escalated this behavioural shift, proving that Fresh Greens is sustainable and scalable, and has the potential to grow multi-fold in Gujarat and across the country with the right interventions.

| Year | Fresh Greens (Pilot) | Number of villages covered | Number of farmers reached to procure agri-produce |
|------|--|----------------------------|---|
| 2020 | Piloted in two districts of Gujarat | 25 | 98 |
| 2021 | Expanded to three districts of Gujarat | 35 | 298 |

4. Overcoming Challenges

While RUDI, Kamla and Fresh Greens are strong, value-based, democratically functioning organisations today, the women of these enterprises had to face several social, economic and cultural barriers before they emerged successful. A patriarchal mindset, having little or no access to affordable credit, lack of market linkages, access to limited working capital, dealing with inadequate market information and exploitative middlemen, limited sales and marketing skills, lack of technology were some of the many challenges they had to overcome.

Through SEWA Manager Ni School (SMS) (the capacity-building arm of the organisation), SEWA created awareness among its members and provided need-based training programmes to build a cadre of grassroots managers equipped with necessary managerial, technical and soft skills to efficiently operate their micro and small enterprises. SMS has adopted a decentralized training approach based on the understanding that learning is mostly demonstrative and emulative. Master trainers are selected from the grassroots level and trained in technical skills, life skills, communication skills, digital skills and management of enterprises. These trainings are cascaded by the master trainers to the grassroots women and youth in the village-level Community Learning and Business Resource Centres (CLBRCs) established by SEWA. All training programmes are need-based, designed to be hands-on, demonstrative. They are developed in consultation with the members and pre-tested prior to being finalised. In its efforts to train the rural people in becoming managers, leaders and owners of their enterprises SMS has partnered with various organisations including Indian Institute of Management Ahmedabad, World Bank, etc.

Going forward, the three enterprises face the challenge of limited access to innovative financing and technological solutions that would enable them to scale their operations while also building the resilience of the small and marginal farmers to increasingly frequent climate and market shocks. In this regard, SEWA is exploring the option to establish a “Women’s Livelihood Stabilization Fund” that would help the members in cultivating, processing and redistributing their products. These funds may also be invested in creating smart, creative and contemporary advertising and marketing campaigns (encompassing traditional and digital media) to raise awareness of the social enterprises, their products and the benefits of including smart food in one’s diet.

5. Benefits

RUDI, Kamla and Fresh Greens are ideal for rural women and local youth as they are not capital intensive and focus primarily on using the inherent capabilities of the people to empower them and make them self-reliant. At each stage of production and processing, the social enterprises are generating multiple entrepreneurial and employment opportunities and enabling the impoverished people to earn their own livelihood, become self-reliant and financially independent. The enterprises are agile and have an innate ability to innovate and adapt as a response to shocks and natural calamities, a quality that was amply evidenced during the pandemic. Despite the constraints of the lockdown, they enabled their small

holder farmer members, landless labourers, *RUDIbens* as well as the processing centre operators to sustain themselves and their families and continued serving the community by repurposing their supply chains with immediate effect.

Systemic investments made by the three enterprises are benefiting rural women and local youth in enhancing their participation and productivity in agricultural activities, bringing them into mainstream agriculture and food value chains. Resultantly, their contribution to farm productivity and production activities are slowly getting recognized. On-going training and capacity-building measures incorporate improved practices in agriculture and animal husbandry, leading to increased production and mitigation to the impact of climate and market shocks. Long-standing partnerships with skill and knowledge providers (e.g., state-level agricultural universities) provide continuous upgradation of professional skills of the rural women. These efforts are in sync with the Government of India’s commitment to empower the rural women through the National Rural Livelihood Mission which focuses on reducing the inequitable distribution of the country’s resources, tackling gender injustice, strengthening & boosting local production and value chains, improving nutrition and making available affordable, healthy and safe food products to the people.

With each step of production and processing being done locally, with locally-sourced ingredients, the enterprises are successful in supporting the “Make in India” vision of the government. Additionally, the nutrition and health of the local population is improving due to the availability of nutritious, healthy and fresh food products. Being locally produced and processed, the carbon footprint is reducing, leading to a cleaner and greener environment, protection of the local bio-diversity and preserving the tradition and skills of growing indigenous and nutritious food crops.

Overall, the smart food enterprises of SEWA are building healthy, sustainable, resilient and equitable food systems that are benefiting the smallholder farmers, landless labourers and rural youth and helping them lead meaningful, dignified and “*atmanirbhar*” (self-reliant) lives.

6. Impact

RUDI, Kamla and Fresh Greens have successfully spearheaded an agri-food entrepreneurship movement and have proven to be successful models of social food enterprises Gujarat and Rajasthan.

Their success in these geographies have organised small women producers and food processors, built technical and soft skills, promoted on-farm and off-farm processing and given value-additions. This has empowered women to have greater ownership of the food chain system, take-on leadership positions and gain conviction of their decision-making abilities. Since the inception of RUDI, there has been a positive impact on the rural women and their communities with an improvement in their standard of living and quality of life. Good quality and pure farm and non-farm products are available to the villagers at affordable prices at their door step. It has created entrepreneurship opportunities for 5000

women, employment opportunities for over 300 women and youth who earn an average monthly income of ₹ 8,000 to ₹ 10,000. By eliminating exploitative middlemen, agri-produce is procured directly from over 15,000 smallholder farmers, resulting in an increase in their earnings by 30%-35%.

Among the many changes experienced by women, the most remarkable have been an increase in their confidence and self-worth and a conviction in their ability to earn their own livelihood. Perhaps the most significant impact created by the food enterprises is the normalisation of women’s participation, leadership and active involvement in the decision-making process in the food systems. Creation of women-led, managed and operated enterprises has ensured equitable access to resources, full and productive employment opportunities and decent work for all actors along the food value chain. They have empowered the women to become successful micro-entrepreneurs who own, manage and operate their enterprises either individually and collectively. Many others, with their additional skill-sets have become first-time income earners, setting them on the path of financial independence and self-reliance.

Enhancing equitable livelihoods has led to an increase in the influence of women in their families and their communities. The cascading effect of these enterprises is building healthier and stronger communities and the increasing the role of women is helping them emerge as key influences in their families, villages and districts. With quality, accessibility and affordability of nutritious foods improving, there has been a notable improvement in the families of the food system entrepreneurs including their nutrition, educational opportunities for their children. There is also an increase in the health and social well-being of their communities, leading to economic prosperity and strengthening of the rural economy.

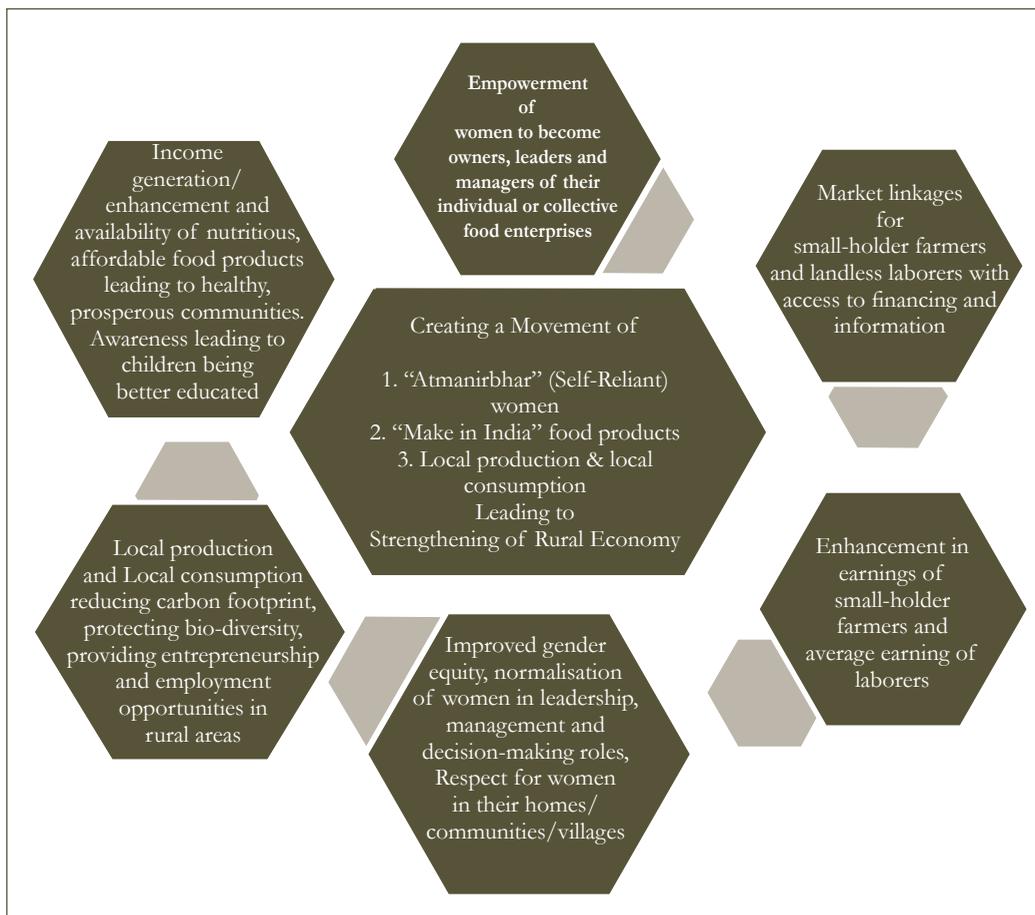
7. Conclusion

RUDI, Kamla and Fresh Greens have proven to be successful in empowering communities through innovative women-led agri-social enterprises. They are bridging gender gaps and creating multiple agri-business opportunities for small-holder farmers, landless labourers and wage-earners. They promote indigenous food crops, local production and consumption, protect the bio-diversity and are raising healthy and prosperous communities through nutritious and affordable food products.

The success of these enterprises in their limited geographies has demonstrated that organising women producers into micro-enterprises and building their technical and soft skills, empowers them to have greater ownership of the value chain and market for their products, while ensuring food and nutrition security to the poor producers, their families and the rural households. These women are emerging as key influencers in their families and communities.

Scaling these enterprises to other parts of the country will ensure direct market access for more women producers while helping them gain more leverage and bargaining power in the market. A decrease in dependency on a chain of middle-men will enhance their livelihood potential, while enabling them to become critical market actors, strengthening the efficacy and sustainability of the model. Moreover, based on the experience during the pandemic, there is even more proof for upscaling of the value chains from rural to urban markets as well. Social enterprises have huge potential in transforming the grave agriculture situation of smallholder farmers and landless labourers into successful smart food enterprises, providing sustainable food and nutrition security to the rural and urban households alike. The enterprises are driven by sustainability as a core value and aim to build long-term structures and local capacities of the workers. This is in line with SEWA’s goals of full employment and self-reliance. These models clearly demonstrate the contribution of smallholder women farmers and landless laborers in building healthy, sustainable, resilient and equitable food systems.

To further catalyse market expansion, there is a need to launch local and regional buyer platforms to increase market access and transparency. This requires advocacy for recognition of agriculture at par with industries and to treat farms as an enterprise. SEWA is working relentlessly to enable policies promoting formation and scaling of rural workers owned agribusiness/microenterprises.



Annexure 1

Case Study of Dhuriben

A successful and *atmanirbhar* (self-reliant) RUDI employee

“I am so proud to use my savings from RUDIben’s income for constructing my own house.”

Dhuriben Dhurshigh Parmar hails from Demai village in Arawali district of Gujarat. Due to her family’s financial constraints, Dhuriben could not study beyond 7th standard. While Dhuriben was an agricultural labourer, her husband was a construction labourer. Both of them used to be employed for around 10-15 days in a month. This made it extremely difficult for them to make ends meet, leading to their family being poverty-stricken and malnourished.

In 2004, Dhuriben came in contact with SEWA when she was selected to perform in village stage-plays as a part of SEWA’s publicity campaign. With this association, began Dhuriben’s journey of self-awareness and financial independence, leading to her transformation into a self-confident and self-reliant woman. She travelled across villages and districts, performing, and for the first time in her life, she started earning a regular income of ₹ 600 to ₹ 700 per month from her work.

Through her work, Dhuriben was amazed and proud to learn that the high quality yet affordable grocery and spices of RUDI were being produced and processed by the smallholder farmers themselves, thus, providing food and nutrition security in their villages as well as boosting the village’s economy.

In 2008, she took a leap and joined as one of the five women to operate a RUDI centre at the block level to sell RUDI products. Her monthly income rose to ₹ 8000. Later, she started selling RUDI products in her own village as a “RUDIben” (SEWA’s women salesforce). Through RUDI’s sales, she earned an additional amount of ₹ 1500 as sales commission.

In 2009, from her own earnings, Dhuriben purchased a mobile phone. Her income from the commissions skyrocketed to almost five-fold as she started taking orders on her cell phone. With her increased earnings, in 2011, Dhuriben and her husband could afford to build their own house.

Realising the importance of having the right technological tools to enhance her earnings, in 2017, she purchased a smartphone and simultaneously attended a training programme on using RUDIs’ customised application for inventory management, sales and marketing initiatives. This increased her confidence as well as built her capacity in stock management and reconciliation of accounts. The ease with which she used apps like Paytm, Zoom, etc. led to her being referred to as “*Computermalaben*” (the lady with computer knowledge) in her village. Currently, Dhuriben has a monthly turnover of ₹ 1.5 lakhs, which earns her a commission of around ₹ 10,000 per month.

The house that Dhuriben had built in 2011 was with a tin-roof. Dhuriben is extremely proud that in 2020, just before the lockdown, she re-built her house with concrete using her savings of ₹ 70,000.

SEWA and RUDI have given Dhuriben the greatest assets in her life, i.e., respect and recognition by her family and community.

Annexure 2

Case Study of Ansuyaben

A successful and *atmanirbhar* (self-reliant) Kamla employee

“I am so proud I am atmanirbhar by preparing and promoting healthy and nutritious food for our poor women workers!”

Ansuyaben Chouhan belongs to Naaz, a small village situated 40 kms from Ahmedabad, Gujarat. She lives in a joint family of a feudal community of Gujarat, known for its patriarchal mindset. Ansuyaben practised her family occupation of farming and animal husbandry. In early 2000's, her monthly income was a meagre ₹ 2,500 per month. In 2004, she joined SEWA, and with it, began her journey of gaining self-reliance and financial independence.

Ansuyaben was a quick learner and after attending SEWA's training courses on animal husbandry, she started following the systematic approach to livestock rearing. She soon transitioned to become a trainer of the programme that doubled her monthly income to ₹ 5000 to ₹ 6000 per month. As a trainer, she also raised awareness and taught many other women in her village about animal care that led to the cascading effect of increasing their monthly earnings as well.

In 2015, Ansuyaben got the opportunity to receive training in food processing and bakery under Kamla. Ansuyaben says, *“I had never dreamt that I would not only build my skills on what I used to love, but also give nutritional touch to the food and bakery sector. I was happy to contribute in bringing the disappearing but nutritious coarse grains back in the food circuit; to give modern form to serve palate of younger generation by making millet cookies and cake!”*

After the training, Ansuyaben was employed at Kamla and travelled 80 kms daily to attend practice sessions on baking, preparing nutritional products and operating latest machinery such as ovens and spiral mixers for mass production. She mastered the art of maintaining consistency in quality and nutrition when handling bulk orders.

She soon started travelling across the country to conduct training courses for other rural women. Till date, she has trained more than 200 women on nutritious food processing.

From being a trainee to becoming a master trainer has brought immense joy, satisfaction and pride to her.

Ansuyaben has also started her own micro-enterprise of making seasonal pickles, snacks and *papads* and selling these in affordable packs of ₹ 10 to ₹ 15 each. To maintain the highest quality and nutrition standards, she uses only home-grown material or produce purchased from RUDI bazaar.

With her hard work, zeal and determination, Ansuyaben's earnings have skyrocketed to ₹ 16,000 per month enabling her to become financially independent and having a better lifestyle for her family. She has developed the confidence to voice her opinion and contribute in the decision-making process in her family, at Kamla and at her micro-enterprise. In fact, during the pandemic, Ansuyaben was one of the four women at Kamla who stayed at the premises continuously for a period of two months, ensuring that nutritious food was supplied all through the lockdown period. This initiative increased the online sales to ₹ 2 lakhs. She was featured in the local newspaper and her husband exclaiming with pride that, *“now you have gone ahead of me.”*

With continuous training and opportunities offered by SEWA, , Ansuyaben has started dreaming big and looks forward to a day when she opens her own café where she can server her customers hygienically prepared nutritious and healthy food at affordable prices. She has become truly '*atmanirbhar* ' and confident of turning her dreams into reality.

Promoting Agribusiness among the Tribals A Case of Sustainable Livelihood

Niraj Kumar¹, Mohd. Zahid²

1. The Beginning

In January 2015, with the help of a local government agency, a vegetable stall was established near the district collector's office, a busy marketplace, and women members were encouraged to sell fresh vegetables and fruits at the stall. Women of Temni Khurd village started aggregating and transporting their products together. The demand for their product was very high, and their product used to sell within few hours. They realised that they could not meet the demand on any festival or during summer. After these villagers experienced the 'market' and 'power and need of collectivism', they decided to form their own producer's company. As they were part of different self- help-groups (SHGs), it was easier for SRIJAN to establish a formal farmers producer company and bring willing members of various SHGs of the village and nearby villages under the umbrella of the company. A formal entity, namely COFE³ producer company (referred to as COFE hereafter) was born. Members' exposure visits to two nearby successful women producer companies that dealt in milk and soybean value chain strengthened the members' confidence. COFE decided to start village-level collection centres with the help of SHGs to aggregate freshly harvested products. Each collection centre was managed by a COFE member who demonstrated leadership qualities. They were also trained in finance and record-keeping.

Member families started selling a part of their produce to COFE and the remaining produce in the local village markets (*baat*) as they had done earlier. However, few middlemen in the market refused to buy their products because villagers had formed COFE and had started selling a part of their produce to COFE. These COFE members (most of them had recently joined) found themselves helpless and complained to the company leadership. This compelled the company to find a way to ensure that the products of all the members were bought at the right price. However, some women members were also able to devise a plan with the middlemen to sell their produce on pre-decided weekdays.

SRIJAN organised a series of meetings of tribal leaders, women FPC members and agricultural scientists to decide the best course of action. The emerged solution was to institutionalise the aggregation and improve the value chain by linking women members to markets. To implement it, COFE increased community participation through community-

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³ COFE acronym has its origin in Chhindwara Organic Farmers Enterprise. But the FPC has been registered with the name "COFE Farmer Producer Company".

based institutions in the entire value chain. SRIJAN joined hands with COFE in organising training of members in sustainable management and harvesting of natural resources, scouting appropriate technology of value addition and searching suitable markets. It was found that custard-apple pulp has a good market locally and in other major industrial cities. A plan of extracting and preserving the pulp was discussed with the members, and they readily agreed. COFE, based on SRIJAN's suggestion, decided to establish a small processing unit of pulp extraction and preservation, a technological innovation by the scientists of Maharana Pratap University of Agriculture and Technology (MPUAT), Rajasthan. Demonstrations of harvesting, grading, pulp processing, packaging and storage were conducted by the local experts for the stakeholders. Village-level collection centres (VLCCs) became functional where all the products were aggregated, graded (as A, B, C) and sent to the processing unit. VLCCs ensured grade-based fair pricing of the product and weekly payment to the members. A pulp processing unit was established in Temri Khurd village, which was centrally located and easily approachable. To operate this processing unit, women members nominated by the COFE were trained. VLCC managers working at the processing unit were also paid additional remuneration. The various interventions to improve the efficiency of the value-chain has been explained in.

Box 1: The Technology

The fruit is harvested at the eye-opening stage and stocked for a couple of days for natural ripening. Once ripened, the fruits are scooped for pulp. The scooped mixture is deseeded, and the pulp is extracted from the machine. Extracted pulp is packed into a 1 kg low-density polythene bag and frozen in a blast-freezing chamber at -35 degrees Celsius. It takes 8 hours for a complete batch to harden. This hardened packed pulp is stored in refrigerators at a temperature of -20 degrees Celsius. This technology can be used for freezing other fruits and vegetables as well.”

Initially, the processed pulp was sold in the local market and it fetched them a better price of ₹ 120 to ₹ 130 per kg. Overall, after deducting the marketing costs, the members could earn 20% to 30% more than what they were earning earlier. This was in addition to reduced travelling and no harassment from buyers in the *haat*. Those who worked as VLCC in-charge and operators in processing units earned extra income. The news of processing organic and natural custard apple spread quickly beyond the state's boundary and buyers started contacting COFE. However, as the quantity was not enough, the enterprise couldn't sell pulp to bulk buyers.

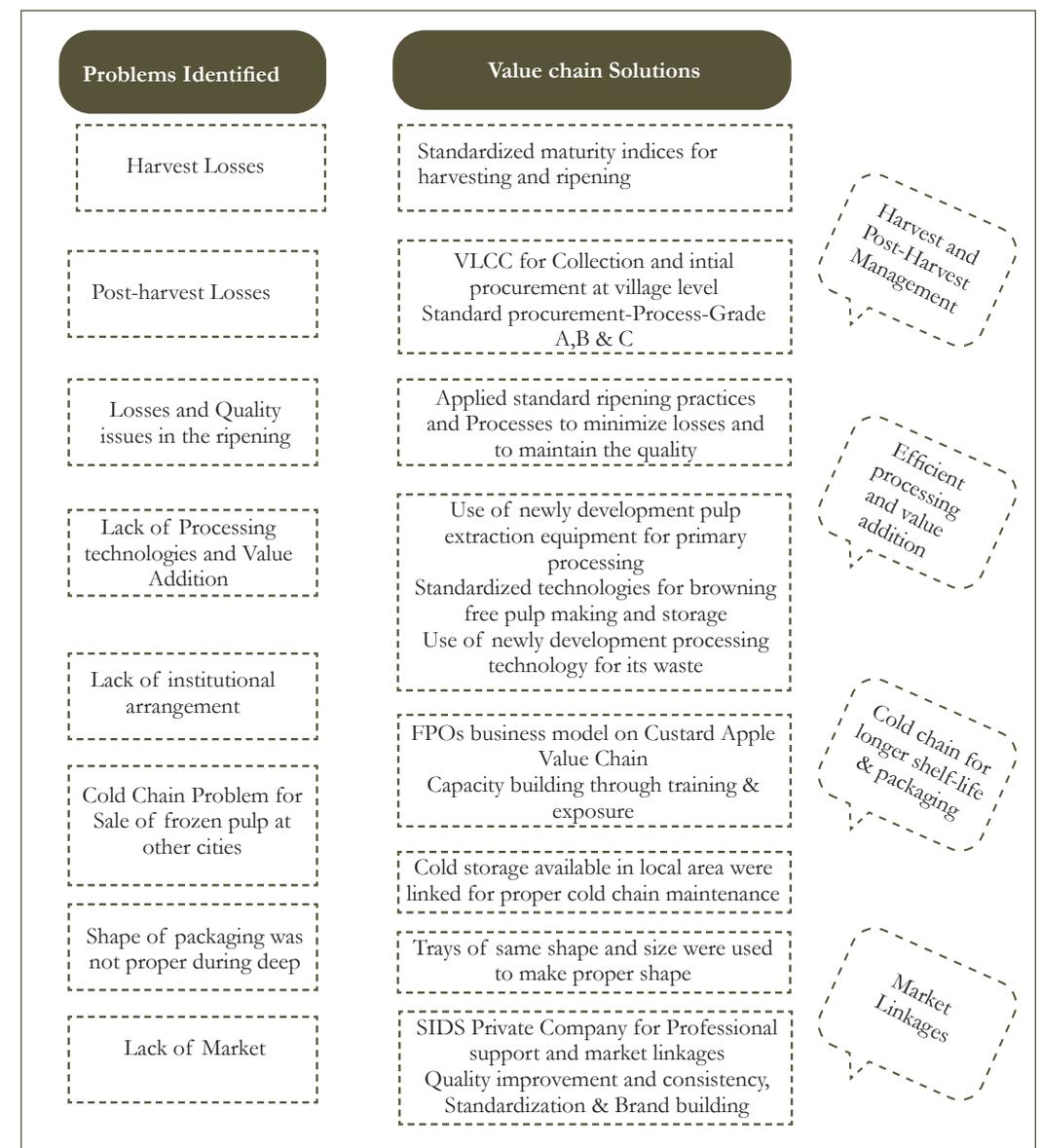


Figure 1: Problems and Value Chain Solutions

It took some time before members started appreciating the benefits of selling their produce to VLCC and being active members of COFE. The increased price of their produce and the feeling of ownership reassured them to become the member of the company by paying the membership fee. In the first year (2015-16), the total collection of custard apples was 13,446 kgs from 163 member families. The volume of collection and number of families getting associated with the COFE producer company increased year after year. In 2018-19, the total collection of custard apples increased to 1,15,021 kgs, and the number of members soared to 2,444.

“Initially, it was very tough to convince fellow members to do timely harvesting and sell the fruits through VLCC. I talked to many women and their husbands to join and contribute to making the company bigger and stronger. Very few people believed in me. However, when they started getting the benefits of the company’s initiative, almost all the women I had talked to joined the company. Today we are the proud owner of a company.”

- Sobha Irpachi, VLCC in-charge and active member of the producer company.

In early 2017, Dineshaw’s ice-cream makers contacted COFE and proposed to buy their pulp if they meet their quality standard. The ice-cream makers sent their representatives to train the community in industrial standards and hygiene practices. By the end of 2017, Dineshaw’s started procuring their pulp. In due time, COFE increased production and added a few more bulk buyers from Hyderabad and Mumbai. The pulp price, which was ₹ 130 per kg, increased to ₹ 190 per kg as soon as these bulk buyers started procuring pulp from this tribal women-led producer company. Women leaders were able to manage the entire value chain operation without much help from the promoting organisation. But, SRIJAN was not complaining.

2.The Glitches

In the beginning, members were sceptical about joining COFE. Many members continued to sell their products to middlemen in the local market for instant cash. VLCCs and the processing unit wanted to increase the intake but could not do so because the products were getting divided. Further, early harvesting, damage of crops during the harvesting and lack of proper handling and sorting of products before it was brought to VLCC affected the quality of produce, which reduced the pulp production. COFE, with help from SRIJAN, conducted training of all the interested members. Senior COFE members guided new members in harvesting and handling the product.

It was Deepawali, one of the most important festivals of the area, when pulp processing unit operating members stopped visiting the processing plant for scooping and processing the fruit. Stored fruits were over ripening and likely to go to waste resulting in a massive loss for the producer company. COFE executive members were finding it difficult to force their members to go for the processing. In the end, it was one of SRIJAN’s employees who decided to call the executive members to the office and ask a critical question; *“if you are not interested in processing these fruits, then close your company and throw all the stored fruits in the garbage.”* Executive members discussed among themselves and decided to do the processing in rotation, saving the entire lot. This also established a process of proper planning of the value chain operation by the producer company.

More villagers started collecting custard apple and venturing deep in the forests. Forest department officials were concerned that unabated and unrestricted movement in forest may encourage anti-social elements to enter the forests for illegal felling and result in unsustainable harvesting by the villagers. The forest department invited the COFE executive and SHG members to discuss the modus operandi for controlled and sustainable

harvesting. It emerged that the forest department would provide a no-objection certificate for harvesting in designated areas, and both the institutions committed to ensure sustainable harvesting of fruits and protection of other natural resources.

A few members expressed their displeasure about the delayed (weekly) payment. Therefore, COFE discussed the issue with the respective SHGs and requested them to pay members against their sales to VLCC on a weekly basis. Over time, almost all the SHGs accepted the system.

3.The Outcome

While the formation and strengthening of community institutions have empowered the tribal community psychologically and socially, technological interventions and market linkage have made them economically stronger. Women-based institutions have given women of these primitive tribes much-needed social security and recognition. These women work and earn with dignity. Middlemen in the local market who used to talk rudely now respect the sellers and request for business. Increased price and purchase as per correct weight kg (earlier by basket) has increased their income.

Box 2: Savita Bai-A Story of Commitment and Success

Savita Bai always dreamt of uplifting her family from their poor financial condition. Her family was comprised of six members. Her husband migrated to metro cities for jobs that could sustain their family requirement. They had an acre of land for agriculture, and Savita was responsible for all kinds of agricultural activities. Apart from this, she also worked on MNREGA work. For all her work, she hardly earned ₹ 1000 to ₹ 1500 per month. In 2013, she joined the SHG.

When COFE organised the training on custard apple processing and identifying the appropriate VLCC, Savita Bai emerged as one of the most active women leaders running that processing unit. She attended all the trainings related to processing, packaging, hardening and maintaining records. Initially, it was challenging for her to give time to the processing unit as she had to take care of her two children and in-laws. However, over time, she managed to make time for it and learnt to adjust.

In 2017, she led from the front and mobilised and guided other women to participate in the processing unit. She trained other women on maintaining records in the processing unit and took the entire responsibility on her shoulders. She conducted multiple activities like procuring custard apples and managing women coming to the unit and pulp production. When there was a shortage of workers, she even engaged her SHG members to participate in the processing unit. Her income had increased to about ₹ 5000 per month and became a respected member of the village.

Hundred women were trained on the processing plant operation, and all of them earned decent additional wages depending on the quantity of the custard apple they scooped and the time they spent in running the processing plant. Moreover, they worked in rotation without hampering other work and earned an additional income between ₹ 1000 to ₹ 1500 per month. Similarly, 50 women worked as VLCC in-charge and earned a commission by handling the fruits.

In subsequent time, villagers started collecting other fruits and selling them in the open market. However, as they had learned the tricks and trades of the business, they were able to get a reasonable price. They also attempted to prepare and sell the pulp of other fruits like mango (*Mangifera indica*) and guava (*Psidium guajava*), but without much success.

COFE earned 15% profits by managing the value chains of custard apple and other products. In 2017 -18 and 2018 – 19, COFE re-invested some profit in the business and distributed dividend to the members.

The women-led producer company sold custard seeds at the rate of ₹ 50 per kg to a private nursery, forest department and vendors who used it to prepare organic shampoo. COFE also decided to use a small quantity of seeds to grow saplings and distribute them among the community for their plantation.

It was not to conclude that there were no challenges and the journey was smooth, but COFE was getting stronger every day. Although geographical limitations and the nature of products did not allow economies of scale, the model and interventions proved their worth. State-level rural livelihood mission teams in Maharashtra and Telangana visited and initiated similar interventions in their states with help from COFE and SRIJAN. The collective leadership of the team became the role model for various community institutions.

4. The Future

Recalling her interaction with the Prime Minister in Chitrakoot district in Uttar Pradesh, Rani Bhalavi of Devgarh village, and an active member mentioned, *“when Honourable Prime Minister of the country asked us - what would we do in future? We all women of COFE replied in one voice – would make our company bigger by using better technologies and diversifying our product portfolio. Prime Minister smiled and said - wah wah.”*

Women members seem motivated. New members are joining the company. Experimentation with different products continues. Overall, the present and future appears bright. The only question remains, “would they be able to continue the momentum if SRIJAN withdraws?”

“We have already withdrawn from the day-to-day activities of COFE, and women leaders have taken charge. Recently, SELCO company decided to establish solar-based cold room after discussing requirements with the company leaders.”, Naresh Pawar’s of SRIJAN extorted. No one could predict the future but seeing the accomplishments, enthusiasm and dedication of COFE members, one would have easily believed – COFE is there for the long haul.

5. Conclusion

The story of tribals of Chhindwara and their tryst with custard apple business as a successful livelihood option highlights the hidden competency of local communities, and the innate potential of tribal women. It also establishes that a business, if attempted sincerely, can be inclusive and sustainable. And so, we realised that when villagers of Temni Khurd were dancing, they were not celebrating the ice cream, but they were celebrating the success of their collective efforts, their successful journey from abject poverty to sufficiency and their newfound livelihood- which was not only economically rewarding but socially empowering as well. Truly, they had earned and deserved such celebrations.

Sustainable Rural Development Lemongrass Processing and Value Creation

Col Raman Thapar and Rabina Jaiswal

1. Introduction

Churachandpur district is the largest district of Manipur measuring over 4,570 square km and occupies 20.5 % of state's area. The district is situated in the south-western part of Manipur and is dominated by Chin/Kuki/Zomi¹ ethnic group. The cluster covers the area of Singngat, Bungmual, Tangpizawl, Suangdoh and Mualnuam of Churachandpur district and Noney of Thamenglong district. The climatic condition of Churachandpur district is generally moderate, with a hot and mild cold climate. The maximum temperature recorded in 2018 in the district is 37°C while the minimum temperature is 1°C.

The traditional household in this cluster area are farmers. Medicinal and aromatic plant-based industry provide a huge scope for socio economic development of the region. The advantages of the region include availability of vast areas of land since majority of the population are traditional farmers and practice shifting agriculture (*jhum*). But the farmers do not have much knowledge on upgraded technology and economic viability of aromatic crops and cannot afford to expand on their resources. Thus, a cluster has been proposed in the area to encourage people to go for cultivation of aromatic plants which can be processed in the Common Facility Centre (CFC) by engaging local people to develop value added products. This will help in increasing the income of farmers by switching over to more remunerative aromatic plants and better employment opportunities to local youth.

The aromatic market is fully controlled by the local traders and they exploit the farmers by regulating the prices of the market. The farmers presently depend on the local traders and sell their products at a very low price. Due to poor linkage with financial institutions, the farmers are unable to get timely loan for farm input purchase and value addition.

1.1 The Key Decision Makers

The initiative for cluster development is under the Scheme of Fund for Regeneration of Traditional Industries (SFURTI), Ministry of Micro, Small & Medium Enterprises (MSME). The scheme focuses on cluster development, where the clusters are defined as geographical concentrations of inter-connected enterprises and associated institutions that face common challenges and opportunities. Under this scheme, the Churachandpur Aromatic Cluster, Manipur, India was developed with 860 farmers in 2020. This would provide sustained employment to artisans and farmers through upgradation of technology, enhanced marketability of new products, design intervention, improved packaging and also strengthened marketing infrastructure.

¹ TS Letkhousei Haokip, 2018, *Ethnicity and Insurgency in Myanmar /Burma, A Comparative Study of the Kuki - Chin and Karen Insurgencies*, p.175

Under the scheme Indian Micro Enterprises Development Foundation (IMEDF) acts as a Nodal Agency (NA) to spread the outreach and to establish competence in cluster development through co creating a sustainable enterprise, project management, monitoring, evaluation and facilitation of market access. IMEDF with its on ground Implementation Agency (IA) Partnership in Progress Mission Foundation (PPMF) and a Technical Agency is developing the Churachandpur Aromatic Cluster. PPMF has over 15 years of experience in plantation of medicinal, aromatic and oil-bearing plants on marginal lands and fields in the whole North-Eastern States of India. A cluster with 860 farmers has been developed with Special Purpose Vehicle (SPV) members body set up to run the project.

The rich fertile and virgin land of the Manipur hills is still untapped. The abundance of land is available to take up organic farming on a commercial scale. Churachandpur and Tamenglong have a total geographical area of more than 8,00,000 hectares whereas the total cropped area is 74,620 hectares. The land and climate is suitable for cultivation of aromatic plants. Currently, the area under cultivation of lemongrass and citronella is 250 acres. There was a need for developing a cluster since there was ample availability of raw material, demand for suitable technology, and addressing a growing market for essential oils. Due to the lack of transportation facilities with limited access from farms to market, the farmers have faced huge losses in addition to degradation of raw material.

During the Covid restrictions in 2019, most farmers faced strict movement restrictions and sometimes their raw material got stuck on roads for days leading to losses up to 80% of the value.

-Mr Liankhansiam, Secretary PPMS

The literacy percentage of Churachandpur district is 82.78% which is higher than the state average of 76.94% (as per 2011 census). The education scenario in the district headquarters Churachandpur is one of the best in Manipur largely due to the private-run institutions. Despite this, there is hardly any visible sign of progress in the education scenario of villages in the cluster area. One of the major causes of migration of the people from villages to town is in search of better education and economic activity. This has led to the non-utilisation of lands of the tribal people.

The practice of shifting agriculture is predominant in most of the district. Rice is the most popular crop produced and is consumed by the local community. Aromatic plants (lemon grass and citronella) being of short gestation period is an ideal sustenance crop for the farmers, if technical support and infrastructures for distillation and marketing support are provided. Both the plants mature within five months from the time of plantation. From the first year itself, the plants can be harvested two times and from the second year onwards, it can be harvested four times a year. The crop cycle is 6 years.

Citronella is a multi-potential crop and can be grown without much care. These plants were carefully identified and chosen for the project because it grows well in wide varieties of soil ranging from sandy loam to poor laterite, it is easy to maintain as cattle or other animals doesn't graze on the plants (the plants produce acidic or burning sensation which ward off

animals) and it grows well in the absence of irrigation facility. Northeast being naturally endowed with fertile soil content, the essential oil produced in this region is much superior than in the rest of India. The citral content is higher than 80%², which already has an international repute. Since the plants belong to a grass family, it grows well in Manipur.

1.2 The Geography

Tamenglong is a town and the district headquarter of the Tamenglong district of Manipur. The town is inhabited by the people of the zeliangrong community. Rongmei is the local language of the town and the surrounding area. According to the 2011 Census, the district has a total population of 1,40,651 with 72,371 males and 68,280 females, and the literacy rate is 70.5%.

The cluster covers 860 beneficiaries of Churachandpur and Tamenglong District of the following villages mentioned below.

Chieftainship and community land ownership is the practice in the hills of Manipur. Lands are either owned by the village chief or by the farmers (community). Presently, the area under cultivation of lemongrass and citronella is 250 acres. The project plan to expand the cultivation of aromatic grasses by 120 acres, 180 acres, 300 acres, 380 acres and 550 acres over the next 5 years of project implementation. Lemongrass and citronella are very easy to grow and requires low maintenance, the crops can be intercropped with crop like Mango.

Table 1: List of Villages Covered under the Proposed Cluster

| Village name | Sub-Division | Block | District |
|--------------|---------------|----------|---------------|
| Bungmual | Churachandpur | Lamka | Churachandpur |
| Singngat | Singhat | Singhat | Churachandpur |
| Tangpizawl | Singhat | Singhat | Churachandpur |
| Suangdoh | Suangdoh | Suangdoh | Churachandpur |
| Mualnuam | Mualnuam | Mualnuam | Churachandpur |
| Noney | Nungba | Nungba | Tamenglong |

1.3 Timeline

The cluster was set up in 2020, but PPMF has been working in essential oils farming in Manipur since 2008 and is one of the pioneers in aromatic farming. They currently own three distilleries and have introduced vermicompost and its application on owned farms for improving productivity and yield. Along with active market linkages and an established store they are actively working for the transformation of uneconomic *jhum* practice of the tribals towards good farm management and ensuring better economic returns to farmers.

² Anand Akhila, 2009, *Essential Oil-Bearing Grasses, The Genus Cymbopogon*, p.110

Table 2: Requirement of Slips of Lemongrass and Citronella oils and Other Value-added Products

| Year | I | II | III | IV | V |
|--|-------|-------|-------|--------|--------|
| Extraction of oil over the year (in slips) for lemongrass and citronella (in Lakhs) | 33.30 | 38.70 | 49.50 | 56.70 | 72.00 |
| Slips Required for Value added Products (50%) (in Slips) | 33.30 | 38.70 | 49.50 | 56.70 | 72.00 |
| Total No of Slips required for all the products (in lakhs) | 66.60 | 77.40 | 99.00 | 113.40 | 144.00 |
| Presently, there is cultivation of aromatic grasses in 250 acres producing 45,00,000 slips. The cluster has plan to expand cultivation of aromatic grasses by 120 acres, 180 acres, 300 acres, 380 acres and 550 acres over the next five years of project implementation. As one acre of additional cultivation can accommodate 18000 slips, the additional land proposed to be brought under aromatic grasses will be sufficient to carter to the requirement of aromatic grasses of the project over the next five years. | | | | | |

2. Lemon Grass Cluster

2.1 Socio-economic Condition

The current farming practices have a huge impact on the lives of farmers. The grant provides funds for investing in infrastructure, exposure to good farming practices such as construction of vermicomposting, water recycling facility, farmer mobilization and encourages youth employment by providing local, green jobs. All these factors in the long run can be incremental in reducing the migration of the state by promoting local, traditional industries by co creating sustainable value chains. Value addition of lemon grass has brought a diverse range of products ranging from lemon grass tea, herbal handwash, hand sanitizer, fragrance cones in addition to generation of employment and ensuring on time payment to farmers.

Earlier the farm produce was sold at prices decided by the traders. Poppy cultivation was extensively practiced in the region, and there were innumerable efforts made by the government to hinder such practices. In addition to the shifting agriculture, there was intensive chemical fertilizer inputs, which have now been relieved through the initiation of this cluster.

2.2 Background of the Promoting Organisation - IMEDF

IMEDF is the social enterprise development vehicle of the Development Alternatives Group. It acts as a Nodal Agency to MSME and appraises the implementation and progress of the CFC to the Scheme Steering Committee (SSC) headed by Secretary, Ministry of MSME. It has a diverse portfolio with clusters in multiple sectors such as Handloom, Natural Dyes & Handicrafts, Medicinal Plants, Non-Timber Forest Produce (NTFP), Artefacts, Gold and Services Sector.

PPMF is actively involved in plantation of medicinal, aromatic and oil-bearing plants on marginal lands and fields in the whole North-Eastern States of India. To counter the

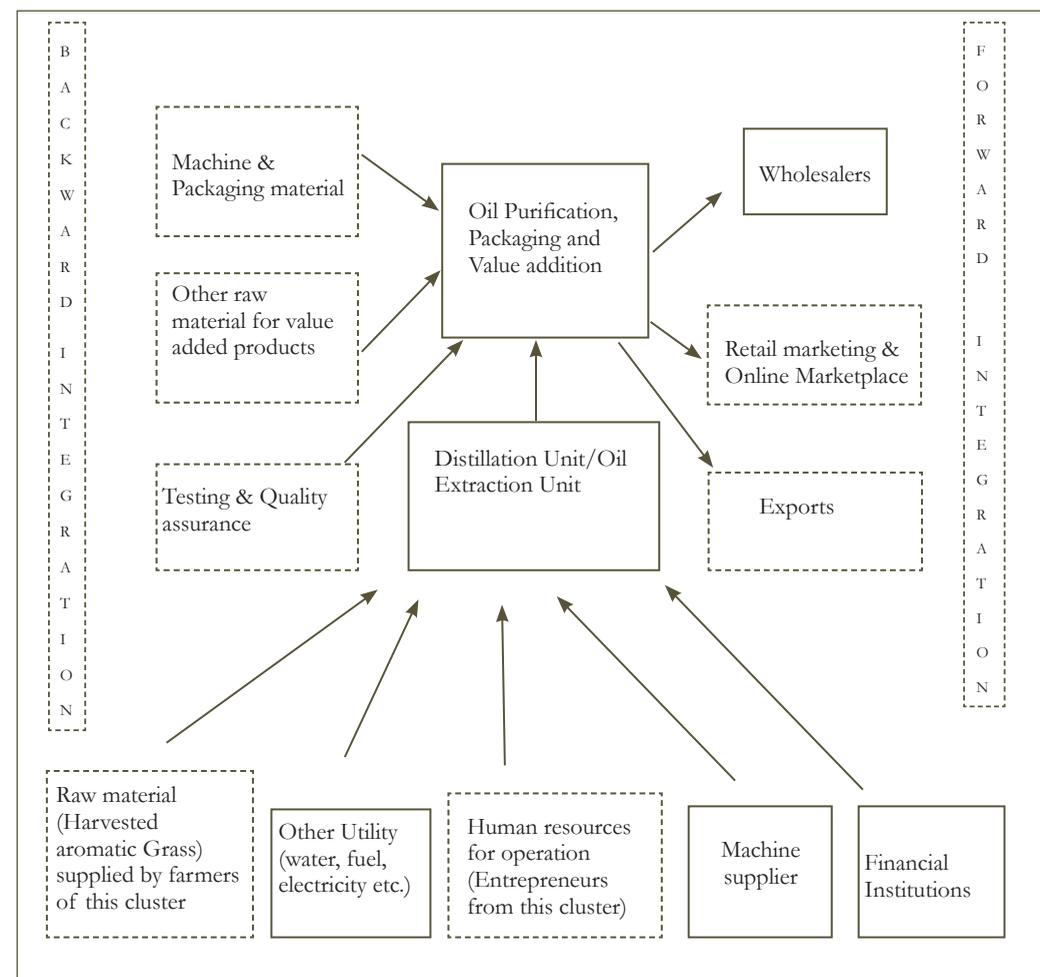


Figure 1: Establishing Linkages through SFURTI

challenges of uneconomic practices of *jhuming* and the resulting ecological imbalance, the trust has been actively involved in generating awareness on alternative agriculture practices.

There is a huge growing market for essential oils³. Essential oils are oils that contain the “essence” of a plant, such as its aroma or flavour. The global demand for essential oils is expected to increase dramatically between 2018 and 2025, from around 226.9 kilotons to 404.2 kilotons. PPMF was already farming lemon grass, but it was scattered and there was a need for organised farming. Better prices for cash crops could be availed through strengthening partnerships and positioning the product range.

Since it is a brown field project, the impact which could usually be seen in 15-20 years, is already visible within 3 years since its inception in 2019. Moreover, the complete crop above

³ KG Stiles, 2017, *The Essential Oils Complete Reference Guide Over 250 Recipes for Natural Wholesome Aromatherapy*, pg26

the ground can be used to extract the essential oil. Lemon grass is a hardy grass, where these farmers only harvest the crop from 10 to 15 cm above the ground, thus leaving the plant to regrow. The first harvest is after 6 months when it is fully grown, successive harvests will be after every 3 months for the next 6 years. There are 4 harvests per year. This makes it a simple crop as compared to rice and other fruits they were earlier growing in this terrain.

As one acre of additional cultivation can accommodate 18,000 slips, the additional land proposed to be brought under aromatic grasses will be sufficient to cater to the requirement of aromatic grasses of the project over the next five years.

2.3 Structure and Governance of the Enterprise

With the SPV formation, the Board of Trustees will be overall responsible for the governance and to provide oversight. The Managing Trustee will be responsible to the Board for the operations of the Trust as well as to meet all the regulatory requirements. The Board, the roles of sub-committees, governance methodology, profit distribution, community development, Fair Trade funds are monitored through regular monthly meetings with the stakeholders and bankers.

Earlier there was no provision of working capital. the Implementing Agency (IA) had provided the capital to ensure profit maximisation through value addition of the products. Now the beneficiary acts as direct producers and market their own product (value added) rather depending on local trader, which ultimately led to increase in their income level and living standards.

3. Success Factors

With the involvement of the community, the institutional linkages have been strengthened. The profit distribution is in the hands of the members selected for the SPV, where a portion of the profit from the project will be utilized in community development work in the cluster area by providing facilities such as better health, education, water, sanitation and other skill development programmes.



Picture 1: Value Added products- Essential oils, herbal tea, hand wash and fragrance cones

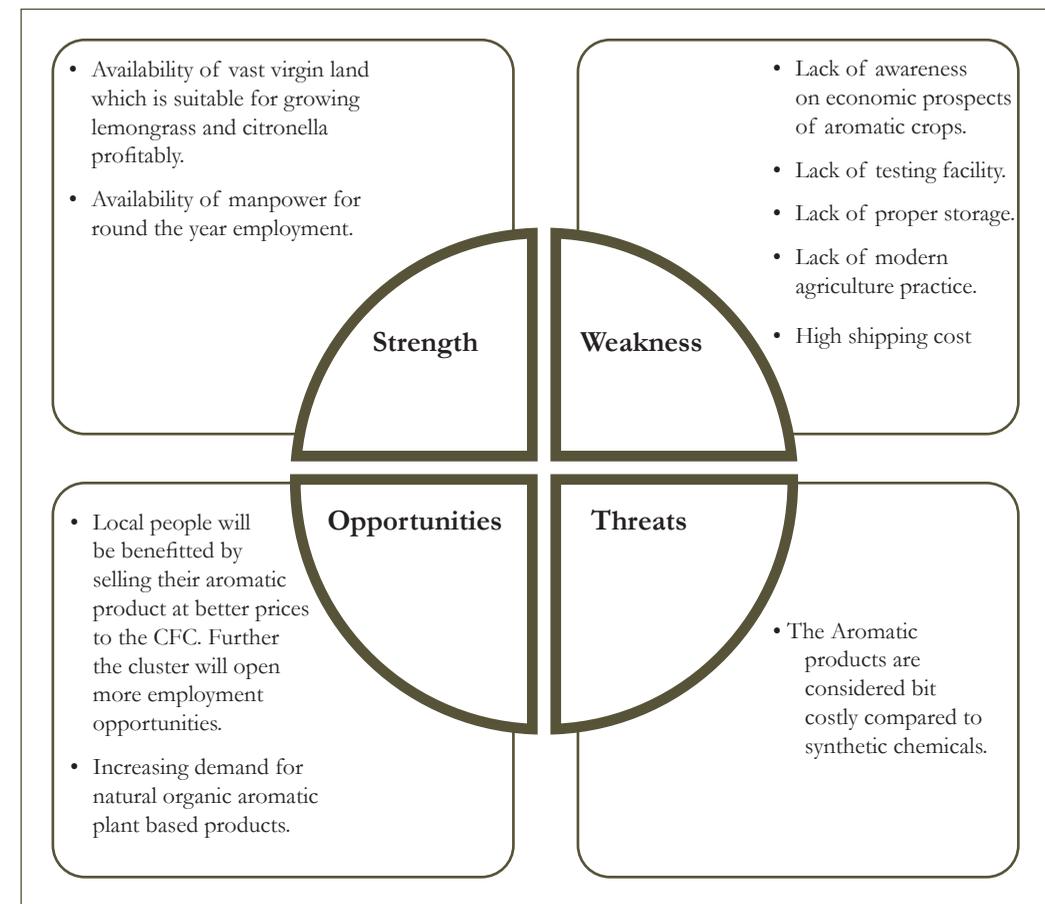


Figure 2: SWOT Analysis for the Cluster

Strong market linkages have been established which will benefit the cluster to enter into a global market. B2B channel shall also be worked out by registering through trade portal like.

Trade India, India Mart, etc. The products can be exported in the international market where it will be displayed as natural organic products.

National market-Supply channel shall be worked out and bulk selling shall be initiated by partnering with agency like GeM (Government e Market Place), KVIC with their Khadi India and Khadi Natural brand, Emami, FabIndia, Dabur, Himalaya etc. An exclusive outlet shall be opened in Imphal for sales promotion of SHG product of Fragrance Cones. The aromatic oil is sold through M/S Thangching Herbals Enterprises.

4. Critical Challenges Faced in Implementation

The main challenge in implementation is mobilizing the farmers. It is difficult for the farmers to sustain themselves till the harvest of the crop. Traditionally, they are habituated to shifting their cultivation, but with lemon grass the shift is a major transformation. There has been a lot of reluctance in learning the new machinery. Earlier the knobs were simple but now the distillation machinery needs training and practice.

5. Impact Of The Intervention On The Community

5.1 Social Impact

The beneficiaries have received training on best practices of Lemongrass. Specialized training has been provided to entrepreneurs on processing of essential oils, making of handmade product for the SHG members, organising buyer seller meet. New buyers like khadi India, local traders and Thangching Herbal Enterprises help the principal firms to understand buyers' requirements. They have been now participating in Aromatic Exhibition to sell and exhibit their products. Launching of Interface with e-commerce service providers like India Mart, Alibaba is in process.

5.2 Environmental Impact

The major source of livelihood for the farmers in this region was jhum cultivation. Logging was also an important economic activity of the region. Some farmers here were also indulging in poppy cultivation⁴. This has now changed to permanent cultivation. This project is principally a non-polluting activity. At farmers level, cultivators are encouraged to use good cultivation practices. This will ensure that the land is not exploited and is utilized in a sustainable manner. Reuse of spent raw materials is undertaken by encouraging the farmers for producing compost. At CFC level, the site (approximate area of 0.937 acre) is located on the foothills of Churachandpur. It was vacant and unused historically. The site plans to implement zero discharge on the site, avoiding discharge of effluents. Compost produced from the grass after distillation can be used to increase the yield.

5.3 Economic Impact

These farmers will be benefited by selling their produce to the CFC at remunerative prices. Further, about 37 local people will get direct employment in the CFC in various capacities and about 250 members of local SHGs will be engaged in preparation of handmade product, Fragrance Cones.

Table 3: Increase in Farmers' Income

⁴ Soma Ghosal, 2003, *The Politics of Drugs and India's Northeast*, Pg. 65-66

| Farmers Income-Pre and Post Intervention | | | | | |
|--|--------------------------------------|--------------|--|----------------------|----------------------|
| | PRE INTERVENTION (Paddy Cultivation) | ₹/year | POST INTERVENTION (Aromatic grass Cultivation) | ₹/year | ₹/year |
| | FARMERS | | FARMERS | 1 st Year | 2 nd Year |
| Grass income | 16 Quintals per year (16*1,100) | 19,200 | 80 litres oil per year (80*775) | 62,000 | 62,000 |
| | Seed & slips | 2,000 | Slip | 27,000 | 0 |
| Expenditure | Labour expenses | 15,000 | Labour expenses | 22,000 | 25,000 |
| Total expenditure | | 17,000 | | 49,000 | 25,000 |
| Net income per acre | | 2,200 | | 13,000 | 37,000 |
| | | | CFC Employees | | |
| | | | Rural youth working in the CFC (Unskilled/skilled) | 8000-20,000 | 8000-20,000 |
| | | | Income of SHGs | | |
| | | | 250 SHG member would be involved in preparation of Fragrance cones Earning ₹. 250*20(20 working days in a month) | 5000 | 5000 |

6. Issues in Achieving Scale and Sustainability and Efforts Made to Address Them

- The farmers are assured at least 30-40 percent higher return through the cultivation of lemon grass. Earlier they had to wait to find a suitable buyer for their crop, now they are paid cash during harvests.
- The essential oil will soon cater to a growing market including Pure Essential Oils - Lemongrass & Citronella, Fragrance Cones (with mosquito repellent properties), Herbal Tea including tea bag and granules and Herbal Liquid Hand Wash. Under the proposed cluster, the essential oil manufacturers will tie-up with the FMCG companies for selling the finished goods in the different market segments.
- Citronella essential oil is obtained from the leaves and stems of different species of *Cymbopogon nardus* (Citronella). The oil is used extensively as a source of perfumery chemicals such as citronellal, citronellol, and geraniol. These chemicals find extensive

use in soap, candles and incense, perfumery, cosmetic, and flavouring industries throughout the world.

- Lemongrass essential oil (Cymbopogon citrates), is prepared from lemongrass plant which grows in tropical and sub-tropical parts. The oil can be bright or pale yellow with a thin consistency and a lemony scent.
- Product quality is strictly maintained through use of certain diluents like edible oils in compliance of organic certification agencies.
- Efforts are being made to forge linkages with financial institutions, industrial manufacturers, industry associations, raw material directly being sourced from farmers.
- There has been a massive transformation in technology, through installation of distillation units near the fields and GC-MS (Gas chromatography–mass spectrometry). In the last two years, hard interventions like installing mobile distillation units of 350 kg capacity, 48 tray dryer, dhoop-making cone machine, tea cone blender have been executed.

7. Key Success Factors

7.1 Market Positioning

The product profile includes pure essential oils of lemongrass and citronella, fragrance cones with mosquito repellent properties, herbal tea, tea bags, granules and herbal liquid hand wash. The medicine and wellness industry has boomed with COVID bringing an increased awareness and demand for natural aromatic and medicinal plant-based products. The cluster is now consolidating its market positioning for niche aromatic products globally.

7.2 Triple Bottom Line Approach

The cluster follows a triple bottom line approach of addressing social, economic and environmental factors. Besides addressing initial challenges in establishment of a cluster in hilly terrains, the contribution and knowledge of its partners have benefited greatly in achieving goals towards co creating a sustainable enterprise.

7.3 Role of Technology

Through the hard interventions in the grant, the major cost of construction of CFC, new technology and machinery has been received by the cluster. The use of GC has resulted in identification of volatile chemical substances individually. The cluster now produces superior grade oil with 75-85% of citral, whereas the international standard is 75%.

7.4 Market Demand

There is a huge demand in the market for both native and aromatic products. With the advent of Covid 19, there is a growing demand for change in lifestyles and shift to using natural products. It is through collaborative efforts that a community can be developed. Europe accounts for over 40% demand and projected growth is approximately 9% per year. Growing consumer awareness is a key driving factor for the global essential oil market over the speculated period. A major shift from synthetic to natural additives is seen, owing to the growth in organic products industry.

Changing the Paradigm of Cumin Farming in North Gujarat

Case Study of Banas Farmer Producer Company

Ashutosh Deshpande, Bharat Patel, Gautam Sharma

1. Background

Banas Farmers Producer Co Ltd is located in the Radhanpur block of Patan District in Gujarat. Radhanpur is located about 170 Kms from Ahmedabad, towards the Northern side and about 70 Kms from the district headquarters – Patan. The region abuts the Rann of Kutch, which lends it a semi-arid climate. Average rainfall is about 500 mm annually, all condensed into a period of 25 days. Hence, the climate can fluctuate between extreme dry spells and periods of inundation. A majority of farmers depend on rains for irrigation, as only an approx. 30% of the area is irrigated, bore-wells and open wells being the main source. Farmers are pre-dominantly small and marginal, with average land holding being around 1-1.5 acres. Farmers in Radhanpur primarily grow Pearl Millet (Bajra) and Black Gram (Urad) during the Kharif season and Cumin, Castor and Chickpeas during the Rabi period; Cumin and Castor being the main cash crops.

Like many regions in India, farmers in Radhanpur also face distress. Costs of cultivation (particularly fuel, inputs and labor) are rising, without proportionate increase in incomes. For instance, Directorate of Economics and Statistics indicates that average wage rate for labor in Gujarat increased by 4.8% CAGR between 2016-17 and 2019-20. During the same period, productivity of cumin (main cash crop) remained stagnant (Spices Board) and so did the market prices (Agmarknet)

Radhanpur and surrounding areas produce some of the best quality cumin in India. Radhanpur is also located about 100 kms away from Unjha, Asia's largest market place for seed spices such as Cumin, Carom (Ajwain), Fenel (Saunf) etc., which augurs well from a market point of view. However, farmers in Radhanpur have seldom been able to profit from this. This is because of the following reasons:

- 1. Small Land Holdings.** Due to small land holdings, the marketable surplus per farmers is too small to make it economical for the farmer to transport it to Unjha. Hence, they are often forced to sell Cumin to the village level aggregators.
- 2. Poor access to formal credit.** Access to formal credit is often inadequate and does not meet all requirements of a farmer. Particularly credit availability at “Point of Sales”, when purchasing agri inputs like seeds, fertilizers etc. This makes the farmer dependent on informal sources of finance, which further ties the farmer to these middlemen for the sale of the final output (Cumin or Castor). Such sales often happen during the peak arrival season, when prices are at their lowest, thus inhibiting the farmer from realizing the full value of her produce.

When farmers, bereft of options, sell to local traders, they face other challenges, such as follows.

1. **Non-standard and opaque grading practices.** Farmers have limited knowledge on the grading process of their produce which determines the rate they then receive from the trader. Because of this, the farmer has no option but to accept whatever rate they are offered.
2. **Unfair deductions.** It is a standard practice to deduct costs such as weighing cost and labor cost (unloading the produce from the farmer's truck etc.). This and the commission charged by the trader means the farmer receives lesser than the quoted price.
3. **High Interest costs.** Many farmers take credit from informal sources (such as traders) to meet their agri inputs (seeds, pesticides). Farmers who take credit from traders are then obligated to sell their farm produce back to them, thus facing the prospect of interest deduction from the value of their farm produce. The interest rates can hover anywhere between 25% to 30% p.a.
4. **Payment delays.** Payments are not always prompt. Especially during times of glut, payments can often be delayed by the trader, despite overtly agreeing to pay in a day's time.

Farmers also face challenges of stagnant productivity due to poor access to quality agri inputs (seeds and fertilizers) and obsolete cultivation practices. At the same time, lack of skills in post-harvest management leads to poor grading of produce in the market, leading to lower prices for the farmers.

The Banas Farmers Producer Co (Banas FPC) was formed with the intent of addressing the above issues being faced by the farmers. Formed as part of the Rural Transformation program implemented by Reliance Foundation, Banas has steadily grown as a strong support system for its member farmers. Its value chain intervention in Cumin is slowly changing the very paradigm of cumin farming in the region. This case study captures the story of Banas FPC and how it has helped improve the livelihoods of many farmers.

2. About Banas FPC

2.1 Basic Details

Banas FPC was incorporated in April, 2016, by farmers who were led by Sh. Karsan Bhai Jadeja, the present chairman of the company. Having faced distress despite growing a high value crop, these set of farmers decided to break the circle of exploitation and chart their own path. From humble beginnings, Banas FPC has a membership of 1,437 farmers (including 220 women farmers) today and caters to the needs of more than 4,000 farmers in the region. The FPC has a share capital of ₹ 20 lakhs, and has recorded a turnover of ₹ 6.15 Cr (unaudited) in FY 2020-21. Following are the basic details of the FPC.

| Full Name | Banas Farmers Producer Co Ltd |
|-----------------------------|---|
| Incorporated in | April, 2016 |
| Number of Shareholders | 1,437 (including 260 women) |
| Farmers Transacted with | 4,000 + |
| Share Capital | ₹ 20.06 Lakhs |
| Name of the Chairman | Karsan Bhai Jadeja |
| Name of the CEO | Dilip Bhai Gajjar |
| Key Businesses | <ol style="list-style-type: none"> 1. Trading of Raw Cumin, Chickpeas, Castor 2. Production and trading of IPM Cumin. Project is run in collaboration with IFFCO Kisan. 3. Processing of Cumin and sale as retail ready produce – in bulk as well as in retail packaging 4. Sale of Cumin in own brand - Chorad 5. Custom hiring of farm machinery to shareholders 6. Sale of Agri Inputs (Seeds, Fertilizers, Pesticides) 7. Sale of Cattle Feed to farmers |
| Licenses held | FSSAI, Seed, Fertilizer, Pesticide, APMC, ISO 9001 and 22000 (in process) |
| Key Partners | <ol style="list-style-type: none"> 1. Marketing Partners <ol style="list-style-type: none"> a. IFFCO Kisan (Production of IPM Cumin. Buys back IPM cumin from Banas) b. ITC and Olam (Sale of IPM Cumin) c. Reliance Retail (Sale of Chickpeas, Black gram and Cumin) d. Gujarat Narmada Fertilizer Co (Sale of Neem Seeds) e. NCDEX (Sale of Castor and Cumin) f. GUJPRO (State level federation of FPCs) 2. Finance Partners <ol style="list-style-type: none"> a. NABKISAN b. Samunnati c. NABARD |
| Key Facilities run by BANAS | <ol style="list-style-type: none"> 1. Cumin processing plant (cap. 10 MT/day), with financial support from NABARD and NABKISAN 2. Soil testing and water testing facility in collaboration with IFFCO 3. Seed production project on green gram, moth bean and Bajra, in collaboration with Satvik 4. Banas owns 1.63 Ha land where it plans to set up a warehouse and its organic seed park. 5. Farm Machinery custom hiring centre run under subsidy from Department of Agriculture |

2.2 Financial Performance

Since inception, Banas has grown from strength to strength. Starting small in FY 2016-17, with a revenue of ₹ 16 lakhs, the FPC has grown 38 times today and recorded a turnover of ₹ 615 Cr in FY 2020-21 (unaudited). The FPC plans to record a turnover of ₹ 12 Cr in the current financial year and reach 100 Cr in the next 5 years. The FPC's net profits have charted a similar path, growing from a loss of ₹ 69,000 in the first year to ₹ 7.67 lakhs today. The following graph shows the FPC's growth journey.

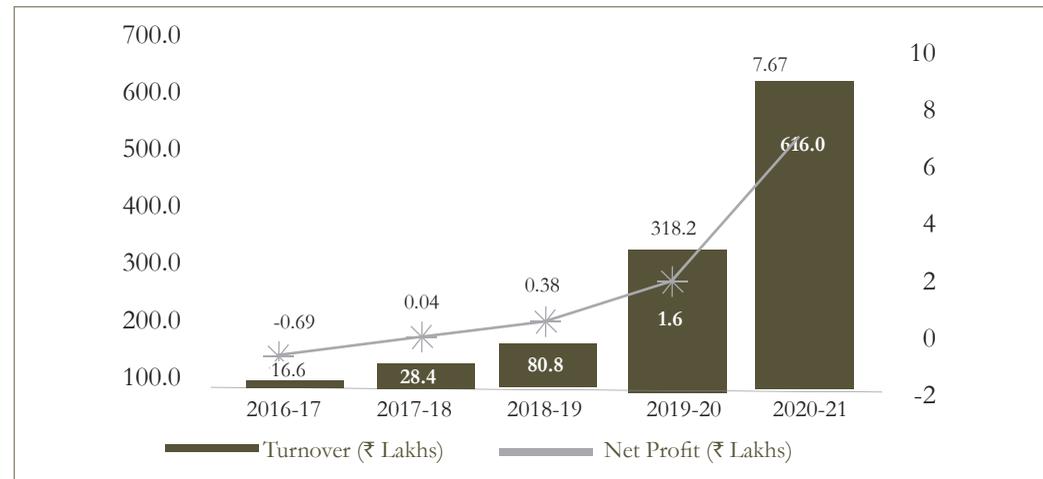


Figure 1: Turnover and Net Profit (₹ Lakhs)

During this period, the FPC has also systematically expanded its membership base, to reach out to more and more farmers. Starting from 545 members in 2016-17, the FPC today has more than 1,400 members. Its paid up share capital has also increased from ₹ 10.6 lakhs to ₹ 20.06 lakhs today. The following graph depicts the growth in membership and share capital.

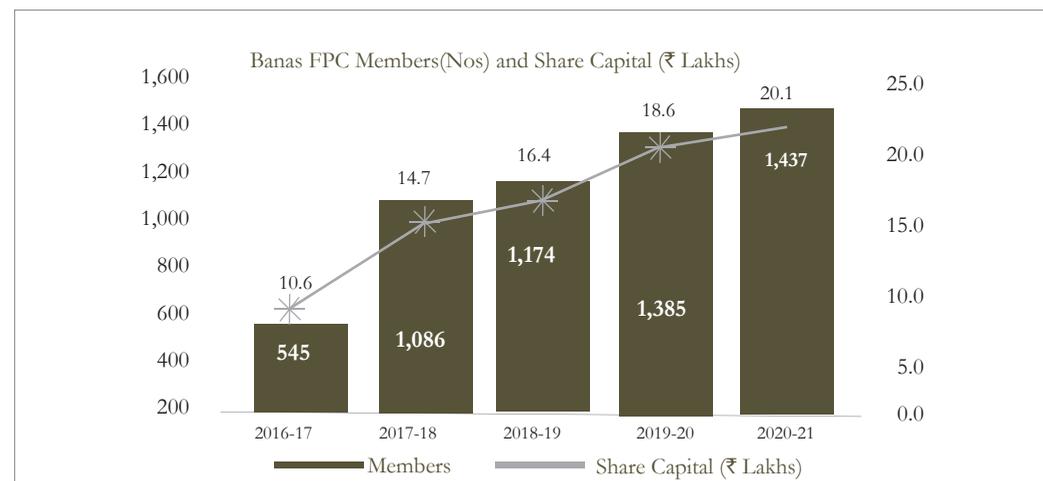


Figure 2: Members (Nos.) and Share Capital (₹ Lakhs)

2.3 Awards and Accolades

Banas has had its fair share of awards and appreciations over the years. Following is a brief list.

1. In 2019, the FPC was awarded the Best FPO (Emerging Category) at the Livelihoods India FPO Impact Awards, organized by ACCESS Development Services.
2. In the same year, the FPC received a special citation from Sh. Jaidratsinh Parmar, Hon Minister (former) of Roads and Buildings, Govt. of Gujarat
3. Karsanbhai Jadeja, chairman of the FPC, was nominated to the board of GUJPRO, a state level federation of FPCs in Gujarat.
4. In July 2021, the Chairman of NABARD, Sh. G R Chintala laid the foundation stone for the FPC's proposed food processing park in Radhanpur.
5. In 2021, the FPC received appreciation letters from the District Collector of Patan and the Regional Office of NABARD.

3. Processing of Cumin and Impact

3.1 The Journey

Having access to a processing unit in itself is extremely empowering for the farmers. Moving up the value chain is a natural progression for any business, and so it should be for farmers as well. In an urban setting, a prospective entrepreneur would typically have access to an array of food processors who would be willing to process smaller volumes of their raw material on a job-work basis, at high levels of efficiency and finesse. Such a processing ecosystem is seldom available to farmers and FPCs, to help them grow. And if such facilities do exist, they are often of poor quality, which increase costs and reduce quality of the end produce. Banas faced similar challenges when it set out on its food processing journey in FY 2018-19.

Before its processing venture, the company had played small, focusing on trading of raw cumin and other products such as chickpeas and castor. The trigger for setting up processing machinery, was the fact that despite growing one of the best quality cumin in India, farmers in Radhanpur managed to earn only a small fraction of the end consumer value. For example, raw cumin is typically sold by a farmer at around ₹ 120 per kg (Ref price, May 2021). The same cumin gets sold between ₹ 400 to 600 per kg to the end consumer. The Cumin value chain is relatively simple cumin and does not go through significant value addition during its path from the farmer to the end consumer. Given this, it was clear that there were intermediaries that were cornering a significant chunk of the margin in the value chain, without adding proportionate value. Karsanbhai and his team had decided to something about it.

In FY 2018-19, the FPC took its first step into value addition by processing and selling 4 MT of Cumin, procured from its farmers. The FPC did not own a processing unit, so it hired spare capacity in a local unit in Radhanpur to process their cumin on a job-work basis. This unit was small and not very efficient in terms of the quality of output. So the FPC, willingly made some small investments in the unit and in equipment such as finer sieves etc. The unit was lying defunct for some time, so the FPC invested in getting the unit started. To ensure their Cumin was processed properly and there was no pilferage, the FPC Board Members volunteered to take turns to be present at the unit for the whole day. This was not an easy task, since the unit was housed in a small room, without proper seating or ventilation, and the Board Members had to spend between 6-8 hours a day at the unit to oversee processing. However, these first steps bore fruits when the FPC was able to sell Cumin at least 25% better rates than what they would have got for raw cumin. This first transaction, also boosted the FPC's confidence and a nudge to plunge full-fledged into cumin processing.

Since then, the FPC's processed cumin business has only grown stronger. Volumes have grown from 4 MT in FY 2018-19 to 197 MT in FY 2020-21 (last financial year). Turnover from sale of processed cumin, during the same period, has grown ~35 times, from ₹ 8.09 Lakhs to ₹ 2.8 Cr. The FPC has also grown its clients. From being dependent on local traders for sale of processed cumin, the FPC today sells to national and international level buyers such as ITC, Olam Agro, and IFFCO Kisan. In FY 2020-21, the FPC inaugurated their own cumin plant. With this plant in place, the FPC hopes to further grow its processed cumin business at an exponential rate. The following graph charts the FPC's growth in processed cumin business.

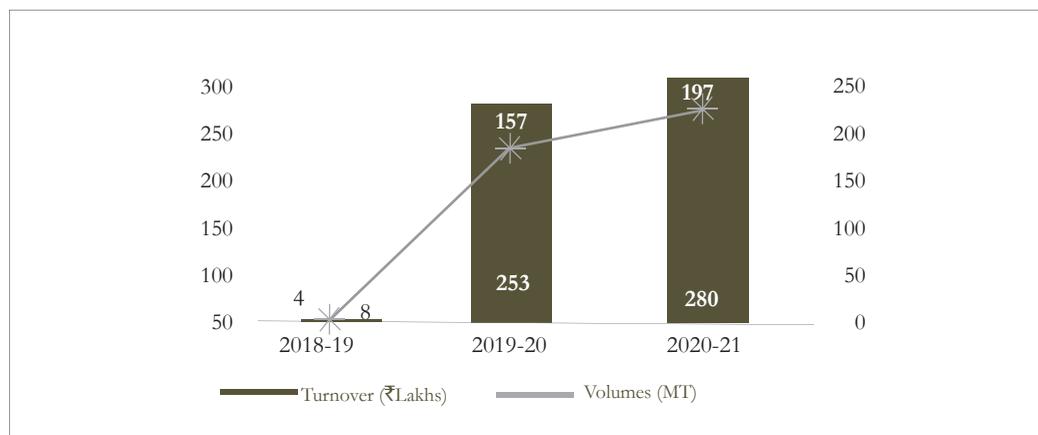


Figure 3: Processed Cumin - Sales (₹ Lakhs) and Volumes (MT)

In the year 2019-20, the FPC started a new initiative. In collaboration with IFFCO Kisan, the FPC ventured into production and processing of Cumin grown under IPM (Integrated Pest Management) conditions. Conventional cumin produced in India often fails 'Pesticide Residue Tests', when they are exported to countries in Middle East, Europe and the US.

Hence, there is a great demand for cumin grown under IPM conditions, which contain very low pesticide residue, along with absence of certain chemicals that are banned in the west. The FPC started a small pilot by enrolling 100 farmers into the IPM program. IFFCO Kisan provided the technical expertise with training of trainers, part funding of extension for staff salaries and a digital software to track farmer's fields. IFFCO Kisan also provided a buy-back assurance for all the cumin that passed the Pesticide Residue Test. Meanwhile, the FPC mobilized the farmers, ensured that the farmers were properly trained, monitored the farms and then procured such cumin. Farmers on an average earned 10-15% greater prices than what they received from conventional cumin. This IPM activity has grown strong since then. From 100 farmers in the beginning, the FPC now works with close to 400 farmers. It continues to sell IPM Cumin to IFFCO Kisan as well as to other major buyers such as Olam and ITC.

In FY 2019-20, the FPC also launched their own brand of Cumin, called *Chorad Cumin*. While the brand has a very small footprint at the moment, FPC hopes to focus on this going forward. The FPC wants to expand its cumin business exponentially, and at the same time, expand its basket of spices to include carom (Ajwain), fennel (Saunf), coriander (Dhaniya) as well as cumin and coriander powder.

3.2 The Plant

In FY 2020-21, the FPC set up its own Processing plant for Cumin. The plant has a processing capacity of 10 MT per day. The processing plant has been set up over 1.65 acre of land that has been purchased by the FPC exclusively for setting up a food processing complex. The total value of the plant is ₹ 25 lakhs. Additionally, the FPC has taken a warehouse on long lease from the "Sahakari Mandali". The plant was financed as follows by the FPC.

Table 2: Financing Sources for the Plant

| Financing Partner | Amount (₹) | Instrument | Remarks |
|-------------------|------------------|--------------------|---|
| Self-contribution | 5,80,000 | | For packaging unit |
| NABARD | 2,70,000 | Grant | Term loan for 5 years @9.93% (to receive ₹ 2.5 lakhs subsidy) |
| NABKISAN | 15,00,000 | Loan | Equipment such as weighing machine, moisture meter etc. |
| IFFCO Kisan | 1,00,000 | Grant | Warehouse provided rent free for one year, and then on long lease |
| Sahakari Mandali | -- | Warehouse facility | Self-funded by the FPC |
| Miscellaneous | 50,000 | | |
| TOTAL | 25,00,000 | | |

The decision to set up a fully owned plant (and discontinue operations on job-work basis) was first taken in a board meeting in FY 2019-20. Two of the Board members, Kanubhabhai Parmar and Merambhai Ahir, raised the issue of poor quality, high operating costs and slower time to market, when processing the produce on job-work basis. Since there was no other viable unit in Radhanpur, the board started mulling over setting up their own plant. After numerous debates, the board reached a consensus on setting up a plant. The board members who were opposed to the idea were primarily worried about taking up a large liability on the FPC's books, but they were eventually convinced by other members. The proposal was placed before the general body during the FY 2019-20 AGM and passed through a show of hands.

The setting up of the processing plant brings the following advantages to the FPC.

- 1. Saving in operating costs.** With their own plant in place, the FPC has been able to cut their operating cost by about 38.8%. Table 3 depicts the savings in operating costs.

Table 3: Savings in Operating Cost

| Cost Components | Costs in Job-Work (₹/Kg) | Own plant (₹/Kg) |
|--|--------------------------|------------------|
| Transportation | 1.5 | 0.2 |
| Labor | 1.0 | 0.2 |
| Processing Fees | 2.5 | -- |
| Processing Losses | 12.0 | 6.5 |
| Overheads (Electricity charges, labor at plant, rent, HR etc.) | -- | 3.5 |
| TOTAL COST | 17.0 | 10.4 |

- 2. Better Quality.** Despite many efforts, the FPC wasn't able to ensure good quality to its end customers. There were often problems with uniformity of grain and presence of trash in the final produce. At the same time, removal of twigs attached to the cumin seed was also below optimal. The FPC's present facility has new machines and all necessary attachments to ensure optimum quality meets the demand of the market.
- 3. Empowerment.** As mentioned earlier, setting up of a processing unit in itself is a statement of empowerment for farmers. Now farmers, who don't want to settle for selling raw produce, have an option of getting their produce processed for a fee and then sell at a better price. In the case of Banas, since the setting up of the plant, close to 33 farmers have got 30 MT of their cumin processed from Banas's unit on need basis.

Banas currently runs its plant in two shifts for 6 months in a year. The FPC has hired 10 local youth for managing the processing facility. Of these, 3 are permanently employed with Banas as technical staff. They were trained by Banas and employed later. Another seven are hired on commission. The FPC also hires labor and other services (such as transport etc.) locally.

3.3 Impact

Banas's venture into processing has had a multi-dimensional impact on its members as well as the local ecosystem. The impact of Banas's processing can be viewed in two ways – (1) The impact on the market experience of an individual farmer and (2) Impact on the local ecosystem. Following is how Banas has impacted the farmers and the ecosystem.

1. Impact on Market Experience of Individual

- Better Prices.** The most immediate impact has been on the prices. On an average, Banas members have seen an average 8-10% increase in prices offered for raw cumin. Earlier, raw cumin from Radhanpur had to be taken to Unjha (some 100 kms away) for processing. Hence the price offered by traders to Radhanpur farmers included deductions for transport costs, perceived discounts on quality and often some buffer.

A processing plant closer to home has helped change this narrative.

- Patronage Bonus.** Banas started distributing patronage bonus to its members starting FY 2019-20. That year, the FPC allocated ₹ 1 lakh from its profit for members who had transacted with the FPC. For FY 2020-21, the FPC board has proposed a patronage bonus of ₹ 3 lakhs, and has been put up to the AGM for approval.

- Fair grading and weighing.** Problems of agriculture marketing do not stop only at the right price. Often, farmers may be promised a good price for their crops, but the effective price may be only a fraction due to the numerous deductions.

Some of the common deductions include overheads like unloading, weighing etc. Farmers also face an opaque grading system and seldom know what the true worth of their crop is. When trading with Banas, there are no unfair deductions made from the farmer's payments. This ensured that the effective returns for the farmers are much higher than the above-mentioned 8-10% price appreciation.

- Savings in local transportation.** One of the biggest convenience has been that the Banas plant is located close to the farms. This has significantly reduced transportation costs for farmers. Earlier, a farmer would have to pay up to Rs 100-150 per quintal to transport cumin to Unjha. Even if the cumin was bought by a local trader, they would deduct the transportation cost from the farmer. Now, Banas's members can transport cumin at ₹ 20 per quintal and still get a good price.

- Assured and prompt payments.** Farmers are assured of a full and prompt payments with no deductions owing to quality. That is a very different reality from the experiences farmers have had with local traders, in the past.

Banas FPC played a stellar role during the lock down in 2020. At a time when cumin farmers were being forced to sell produce at 50% lower prices than normal, Banas stepped in and procured all cumin at the right market price, thus saving farmers from distress.

2. Impact on the Ecosystem

- **Local Employment.** As mentioned, in a small way Banas has started creating employment, giving a boost to the local economy. The FPC currently employs about 18 people directly and indirectly. Banas has hired 10 village youth who manage the processing plant. Additionally, the FPC hires labor (both male and female) from the local villages who are involved in loading, unloading and cleaning tasks. This ensures continuous employment in a safe location and prompt payments. Banas's growing business activities have also ensured increased work for local transporters, local hardware stores (who supply equipment to the plant) etc.
- **Empowerment.** Farmers in Radhanpur had rarely thought about processing their own cumin. Cumin is a relatively simple crop to process, since it goes through minimal value addition between the stages when it is raw and when it is sold as a finished good to the end consumer. Even if a farmer ever thought of processing their own produce, they lacked a facility in the local vicinity. Banas has offered farmers the option to process their own cumin on a job-work basis and then sell on their own into the market. In FY 2020-21, some 33 farmers got 30 MT of their cumin processed, either for self-consumption or sale into the market. This is a step towards empowering farmers to take charge of their own crop value chains.
- **Support to SHGs.** Banas was awarded a rural mart (a shop for selling products made by rural enterprises) by NABARD in July 2021, with the aim of promoting local products. Banas, will soon provide a platform to products made by SHGs in Radhanpur and neighboring areas, thus leading to further value creation at the local level.
- **Impact on local trading practices.** A significant impact of Banas's activities have been on the local trading practices. As Banas's volumes grew, commanding some heft in the market, farmers reported of better rates being offered by local traders for cumin. A similar experience can be recounted for agri inputs, particularly seeds and fertilizers, which were often sold at a premium to MRP. So, indirectly, Banas has started reforming the local market.

4. Key Learnings

Banas's success can be traced to the following factors

1. **Strong community development.** The biggest strength for Banas is its visionary and enterprising leadership. It is this leadership, led by Karsanbhai, which is able to galvanize farmers around them. Banas's was formed as a result of Reliance Foundation's Rural Transformation program being implemented in Radhanpur. On the back of interventions on water security, sustainable farming, community nutrition etc., RF helped build strong community institutions as well as develop effective community leaders. These leaders gradually grew to form the promoter base of the FPC, and a part of them formed the board. Banas is therefore reaping fruits of a systematic community development effort, undertaken as part of Reliance Foundation's program.

2. **Developing strategic relationships.** Growing a business needs strategic partnerships. And Banas has benefitted significantly from its partnerships with IFFCO Kisan, Olam, and ITC etc. These organizations have not only helped the FPC stabilize its cumin business, but also contributed to its growth, with IFFCO Kisan also contributing towards setting up the processing plant.
3. **Systematic long term planning.** Banas has bootstrapped and grown its business to its current levels. It received no financial aid from any organization. This success did not come overnight, but was a product of systematic planning and perseverance. Even in 2016, when Banas was established, the BoD was clear that they wanted to eventually enter into processing, and they worked towards it step by step. They also systematically diversified their services to ensure year-round connect with the farmers as well as to spread risks. Even today, the FPC has made systematic plans for entering into exports, expanding its basket of spices etc.
4. **Entrepreneurial spirit.** A corollary to the earlier point on community development. Strong and enterprising leadership ensured Saurashtra FPC's perseverance and the ability to step beyond its comfort zone. The speed with which the FPC moved into processing, the firm decision in setting up its own unit as well as the ambitious attempts to sell through large format stores stand testimony to that
5. **Building community trust.** Banas has worked with the single minded objective of improving incomes of their farmers, and all their activities are streamlined to meet this goal. This dedication to purpose is reflected in the way they interact with their farmers, who now trust Banas as a partner and a safety net for their problems. This trust ensures Banas high patronage from its members.

Banas extending its hand to other FPOs in the region has expanded their outreach and impact to double the number of farmers than its membership base. Banas and its four associate FPCs are now aiming to register themselves as a collaboration and expand it to cover all cumin and castor growing FPOs in North Gujarat

5. Going Forward

Banas has very ambitious plans for its future. And as it grows, its impact on the community will keep running deeper. In the near term, following are what Banas envisions for itself.

1. Plans for the next 10 years

- The FPC expects to reach a turnover of ₹ 100 Cr in another 10 years' time. During this period, it would also like to grow its membership to 10,000 farmers and raise a paid up equity of ₹ 1.5 Cr.
- The FPC is aiming to venture into export of Cumin in another 5-7 years' time. The FPC has started its due diligence on the same.
- The FPC launched its own brand – Chorad Jeera – in FY 2019-20. While small at

the moment, the FPC hope to eventually sell Chorad through large format retail stores as well as on-line platforms.

- Connected to the above, the FPC also plans to increase its basket of spices and include cumin powder, carom (ajwain), fennel (saunf) and coriander (dhaniya) to their product basket.

2. In the short term (next two years)

- **Organic production.** The FPC has started venturing into organic cumin production. Organic spices are a big market opportunity and promises significantly better profit margins. The FPC was awarded an organic seed park by NABARD. Capitalizing on that, the FPC has already started setting up Organic Grower groups. In another two years the FPC will venture into sale of organic cumin.
- **Food processing cluster.** In July 2021, the chairman of NABARD, Sh. G R Chintala, laid the foundation stone for the FPC's proposed food processing park. The FPC has already set up the cumin processing facility, and plans to set up a dal mill, a cold storage facility and a plant for Atta and Besan making. Their application for subsidy from the agriculture department is in advanced stages of processing. The FPC hopes to set up these facilities in the next two years.
- **Rural Mart.** The FPC has also started work on setting up a rural mart in Radhanpur. This mart will allow the FPC to not only sell their own branded products but also open the platform to SHGs and micro-enterprises in the district.
- **Formalizing a consortium of FPCs.** The FPC currently supports 4 other FPCs in the region with market linkages and operations, effectively working together as a consortium. In the next one year, the FPC will formalize this relationship and form a registered federation.

Even as the FPC journeys on its ambitious set of targets, it will focus on further strengthening its institutional systems and capabilities of the leadership, to enable the organization to take the next level.

Farmers to Entrepreneurs A Journey of Indigenous Women of Niyamgiris in Odisha

Saswati Subhra Das

1. Introduction

Perched in the foothills of Niyamgiris, in the remote Gram Panchayat of Chatikona, lies the village of Marthaguda. Bissamcuttack Block of Rayagada district of Odisha is inhabited predominantly by scheduled tribes (59.67%)¹. Rain fed agriculture, wage earning and migration to states like Gujarat, Telangana, Andhra Pradesh, Tamil Nadu, Karnataka and Kerala in search of livelihoods during lean season constitute the livelihood portfolio of the village. Sloppy and hilly terrain favours the cultivation of turmeric by around six thousand Dongria Kondh farmers of Kurla and Kondh farmers of Chatikona. Women of Marthaguda used to sell raw turmeric to local business owners at meagre price in the absence of milling facility in the vicinity. Tapping this opportunity of availability of good quality turmeric in bulk and scope of setting up of a women owned and run turmeric processing unit, Harsha Trust supported the women of Marthaguda to form "The Maa Mahalaxmi Women Turmeric Producer Group". With technical and financial assistance from Selco Foundation, a turmeric processing unit with a capacity to grind about 144 kilos within 8 hours, during summers was set up. This case captures the transformational journey of women of "The Maa Mahalaxmi Women Turmeric Producer Group" from farmers to entrepreneurs.

2. Background

2.1 Village Context and Background

Marthaguda village is located at a distance of about thirteen kilometres from the Block headquarters at Bissamcuttack and forty-three kilometres from the District headquarters at Rayagada. The village comprises a cent percent population of Scheduled Tribes of the 'Kondh' tribe, with a total population of 151, including 76 females and 75 males and total thirty-five households. The village as well as the district comes under Western Undulating Zone as per the Agro-Climatic Zoning. Most of the land holdings are scattered, small and marginal. Farmers depend primarily on rain-fed agriculture and hence, the area is largely productive during the Kharif season in monsoons. In the current year, 2021, from June till 24th September, the block has received 667.11 mm of rainfall, compared to 1343.10 mm in 2020, 1205.30 mm in 2019 and 1473.30 mm in 2018². The total percentage of irrigated land during Rabi season is around 20% and during summer, it falls to about less than 10%.

¹ District Census Handbook- Rayagada, 2011, Govt. Of India

² Block Agriculture Office, Bissamcuttack

Paddy is the most important crop for low lying areas along with vegetables such as ivy gourd, brinjal, okra, cowpea, ridge-gourd and bitter-gourd. Most of the lands are sloping or highlands where ragi and turmeric is grown. Of the total households, twelve are landless, who work in the uplands of the adjacent Kurli panchayat as farm labour, earning a sum of ₹ 100-150 per day per person during the peak agriculture seasons for paddy sowing, transplanting and weeding. Ten households own more than one acre of land with average land holding being about two acres. Six farmers grow vegetable, thirty farmers grow pulses and ragi, fifteen farmers are engaged in Wadi cultivation of cashew and mango, while fourteen farmers grow turmeric on their lands. In terms of livestock farming, fifteen farmers raise backyard poultry and rear buffaloes, while one farmer is engaged in goat rearing.

Climate change, leading to irregular monsoon and insufficient rain often leads the inhabitants towards drought like conditions, leading to drudgery. In such a scenario, in order to earn secure livelihoods round the year, men and women from the area tend to migrate to states like Gujarat, Telangana, Andhra Pradesh, Tamil Nadu, Karnataka and Kerala to work in brick kilns, food processing units, garment production units, construction sites and factories, on a seasonal basis in search of livelihood opportunities.

2.2 Brief Profile of Harsha Trust

Harsha Trust was constituted by a group of professionals under the leadership of Mr. Bismaya Mahapatra. Harsha Trust is registered under Indian Trust Act 1882 on January 29, 2002 with a belief that it is capable of caring for people rather than providing service delivery - which is necessary for bringing a transitional change in the quality of life of the community and thereby contributing to social change. Harsha Trust recruits and deploys committed young people who possess knowledge and empathy to engage with poor communities and bring about development using the medium of livelihoods. Harsha Trust works with more than 1,80,000 families in 17 districts of Odisha, selected on consideration of remoteness from urban settlements and markets, degraded status of natural resources, and inaccessibility of basic amenities, with specific focus on forest fringe villages and rain fed areas, and targeted at disadvantaged communities such as indigenous communities, scheduled castes and women.³

2.3 Harsha Trust's Interventions in Bissamcuttack Block

Since 2004, Harsha Trust has been striving towards ensuring livelihood security and improving the quality of life of rural poor in Bissamcuttack block of Rayagada district. Supported by Sir Ratan Tata Trust, it started working as an implementing partner in five gram panchayats, focusing on Self Help Group (SHG) formation and promotion, ensuring food security, facilitating line transplanting of paddy and medium upland well digging. In the years 2007 till 2010, with support from Jamshedji Tata Trust, it implemented the Diversion Based Irrigation (DBI) project with 14 units of irrigation infrastructure sourced from mountain streams to meet the paucity of irrigation sources during Rabi

and summer seasons. From 2008 to 2017, it implemented Wadi promotion activities for 1700 beneficiaries to grow cashew and mango in two phases, supported by National Bank for Agriculture and Rural Development (NABARD). From 2012 to 2016, by the end of second phase of DBI project supported by Tata Trusts, total of 51 units of irrigation infrastructure were set up in 49 villages. From 2014 to 2017, under the Odisha Lift Irrigation Corporation of the Govt. Of Odisha, 63 solar borewells have been dug in cluster approach. From 2012 onwards with support from Axis Bank Foundation, aiming at sustainable integrated holistic development keeping natural ecosystems intact, Harsha Trust has been working on providing agricultural input support, SHG empowerment, capacity building of farmers and grass-root cadres, innovation and horticulture promotion. From 2018 onwards, through the Agriculture Production Cluster (APC) programme of the govt., with a view to double farm incomes through women's collectives, Harsha Trust has formed and promoted 23 Producer Groups (PGs) for up-scaling of vegetable and livestock farming in over 100 villages of 19 GPs in convergence with Line Departments.

2.4 Harsha Trust's Interventions in Marthaguda village

Harsha Trust started working in the Marthaguda and nearby villages of Chatikona Panchayat in the years 2012 to 2014, with support from Tribal Development Co-operative Corporation of Odisha Ltd. (TDCC), as a resource NGO for vegetable cultivation in 5 acres area after launching a drip irrigation project. Between 2014 and 2017, as a part of the Livelihood Improvement Program for South Odisha (LIPSO) funded by Tata Trusts with administrative costs supported by ABF, it worked on SHG activation of the existing two SHGs in the village (Niyamgiri and Jay Jagannath) and community nursery raising (open, poly-house) in 25 patches in a cluster approach. This was done with a view to strengthen women's collectives to enable them to earn better farm incomes by raising healthy saplings and transplanting those in their main fields at the same time. In the year 2019, with the inception of the APC programme, Maa Majhigouri Producer Group was formed for doubling farm income through vegetable farming and livestock rearing in cluster approach including Marthaguda, Birsiguda, Karnaguda, Bariguda and Ranibandha villages.

3. Intervention

3.1 Problem and Solution Identified

Known for its antiseptic, anti-inflammatory, anti-carcinogenic, stress relieving, de-tanning and de-worming properties, turmeric constitutes an important part of skincare and health regimes and cuisines in Indian households. From *Ubtan* face packs to Hindu wedding / worship rituals to turmeric milk to curries, '*haladi*' (Odia name for turmeric) forms an integral part of the culture of Odisha. It is considered as being purifying and sacred with medicinal properties for curing cold and skin rashes. In the Kondh culture as well, turmeric is an essential part of every religious ritual including deity worship, marriages, birth of a baby or cow/buffalo calf or goat kid.

³ <http://www.harshatrust.org/>

The turmeric grown by more than six thousand Dongria Kondh farmers of Kurli and Kondh farmers of Chatikona across 63 hectares⁴ is rich in curcumin (4-4.2%) with rich colour, quality and fragrance. Despite its rich texture and flavour, in the absence of milling facilities within proximity, the raw turmeric did not fetch a high market value for its farmers.

Historically, women of Marthaguda, used to sell raw turmeric to local business owners through barter system in return of paddy, at meagre prices in the absence of milling facilities within 12 kilometres radius. They were searching for an avenue wherein they could grind and pack turmeric at large scale and sell it on retail basis in the nearby market. But using a manual grinder (Dhinki) could grind a small amount and involved physical labour. Also, mustering the confidence and mobilising resources to set up a conventional grinding mill was difficult for them. They were in search of an avenue wherein these challenges can be addressed. Such was the nature of the problem.

Towards the beginning of year 2020, under Harsha Trust's ongoing partnership with Selco Foundation, Patneswari Agri Producer Company Ltd. (PAPCL) promoted by Harsha Trust conducted a feasibility cum scoping study for establishing different food processing units in the entire block. Tadingpai and Marthaguda were selected for set-up of ragi and turmeric processing units respectively keeping in mind the raw material availability, dearth of milling units in the vicinity and potential market demand. The team realized that starting an electricity-run processing unit wouldn't be feasible in the long run because of intermittent power supply, low voltage and high operational cost on a recurring basis.

Selco Foundation is a social enterprise delivering sustainable energy solutions for the poor households in rural India, with technical expertise and experience in harnessing the alternative and renewable solar energy to power home and street lighting, inverters, water heaters and household appliances and small scale industries across India.⁵ In order to reduce the drudgery of manual grinding and prevent the recurring operational costs associated with a conventional, electricity based processing mill, the Selco team suggested setting up a solar powered turmeric processing mill in Marthaguda.

The Jay Jagannath SHG (promoted by Harsha Trust) and staff from Harsha Trust got together to convince the Marthaguda School Management Committee to provide the kitchen premises of the old school building to setup the processing unit. This ambitious endeavour aimed at capacity building of women for processing turmeric, adding value to it and earning better market price by harnessing solar energy, was welcomed by the community at large.

In order to ensure better market price of the indigenous Niyamgiri turmeric through value addition, by harnessing the power of women's collectives, on March 2, 2020, Harsha Trust in collaboration with Selco Foundation, established a solar-powered turmeric mill with labour contribution from the community and machinery and installation cost of ₹ 4 lakhs.

3.2 Producer Group Formation and Governance Structure

The Maa Mahalaxmi Women Turmeric Producer Group was formed in March, 2020 with eleven enterprising women, who are gradually owning the value chain including the production, processing and marketing. Mrs. Lalita Nanaka was elected as the President and Mrs. Runi Nanaka as Secretary. A bank account of the group was opened at Indian Overseas Bank, Bissamcuttack Branch with the President and Secretary as joint signatory authorities for all transactions. The women were provided orientation on basic operation of the solar inverter, batteries and the mill, along with basic book keeping. However, as the women had never attended schools or operated machines, they expressed their apprehensions regarding the book keeping and operations during the training. To support them, Lalita's husband, Mr. Aarju Nanaka was also imparted the training. After the training, Palai Praska, Sukadei Nanaka and Majhiwani Hikoka were selected to go for retail and door-to-door sale of turmeric powder at Chatikona and Bissamcuttack markets. Initially, there was hesitancy and apprehension as some of them had never gone to the marketplace as sellers earlier. Later on, as they managed to successfully convince customers about the purity and quality of the product, slowly people started buying the product, and women started gaining confidence. Aarju and Lalita volunteered to together procure boiled turmeric and operate the mill. The other members include Mrs. Jira Nanaka, Mrs. Palai Niska, Mrs. Manisha Praska, Mrs. Rina Nanaka, Mrs. Wendi Srambuka and Mrs. Ilai Nanaka who act as advisory and support team members, engaged in cleaning and drying the boiled turmeric, breaking it into smaller pieces, collecting, weighing and packing the powdered turmeric in polythene packets.

3.3 Functioning of the Enterprise

The Maa Mahalaxmi Women Turmeric Producer Group supported by Aarju started procuring boiled turmeric from the wholesale traders at Chatikona market, who procure it from the Dongria Kondh farmers of Kurli Panchayat. Then they gradually started running the mill, powdering the boiled turmeric, seal packing it in 250 gms and 500 gms polythene packets and travelling by shared auto or walking to Chatikona and Bissamcuttack markets with an aspiration to sell the same. Within a span of few days, they managed to generate demand in the Bissamcuttack market for freshly, hygienically ground, pure Niyamgiri turmeric.

The group holds regular meetings once in a month or if need be, even more frequently in order to discuss and take necessary decisions on procurement, sales and marketing strategies. Decisions are taken by group members after deliberate discussions with final approval of the President and Secretary.

⁴ Block Horticulture Office, Bissamcuttack

⁵ <https://selco-india.com>

3.4 Role of Harsha Trust Post Unit Installation

Harsha Trust team members regularly visit the group for lending hand-holding support on book-keeping, sharing leads about bulk orders and suggesting ways to tackle challenges and maximizing profit. They try to ensure that numbers or machine operation doesn't intimidate the women and keep boosting their confidence. Harsha Trust aims at improving quality of life of rural poor by creating avenues for better income generation from farm produce and agro/food processing. Alongwith Selco Foundation, it has supported similar solar powered food processing enterprises in South Odisha, such as ragi, rice and chilli processing mills in Rayagada district and sugarcane and rice processing units in Nabarangpur district.

4. Results

4.1 The Economics

With 8 solar panels, 8 batteries, a 2 HP motor, a solar power processing unit and a pulveriser, the processing unit can run at length for 8-12 hours, grinding about 144 kilos within 8 hours of time, during summers. The group purchased raw turmeric at ₹130 per kilo, polythene packets at ₹200 per kilo, bore per day coolie cost of ₹240 for selling the products and refilled distilled water in inverter batteries as and when required, all of which are a part of the ongoing operational costs. The final product was sold in packets of 250 gms. 500 gms and 1 kg at ₹50, ₹100 and ₹200 respectively in the Bissamcuttack market, which also happens to be the Block headquarters. Notwithstanding storms with limited procurement of raw turmeric (harvest of turmeric takes 2 years of time) and limited sales, women earned a profit of about ₹11,310 till 30th September, 2021, having ground 4.1 quintals of raw turmeric into 3.895 quintals of turmeric powder which was saved and re-invested into the enterprise.

Table 1: Cost-Benefit Analysis

| A | B | C | D | E | F | | G |
|----|---|-------------------|---------------|---------------|------------------------------------|------|---------------------------------|
| Sl | Cost Head | Cost per unit (₹) | No. Of units | Total cost(₹) | Total qnty. sold and cost per unit | | Total amount received from sale |
| 1 | Distilled water for inverter batteries | 20 | 22 bottles | 440 | 389.5 kg | ₹200 | ₹ 77,900 |
| 2 | Packing polythene | 200 | 2.5 kg | 500 | | | |
| 3 | Iron net for mill | 130 | 5 nos. | 650 | | | |
| 4 | Transportation of raw turmeric | 100 | 14 bike trips | 1400 | | | |
| 5 | Plastic bucket for collecting turmeric powder | 100 | 1 no. | 100 | | | |
| 6 | Tarpaulin mat for meetings | 1000 | 1 no. | 1000 | | | |
| 7 | Raw Turmeric | 130 | 410 kg | 53,300 | | | |
| 8 | Total Labour Cost | 80,000 | LS | 8000 | | | |
| 9 | Miscellaneous costs | 1200 | LS | 1200 | | | |
| | Total Cumulative Cost Incurred | | | 66,590 | | | |
| | Total Profit earned | | | 11,310 | | | |

The producer group members took a loan of ₹40,000 from their Gram Panchayat Level Federation (GPLF) of Self Help Groups (SHGs) under Odisha Livelihood Mission (OLM), out of which they have repaid ₹35,000. They have also received a grant support of ₹10,000 from the Block Agriculture Department through their ATMA programme.

4.2 The Potential

During the three peak summer months, if run efficiently, the unit can produce more than 12,000 kilograms of turmeric powder, which could easily sell at ₹24,00,000 (@ ₹200 per kilo). During the remaining nine months, even if run for 5 hours per day, the unit can produce more than 23,500 kilograms of turmeric powder, which could be sold at ₹47,00,000 (@ ₹200 per kilo). With bulk production and vehicular transportation, the cost of processing would also reduce considerably, thereby maximizing the profit.

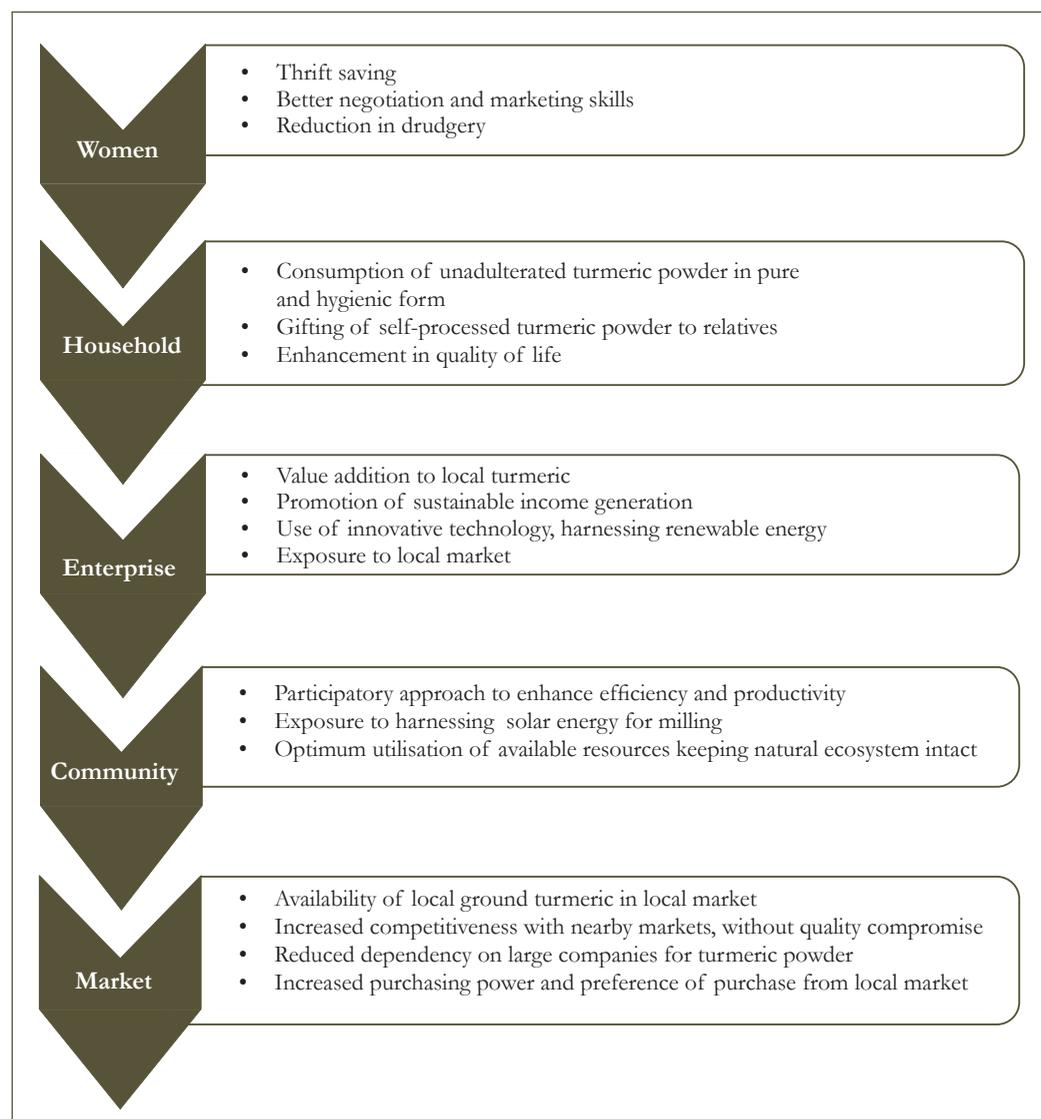


Figure 1: Outcome at Different Levels

5. Profile and Verbal Testimonies of active Women Entrepreneurs

5.1 Sukadei Nanaka -A self made woman

Aged around 60, Sukadei Nanaka is one of the active sellers of the turmeric powder. She was abandoned by her husband, who left home and remarried. Raising and marrying off her daughter on her own, without any support from him was not easy for her. Although she owns two acres of land, she has lent it off to share-croppers, as she finds it difficult to do farming operations on her own in dearth of helping hands and ready cash in hand to hire farm labour. Every year, the share-croppers share one third of their income or produce

with her as the rent, which comes to around ₹15,000 per year. During the peak agricultural season, she climbs uphill for sowing, weeding, transplantation and cutting of paddy from which she earns ₹100-150 per day as a farm labourer. For selling turmeric powder she visits Bissamcuttack market and homes, about 5 to 7 days in a month, for which, she earns labour cost of ₹ 100- ₹120 per day. As she had never been to the marketplace as a seller earlier, it was initially intimidating and challenging for her to shed her inhibitions and convince customers to buy the turmeric. For the first couple of times, she felt, she would never be able to undertake marketing. There was an instance where the large mill owner and operator at Bissamcuttack teased and challenged the women saying that their turmeric powder would never be able to garner as much buyers as much as the former's turmeric powder. This led to a dip in her morale as that day, sales were not as good. However, gradually, she mustered faith in herself and tried to strike a conversation with customers, assuring them about the unadulterated and pure quality of the product. When that worked and demand increased, her self- confidence increased. Now she proudly admits, *“Rise in demand has given me hope that even I can go out and market our turmeric powder to the buyers. Although single, I don't feel weak or alone as I have gone through my own struggles and emerged out victorious.”*

5.2 Majhiwani Hikoka - An Epitome of Strength

Aged around 65, Majhiwani Hikoka is one among the active sellers of the turmeric powder. She has aged through the years listening to taunts of relatives owing to being childless. Being landless, she and her husband work as farm labourers in paddy, ragi and cotton fields from dawn to dusk, in order to earn ₹100-150 per day each, to make ends meet. Hunger and humiliation have never let her get bogged down but instead made her stronger. In order to sell turmeric powder she visits Bissamcuttack market and homes about 5 days in a month, for which, she earns labour cost of ₹100- ₹120 per day. In her words, *“I am hopeful that in the coming days, our turmeric powder will have more demand as Corona-led restrictions are gradually being eased down. We have also started using thicker polythene packets for packaging, garnering more buyers. We can go a long way.”*

5.3 Lalita Nanaka-A leader who Leads the Way Forward

Aged around 43, Lalita Nanaka is the President of the Maa Mahalaxmi Women Turmeric Producer Group. She is also the President of the already existing Jay Jagannath SHG and Maa Majhigouri Producer Group. She and her husband cultivate paddy, turmeric, ivy gourd, okra, ridge gourd, bitter gourd, cowpea and cotton in their 2.5 acre farm. She has two daughters out of whom, one has been educated till Class XI and married off and another one is studying in Class VI in the charitable Nandini Vidya Mandir at Chatikona. Alongwith support from her husband, she ensures timely procurement and regular operation of the mill, along with maintaining records of purchase and sales. She ensures that disagreements are swiftly discussed upon and sorted through regular meetings. Expressing herself she says, *“Although we cultivate turmeric, we were not able to consume it in powder form. We used to sell our raw or boiled turmeric to traders and buy the packaged sachets of turmeric sold in shops. Now, as we are grinding it, we use it for our curries. The fragrance and colour is far better*

than the sachets and hence, we have stopped buying the same from shops. This is so far our best gain from this enterprise.”

6. Challenges and Learning

- First and second waves of COVID 19 pandemic and subsequent lockdown posed as a major setback to the enterprise. Just few days after the launch of the enterprise nationwide lockdown was imposed by the Prime Minister on March 26, 2020 to contain the COVID 19 pandemic situation in the country. Restrictions on movement, shutdown of markets and police patrolling acted as barriers in marketing of turmeric powder in the Bissamcuttack market area and door to door sales of the same. It was tough to sell the existing stock, risking life and safety.
- Lack of a sufficient seed capital has acted as a major hurdle in procuring raw / boiled turmeric in bulk because of which the optimum production potential of the unit has remained untapped.
- Social conditioning on gender roles and prejudiced mindsets such as - men can operate machines better than women, women lack the physical strength required to operate a mill, accounts and records are better maintained by men, tribal women lack marketing skills, etc. are pulling the women of Marthaguda back from exploring new paths and skill sets.
- Producing more turmeric in own lands (currently fourteen farmers of Marthaguda village grow turmeric on an area of 10.5 acres), procuring raw turmeric in bulk at minimal cost from the 6000 Dongria Kondh farmers of Kurli instead of traders during January to March (who would sell their raw/boiled turmeric to traders from Kalahandi, Bargarh, Sambalpur and Chhattisgarh at ₹ 80-90 per kilo), and then boiling, and breaking it into pieces and storing it hygienically can be more cost effective, although labour intensive and time consuming. However, it can be more profitable and sustainable in the long run.

7. Conclusion

Upscaling, storage, packaging using thicker polythene with branding, outlets at Bissamcuttack and Chatikona, wide publicity through print and social media for demand creation, linkages with online selling platforms, transport to outside markets viz. Bhabanipatna, Bhubaneswar, Berhampur, Raipur and getting trained for proper accounting and book-keeping can help transform the enterprise into a lucrative venture for the women of Marthaguda. Seeking active support from district administration, Odisha Rural Development and Marketing Society (ORMAS) and similar resource organisations can be a step in the right direction for mobilising seed capital, showcasing and selling the product at fairs and exhibitions such as the State Adivasi Mela, Balijatra and Rayagada Mahotsav and gradually transforming the enterprise into being self-sustaining. With better income and negotiation power to women, an improvement in the quality of lives of themselves and their families can be foreseen. In the long run, it also has the potential to reverse the trends of out-migration for the sake of livelihoods in the region.

Breaking Barriers Unlocking Value in the Groundnut Value Chain for Small Farmers

Ashutosh Deshpande, Bharat Patel, Dilip Bayal

Ashutosh Deshpande, Bharat Patel, Dilip Bayal

1. Background

To empower a community is to help them gain more agency over their lives and decisions they make. For many farmers in India, structural barriers such as lack of market options often inhibit them from exercising their choice. Breaking such barriers and empowering the community requires creative thinking and consistency. The FPC's foray into processing groundnut and producing oil is a unique case of using a value chain approach to break down structural barriers and empower the farmers in the market.

Jasdan, where Saurashtra FPC is located, is a small municipality, located in Rajkot district of Gujarat. Like the rest of the district, Jasdan is a semi-arid area, receiving an average rainfall of 590 mm annually, over 28 days. Rajkot has irrigation penetration at 38% of gross cropped area; but Jasdan has very little access to it. Situated at a higher altitude than the rest of the district, this region has very sparse ground water levels and negligible canal irrigation. Monsoons, that are supposed to arrive in June, are often delayed by a month, and there are frequent dry spells during monsoon. Additionally, cyclonic weather coupled with inopportune heavy rains late in the season in October is another phenomenon. Day temperatures can fluctuate between 3°C in winters to 44°C in summers. About 30% of the soil in Jasdan is coastal alluvial and saline, which is not very conducive for farming. The remaining portion is black soil (with some mixed patches of both red and black soil) mostly shallow or of medium depth. Major crops grown by farmers here are cotton and groundnut during the kharif season and cumin, chickpeas and wheat in the rabi season.

Small holder farmers in Jasdan face similar problems like farmers in other parts of India. For example, the costs of cultivation in general are rising without a proportionate increase in farm incomes primarily due to stagnant crop yields. But problems are not limited to just productivity and costs; Jasdan being a smaller market, prices offered for agricultural

Voices of a farmer in 2015, before the FPC was formed.

“My wife is asking me to sell all my lands so that we could deposit the money and live on some other business and the interest. She is asking why we should struggle with this profession that does not have any security and fixed income. I am only holding onto agriculture as I feel it is a disgrace to sell the land. In villages anybody will ask about how much land you hold and it is a prestige issue if I do not have any land.”

- Vaghela Sureshbhai Govardhanbhai

produce are often lower than what was offered in Rajkot. While some farmers worked their way around by selling their produce directly in Rajkot or the neighbouring Amreli district, most farmers were too small to be able to go beyond the Jasdani mandi. For most farmers, their individual volumes are too small to realise economies of scale when transporting over longer distances like Rajkot or Amreli. Moreover, when farmers sold their produce in the local markets, they faced the following challenges:

- 1. Non-standard and opaque grading practices:** Farmers have limited knowledge on the grading process of their produce which determines the rate that they receive from the trader. As a result, the farmer has no option but to accept whatever rate is offered.
- 2. Unfair deductions:** It is a standard practice to deduct costs such as weighing cost and labour cost (unloading the produce from the farmer's truck, etc.) from the farmer's payment. All this and the commission charged by the trader means the farmer receives lesser than the quoted price.
- 3. High interest:** Many farmers take credit from informal sources (such as traders) to meet their inputs (seeds, pesticides) needs. Farmers who take credit from such traders are obligated to sell their farm produce back to them and face the prospect of interest deduction from the value of their farm produce. The interest rates can range anywhere between 25% to 30% per annum.
- 4. Payment delays:** Payments are not always prompt. Especially during times of glut, payments to farmers can often be delayed by the trader, despite overtly agreeing to pay in a few days' time.

In addition, poor quality of their main cash crop, groundnut, was another big issue for the farmers in Jasdani. Due to scarce water and soil types, the groundnut from Jasdani was of smaller size, hence, considered inferior in quality. It was therefore not fit for "table purposes" (which is the largest use of groundnut in the market). Hence, Jasdani farmers suffered and received 15%-20% lesser prices as compared to farmers in locations such as Junagadh. The following graph is a comparison of groundnut prices across the 2 districts.

Small and marginal farmers in Jasdani were in a real bind. On the one hand, they faced problems with inefficient market access. At the same time, even if they were to come together and sell produce beyond Jasdani, the inferior quality of groundnuts meant they were likely to get very low returns.

The Saurashtra FPC was formed to address these very issues of the farmers and provide them with some succour. Saurashtra FPC was formed as part of a larger Rural Transformation Program implemented by Reliance Foundation. The FPC is one of the fastest growing agri-focused organisations in the Saurashtra region of Gujarat today. The following case study captures the story of the FPC and how it has helped improve the livelihoods of the farmers.

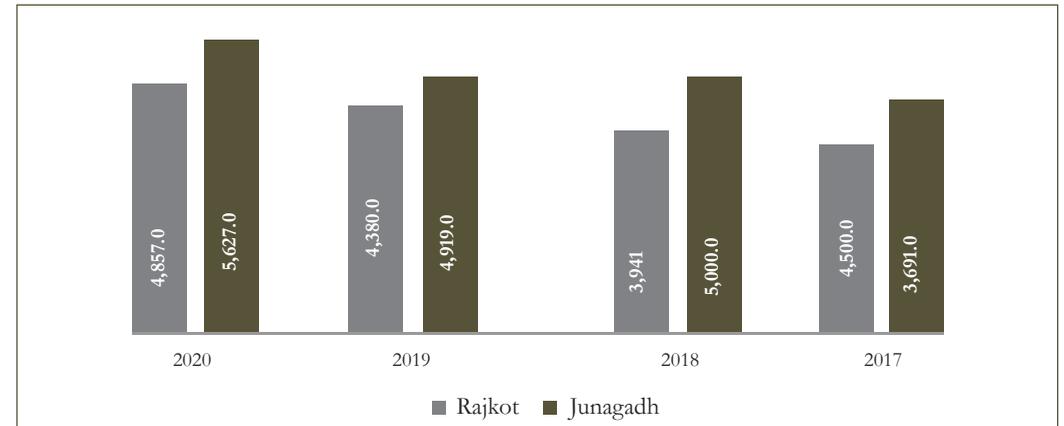


Figure 1: APMC Prices for Groundnut in Rajkot and Junagadh (₹/Quintal)

2. About Saurashtra FPC

2.1 Overview

Under the leadership of Maganbhai Zapadiya, the current Chairman, Saurashtra Svanirbher Khedut Producer Co was established in August 2016. The farmers of Jasdani created this FPC with an intention charting their own destiny. Today, it has a membership base of 2,676 members and caters to needs of nearly 3,500 farmers in the region. The FPC has a paid-up share capital of ₹ 22.3 Lakhs and a turnover of nearly ₹ 13 Cr in FY 2020-21 (unaudited). Here is an overview of the FPC:

2.2 Financial Performance

The FPC was incorporated in August 2016. In its second financial year (FY 2017-18), a windfall opportunity fell into their lap when they were awarded a MSP procurement centre for groundnuts. That year, the Government of Gujarat nominated two agencies – GUJPRO (a state-level federation of FPOs in Gujarat) and GUJCOT (Gujarat Cotton Association) to carry out MSP procurement through various FPOs in the state. Saurashtra FPC was also nominees. That year, Saurashtra carried out procurement of over 12,000 MT of groundnut from its farmers, for a total value of ~₹ 54 Cr., of which, groundnut worth ₹ 28 Cr was carried onto the books of the FPC, that inflated its turnover. This windfall gain was short-lived. The subsequent year, the state government scrapped the policy of MSP procurement through FPOs, and consequently the FPC's turnover fell sharply to ₹ 1.4 Cr. Subsequently, the FPC systematically re-built its books, this time focusing on stable business opportunities, and processing groundnut oil was one of them.

Leaving that revenue dip in 2018-19 behind, today, the FPC has grown its turnover by an impressive nine times and recorded a turnover of ~₹ 13 Cr in FY 2020-21 (unaudited). During the same period, the FPC's net profits also grew 13 times to ₹ 27 lakhs. The following graph shows the FPC's growth journey.

| | |
|--------------------------------------|---|
| Full Name | Saurashtra Svanirbher Khedut Producer Co Ltd |
| Incorporated in | August, 2016 |
| Number of Shareholders | 2,676 |
| Farmers Transacted with | ~ 3,500 |
| Share Capital | ₹ 22.3 Lakhs |
| Name of the Chairman | Maganbhai Zapadiya |
| Key Businesses | 1. Trading of raw groundnut, cumin, chickpeas and wheat 2. Processing ground nut and selling cold pressed oil and de-oiled cake 3. Sale of de-shelled groundnuts for sale as roasted peanuts. 4. Sale of oil under FPC's own brand - Sopan 5. Sale of agri inputs (seeds, fertilizers, pesticides) 6. Sale of cattle feed to farmers |
| Licenses Held | FSSAI, Seed, Fertilizer, Pesticide and APMC |
| Key Partners | 1. Marketing partners a. Reliance Retail (sale of wheat, chickpeas and groundnut oil) b. FPC also sells groundnut oil locally to its farmers and through two other Reliance Foundation-mentored FPCs in Gujarat c. Patanjali (sale of chickpeas) d. VNKC (sale of deshelled groundnuts) e. Gujarat Narmada Fertilizer Co f. GUJPRO (state-level federation of FPCs) g. Kisan Yard (sale of Wheat) 2. Finance Partners a. NABKISAN a. Samunnati a. NABARD |
| Key Facilities Run by Saurashtra FPC | 1. Groundnut processing plant with a capacity of 3 MT/day of oil production and 15 MT/day of de-shelling capacity 2. Seed production project on groundnut\ 3. 1000 MT warehouse on permanent lease 4. Agri inputs shop for sale of seeds and other agri-inputs 5. Marketing office within the Jasdan APMC for procurement and sale of agri produce. |

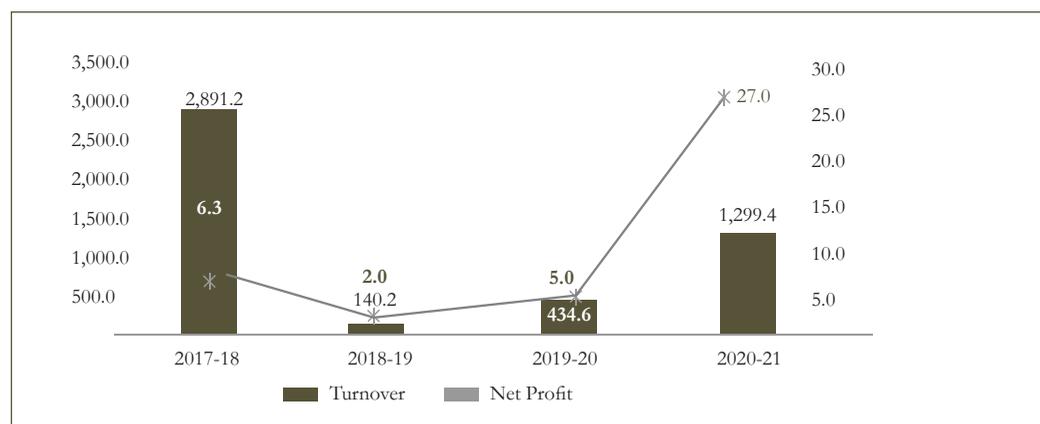


Figure 2: Turnover and Net Profit of Saurashtra FPC (₹ Lakhs)

Between FY 2016-17 and FY 2020-21, the FPC has systematically expanded its membership base. Starting from 998 members in 2016-17, the FPC has more than 2,600 members currently. Its paid-up share capital has also increased from ₹ 11.7 Lakhs to ₹ 23.3 Lakhs today. The following graph depicts the growth in membership and share capital.

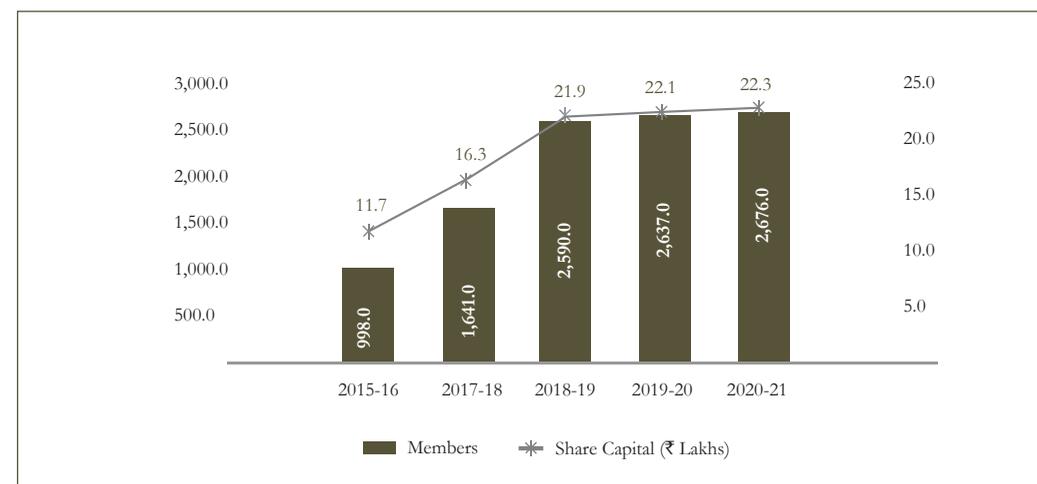


Figure 3: Saurashtra FPC Members (Nos) and Share Capital (₹ Lakhs)

2.3 Awards and Accolades

Saurashtra's performance and its service to farmers has been recognised in many quarters, namely:

1. In 2019, the FPC was awarded the Best FPO (Mature Category) at the FPO Impact Awards, organised by ACCESS Development Services.
2. In 2020, the FPC received the Mahindra Krishi Samman award which included a cash prize and a memento.
3. In the same year, the FPC's good work was recognised via a formal letter by Sh. Kunvarjibhai Bavaliya, Hon. Minister (Former) of Water Supply, Animal Husbandry and Rural Housing, Government of Gujarat.
4. Sh. Maganbhai Zapadiya, Chairman of the FPC, was nominated to the board of GUJPRO, a state-level federation of FPCs in Gujarat.
5. A case study on the FPC was published in the national compendium of successful FPOs published by NCDEX.
6. Over 25 national and regional media organisations have covered the FPC, including big names such as Times of India, New Indian Express and Business Standard.

3. Production of Groundnut Oil

3.1 The Journey

As shared above, one of the biggest challenges that the farmer wrestled with was that of quality, in particular, the smaller size of the grain. But the FPC realised that while the groundnut may not be high in demand for table purposes, it still was an excellent source for oil. And that is how Saurashtra's venture in food processing took flight.

In 2016, the FPC initially focused on undertaking basic businesses such as sale of agri inputs (seeds and fertilizers) and sale of cotton seed cake (used popularly as cattle feed) to its farmers. The FPC purchased these products in bulk from local dealers and sold it to farmers at a discount. In 2017, the FPC was struck with a windfall opportunity and was awarded an MSP procurement centre for groundnuts as part of an initiative by the Government of Gujarat. The FPC recorded transactions of ₹ 54 Cr that year. While this windfall opportunity wasn't sustainable, it gave the board confidence that they could handle large volumes and execute complex transactions.

In the following year (FY 2018-19), the FPC started seriously considering the option to venture into groundnut processing. Here's why; a farmer who sells 100 kgs of groundnut would earn around ₹ 5,500 (as per the present rate) for their produce. After the many deductions such as the APMC traders commission, transportation cost (assumed at ₹ 50 per 100 kgs), weighing and unloading costs (assumed at ₹ 15 per 100 kgs) etc., leaving the farmer with only ₹ 5,300 per 100 kg. On the other hand, if the same 100 kgs are converted into groundnut oil and its by-products, its collective sales value goes up to more than ₹ 7000. It was this profitability analysis that nudged the FPC towards oil processing. The FPC has been processing oil since FY 2018-19. Initially they started processing on job-work basis with a local oil unit. They started their processing business by producing over 1,800 cans (of 15 kg each) of oil. During this time, the FPC launched its own brand, "Sopan", getting rudimentary packaging at the local level. The FPC realized that it did not have to hunt for markets for its oil. Many of its own farmers routinely purchased groundnut oil from the market. This oil was often mixed with palm oil and sold at high costs to the farmers. The FPC offered the same farmers 100% pure groundnut oil, cold pressed (without any chemical refining) at a similar price. The offer was extremely well received by the farmers, and the FPC sold their entire stock within three months. The FPC recorded a turnover of ₹ 29 Lakhs from oil processing that year. In year 2 (i.e. FY 2019-20), the FPC's turnover nearly doubled. This year they sold ₹ 2,900 cans for a turnover of ₹ 54 Lakhs. Alongside, the FPC also started selling its oil in Patan and Surat districts of Gujarat, via two other Reliance Foundation-mentored FPCs. These FPCs purchased from Saurashtra and sold the oil to their own farmers. The same year, Saurashtra FPC also partnered with two independent retail stores in Rajkot, who agreed to stock their oil for retail sales.

The FPC's oil business took a bit of a hit in FY 2020-21 due to the pandemic. In the previous two years, the FPC's business model had revolved around pre-booking orders

from its farmers and then producing as per demand. Due to the lockdown in early FY 2020-21, and subsequent restrictions, the pre-booking of orders could not happen at scale. Hence, the FPC was able to book demand for only 1,640 cans that year. The turnover fell to ₹ 35 Lakhs. However, the FPC remained undeterred. With the lockdowns and restrictions receding, the FPC is hopeful of reaching the same heights in FY 2021-22. The following table depicts the FPC's turnover and volumes from their groundnut oil business.

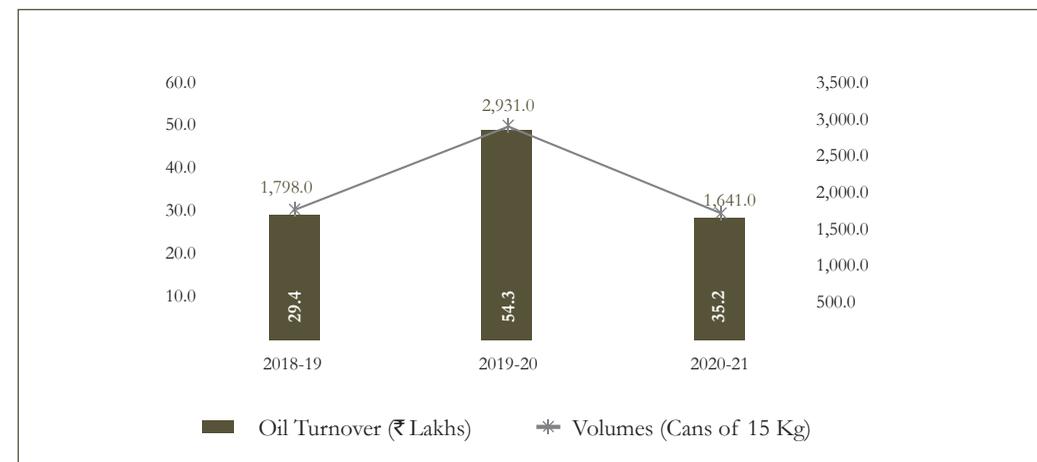


Figure 4: Oil turnover (₹ Lakhs) and Volumes (Cans of 15 kg each)

The FPC's oil business may have taken a hit in FY 2020-21, but the board of the FPC remains unfazed. They are keen on scaling their processed food business and sell through organised large format retail. In October 2020, the FPC executed a small pilot order of 30 cans for sale through three stores of Reliance Retail in Ahmedabad. The FPC did not take further orders, since the pandemic-led restrictions did not allow them to organise a proper launch and promotion of their product. But they plan to take up this activity shortly. The FPC is also in discussion with another online platform for sale of their oil through the latter's upcoming retail portal. The FPC is confident and hopeful about their food business and the plans to scale it significantly in the near future.

3.2 The Plant

After operating out of a hired establishment, the FPC set up its own oil processing plant in FY 2019-20. The plant was set up because it was getting difficult to get spare capacity, in time, in the existing oil plants in the region. On one hand, this delayed the FPC's 'time to market', and on the other hand, the FPC also started seeing some pre-booked orders getting cancelled due to delays. There were challenges related to operating costs as well. Processing at a hired facility used to cost the FPC ₹ 10.68 per kg. The FPC managed to save 53.7% of the operating costs by moving to an own plant. The following table depicts the cost difference in operating costs:

Table 1: Difference in Operating Cost-Job Work vs. Own Plant

| Cost components | Job work (₹/Kg) | Own plant (₹/Kg) | Remarks |
|---|-----------------|------------------|---|
| Local transportation | 3.0 | 1.0 | Since FPC's plant is closer to field locations, it saves transport cost |
| Labour and processing charges | 7.6 | 3.6 | FPC saves the cleaning charges that they had to pay to the plant owner |
| Overheads (power, rent, human resource costs, etc.) | 0.1 | 0.4 | |
| Total | 10.7 | 5.0 | |

FPC's plant has an oil production capacity of 3 MT per day and a groundnut de-shelling capacity of 15 MT per day. Situated on a 1,000 sq. metre plot of land, the plant and civil works cost the FPC nearly ₹ 21 Lakhs. Following is the breakup of capital costs:

Table 2: Break up of Capital Cost

| Cost component | Amount (₹) | Remarks |
|--|------------------|--|
| Land (1000 sq. metre) | -- | Long lease from a member farmer. No Capital cost incurred. |
| Civil work | 3,60,000 | |
| Plant & machinery (including installation) | 16,20,420 | |
| Other costs (three phase connection, CCTV, digital board, etc.) | 97,220 | |
| Total | 20,77,640 | |
| The plant was financed partly out of grants and partly from a loan taken by the FPC. The following table highlights the funding sources for the FPC: | | |
| Financing Partner | Amount (₹) | Instrument |
| Department of Agriculture | 2,00,000 | Grant |
| Selco Foundation | 3,00,000 | Grant |
| Nabkisan (loan for plant + miscellaneous expenses) | 17,00,000 | Term loan |
| Total | 22,00,000 | |

The FPC set up its own plant late in FY 2019-20. The decision to set up its own plant was taken in a Board Meeting in May 2019. This was the time when the FPC conducted a review of its processing venture in 2018-19. The Directors raised the issue of high cost of processing that they had to pay to the plant owner and how it was eating into the profits of the FPC. At the same time, some directors also pointed out the delay in delivering orders,

particularly in villages that they hailed from, which left a few unsatisfied customers. In the subsequent months, the FPC Board, with support from Reliance Foundation, carried out a due diligence on setting up their own plant. This included visiting a few oil plants in the vicinity to understand how they worked, scouting around for funds to partly finance the plant as well as discussions with lenders. A full-fledged proposal was placed before the general body in the Annual General Meeting in September 2019, which was approved in the same meeting.

3.3 Impact

Saurashtra's growing business and its oil production venture has helped the farmers and the ecosystem in multiple ways. As the FPC grows, the impact is expected to scale. The impact of Saurashtra FPC can be viewed in two ways – (1) impact on the market experience of an individual farmer and (2) impact on the local ecosystem Saurashtra FPC has impacted the farmers and the ecosystem in the following ways:

1. Impact on Market Experience of Individual

- Higher prices:** Saurashtra's oil business is still small and accounts between 5%-10% of the FPC's total revenues. However, after starting production of oil, the FPC has been consistently providing around 10% higher realisation to farmers on sale of groundnut vis-à-vis selling in the local market. Since the FPC uses the groundnut for oil extraction, the incremental margins allow it to offer a better rate to farmers.
- Lower cost of seeds and other inputs:** Since the FPC started oil production, it has also been concerned about the quality of groundnut. Hence, FPC started seed production in 2019-20. The FPC procured foundation seeds through the KVK and multiplied it with its own member farmers. The best quality seed ready groundnut was procured at a premium to market prices. Using its deshelling capacity, the FPC started selling high-quality de-shelled groundnut seeds to farmers at an average 13%-15% lower prices than the local market. In addition, the same farmers also benefitted through the lower cost of other agri inputs such as fertilizers that the FPC was selling.
- Fair grading and weighing:** Often, a farmer may be promised a good price for their crops, but the effective price may only be a fraction due to the numerous deductions. Some of the common deductions include loading of part of overheads (like unloading, weighing etc.) on the farmer's head. Farmers also face an opaque grading system and seldom know the true worth of their crop. Saurashtra FPC has ensured that it follows a transparent and fair practice, thus,

ensuring that farmers get paid for what they deserve. The FPC trades in multiple crops such as groundnuts, chickpeas, wheat, and cumin, etc., and in each of these crops, farmers save on unfair deductions.

- d. **Savings in local transportation:** One of the biggest advantages is the that the Saurashtra FPC plant is located close to the farms. This has significantly reduced transportation costs for farmers. Earlier, a farmer would have to pay up to ₹ 70 per 100 kgs to transport their groundnuts to the Jasdan APMC. For Rajkot APMC, the costs could go up to ₹ 100 per 100 kgs. Even if the groundnut was bought by a local trader, they would deduct the transportation cost from the farmer. Now, Saurashtra's members incur a cost of approximately ₹ 25 per 100 kgs and are assured of a good price for their produce.
 - e. **Assured and prompt payments:** Farmers are assured of full and prompt payments with no retrospective deductions owing to quality. A novel experience vis-à-vis the past when the farmers dealt with the local traders.
2. **Impact on the ecosystem**
- a. **Local employment:** Saurashtra FPC, in a small way, has started creating employment thereby contributing to the local economy. The FPC directly employs three technical staff in the factory. Additionally, during the procurement season for groundnut and other crops, it routinely provides employment to about 150-160 more people. These include labour working in the plant, labour that help in procurement and local youth who work on commission basis for sale of seeds and procurement of crop etc. The FPC also provides additional business to local transporters, sellers of gunny bags, other material and local hardware stores, etc.
 - b. **Breaking a barrier:** Poor groundnut quality was an insurmountable hurdle for farmers in Jasdan. The FPC has shown an alternate way of overcoming such barriers. This has set a template for other farmers in the district and regions with similar issues to emulate.
 - c. **Empowerment:** Saurashtra offers the farmers in Jasdan an opportunity to process their own groundnut into oil at the FPC's plant for a fee. Oil has better fungibility to sell, thus, farmers are able to command better prices than selling just groundnuts. Farmers who have opted to process their groundnut and then sell oil have reported an average ₹ 10,000 greater realisation as compared to selling raw groundnut.
 - d. **Support to SHGs:** Saurashtra FPC has established a strong linkage with SHGs in the district. These SHGs are involved in a variety of income generating activities such as artificial jewellery, production of milk-based products, etc. While the FPC has pro bono supported these SHGs in the past with their market efforts, in FY 2019-20, the FPC started formally engaging with SHGs engaging in production of organic groundnuts, to help them process oil, package it and market it. This way, the FPC is taking the SHGs along on its own journey of growth.
 - e. **Impact on local trading practices:** A significant impact of Saurashtra's activities has been on the local trading practices. As volumes grew and started commanding

some heft in the market, farmers reported that better rates were being offered by local traders for groundnut, cumin and chickpeas (crops often traded by the FPC). A similar experience can be recounted for agri inputs, particularly seeds and fertilizers, that were often sold at a premium to MRP. Indirectly, Saurashtra has started reforming the local market.

During the lockdown in 2020, most supply chains were disrupted and farmers were struggling to procure cooking oil, among other essentials. During that period, the FPC ensured regular supply of cooking oil to its farmers so that they did not suffer. The FPC sold 44,540 kgs of cooking oil to farmers in that period.

4. Success Factors

The FPC's success can be traced to the following factors:

1. **Strong community development:** The biggest strength for Saurashtra is its visionary leadership. Saurashtra FPC was formed as an output of Reliance Foundation's Rural Transformation Program in Jasdan. Apart from the interventions around water security, sustainable farming, community nutrition, etc., Reliance Foundation helped build strong community institutions as well as develop effective community leaders. These leaders gradually grew to form the promoter base of the FPC, and a few of them formed the board. Therefore, the FPC is reaping the fruits of a systematic community development effort made by Reliance Foundation under its programme.
2. **Clear vision and long-term planning:** Saurashtra FPC has grown in a boot strapping fashion. It received no financial aid from any organisation barring the same grants it raised from the government departments. From the very first day, the FPC founders were clear that they eventually wanted to move into food processing, and they have very systematically followed suit. This clarity helped them quickly move into processing after the MSP opportunity fizzled out. They also learned quickly from their previous experiences which helped them kick-start their own unit within just two years of venturing into processing.
3. **Developing strategic relationships:** Growing a business needs strategic partnerships. Saurashtra FPC has systematically invested in building partnerships. They consistently trade with large corporate buyers such as Reliance Retail, Patanjali, etc. These institutions not only help them grow their raw produce business, but also provide opportunity to cross sell products such as oil. Similarly, the FPC has strengthened its relationship with GUJPRO, the organisation has helped them connect to major exporters such as VNKC.
4. **Entrepreneurial spirit:** A corollary to the earlier point on community development; strong and enterprising leadership ensured Saurashtra FPC's perseverance and the ability to step beyond its comfort zone. The pace with which the FPC moved into processing, the firm decision in setting up its own unit as well as the ambitious attempts to sell through large format stores stand testimony to that.

5. **Building community trust:** Saurashtra has worked dedicatedly towards improving the incomes of their members; hence, all their activities are streamlined to meet this goal. This dedication to its purpose is reflected in the way they interact with their farmers, who now trust Saurashtra FPC as a partner and a safety net for their problems. This trust ensures Saurashtra FPC a high patronage among its members.

5. Going Forward

Saurashtra FPC is not resting on its laurels. It has the task of rebuilding its oil business, which got disrupted due to the pandemic. It has ambitious growth plans for its future, and each step it takes towards growth is expected to deliver more profit to its members. Saurashtra FPC's plans for the future are as follows:

1. The FPC expects to reach a turnover of ₹ 100 Cr in five years' time.
2. During this period, it would also like to grow its membership to more than 5000 farmers and raise a paid-up equity of ₹ 50 Lakhs.
3. The FPC would specifically like to focus on expanding into food groceries business under the Sopan brand and sell products such as cooking oil (that it currently does), wheat flour, peanuts, pulses, etc. The FPC would like to touch ₹ 20 Cr turnover through the grocery business in the next 5-10 years.
4. The FPC would also like to move beyond the current informal markets and target selling through large format retail and online portals.
5. The FPC already has a large agri-inputs business and would like to expand it to ₹ 20 Cr annual turnover.

As the FPC embarks on its ambitious growth plans to reach a turnover of ₹ 100 Cr and expand its food products business, it wants to focus on institutional strengthening to take the organisation to the next level.

Women Centric Solar Dryer Food Enterprise Project

Mahesh Lade and Niharika Singh

1. Introduction

Women centric solar dryer enterprise is a livelihood model, focusing on the livelihoods of rural women of Haveli and Daund Taluka in Pune district of Maharashtra. Before understanding the model, one must understand the meaning of livelihood, which basically refers to securing the basic needs for human survival. Livelihood is defined and factored into a set of activities in which an individual is involved to fulfill his or her needs for existence. This covers the economic and social wellbeing of the individual. Securing livelihood opportunities for women is one of the many goals of the model. As women in rural areas are deprived of opportunities and chances of improving their living conditions and livelihoods.

In this case study, the major focus is to understand the importance of building capacities and giving opportunities to women in improving their livelihood. The beneficiaries of the case study are women of Self-help groups, who prior to the project intervention, engaged in minimal or no entrepreneurial activities.

1.1 Need Identification and Genesis of the idea

BAIF Development Research Foundation has been working for the development of rural poor for the past 54 years. BAIF is known for its innovative livelihood interventions (Wadi programme, Artificial insemination programme, Prerna etc). BAIF has reached to almost 1,64,835 villages across 13 states of India. BAIF has a strong programmatic presence in 15 Aspirational Districts of India.

BAIF has reached out to a large number of women farmers and entrepreneurs through its women centric interventions. BAIF's massive coverage and successful interventions makes it an experienced organisation to work for the empowerment of rural women.

In the year 2016, BAIF realised the need of stepping forward to work for the economic inclusion of rural women in Haveli and Daund taluka of Pune district. This realisation came during the implementation of a separate project 'Swachh Pani,' supported by HSBC Software Development India Private Limited between 2016 and 2019). During the implementation of this project, many issues and needs of women came to the forefront. The women in this area were socially and economically neglected in the mainstream domain. It was only through Self Help Group based activities, that the women were able to make some financial savings or earnings but it was meagre.

The socio-economic inclusion of the women in this area was negligible with limited means of improving their livelihoods. This situational analysis of the women, encouraged BAIF to

bring a women centric development programme to women of this area. Addressing social and economic conditions of the women was identified as a focus area by building their capacities and giving them economic opportunities in their respective villages.

1.2 Pilot Study

The idea of coming up with a women centric solar drying food enterprise project began with a pilot study which was conducted 4 years back in Uruli Kanchan village with a participant strength of 15 women. Each participant was given a solar dryer.

The objective of the pilot study was to analyse the outcomes of dehydrating or drying B & C grade vegetables and fruits. The idea of using a solar based technology was to promote an eco-friendly technology which would help in reducing or eliminating the waste generated out of B-grade vegetables and fruits and at the same time producing value added products from them, agro processed using solar energy.

For the purpose of conducting the pilot study, multiple solar dehydration technologies were tested, and after trial BAIF decided on the heat conduction dryer type. The solar dehydration machine worked in the same way as any traditional drying method would work. But in this case, there was a difference in the set up and protective model design.

The traditional method mostly has a risk of contamination, nutrition loss and attack from birds and other animals. However the improvised version, selected for this intervention was a well fabricated setup to dry food products in hygienic condition.

The solar dryer can be schematically divided into a solar cabinet with different components. The lower part is designed to hold space for a black tray at the bottom. This tray helps in trapping heat inside the cabinet, while holding the pieces of vegetables and fruit products. The cabinet is secured with a transparent polycarbonate sheet or cover which acts as a door to shut in the cabinet dryer. The polycarbonate cover acts as a UV protecting sheet, which does not allow the UV harmful rays to enter inside the cabinet. This protection layer helps in the dehydrated products to retain the nutritional content. There is gap or space created in between the polycarbonate sheet and heat absorption black tray which is known as inlet vent, this acts as a gateway to maintain the heat absorption in the cabinet.

1.3 Technology Application and Results

The improvised solar based technology was tested for processing the B and C grade vegetables and fruits (here processing refers to the process of dehydrating the product). The vegetables and fruits (such as onion, garlic, chikoo, etc) were sliced or chopped into pieces and later evenly spread into the black tray of the solar dryer cabinet. It was then exposed under the heat of sunlight until the food products lost its moisture content, weight and volume.

The outcomes of the experiments were impressive, the team could see the evident output changes in the products resting in the black tray for a day or two, which was loss of weight, reduction in size and increased shelf life.

The empirical results encouraged the team to research more about the quantitative and qualitative changes of the output. This led to **lab testing** of the products to check the nutritional content of each product. Evaluation on the **sensory attributes** of the products was done by volunteers and experts focusing on the parameters of the taste, colour and smell. The results from the labs were positive and encouraging enough to scale up the pilot activity into a development programme.

2. Scaling up the Pilot Initiative as an Enterprise Model Run by Rural Women

With the positive results of the pilot study, BAIF Development Research Foundation made plans to scale up the intervention. With the support of HSBC Software Development India Private Limited, BAIF launched the Solar Dried Enterprise Project (SDEP) in the 11 villages of Haveli and Daund taluka of Pune district.

2.1 Goal of the Project

The objective of the project was to empower the rural women by introducing solar Dehydration technology, which will act as a catalyst towards their economic and social empowerment. Another important component of the project was to build entrepreneurship skills of the women by strengthening the existing backward and forward linkages.

2.2 Inception of the Project

The project reached out to 120 rural women (coming from marginal farming background) in 11 villages of Haveli and Daund taluka of Pune district. The beneficiaries were given the support of a solar dryer, at a subsidized rate, the unsubsidized cost being covered under the SDEP project.

2.3 Implementation Plan

Preliminary training and sessions were conducted with the women beneficiaries to give them an overview of the solar dehydration technology. The initial phase of the project was exploratory in nature, the beneficiaries were applying the training knowledge practically on the field. This was accompanied with trial and testing and constant improvisation on the methodology of dehydration. This was a phase of cross learning and risk taking, where women were confidently coming out with their set of experiences and sharing with others.

3. Capacity Building as a Means to Strengthen Backward Linkages

Even though the women were building confidence on the production process for dehydrated products, there was yet more work to be done on the backward linkages for establishing a successful entrepreneurship model. For this, emphasis was given on training and capacity of the women beneficiaries.

How capacity and capabilities were built ?

- Logistic and Infrastructural support was provided for decentralised production and procurement of the products (collection, packaging, transportation etc).
- Training sessions on the cutting, chopping slicing of fruits and vegetables.
- Training on maintaining hygiene standards while carrying out the Dehydration process.
- Training on maintenance of the solar dryer cabinet.
- Exposure visits to Institutions and organizations engaged in solar Dehydration technology.
- Knowledge dissemination sessions to create awareness about the advantages of solar dehydration products.
- Upgradation in machineries to speed up the process of Dehydration (moisture meter, electric cutter, FBD Machines, artificial dryer to support bulk orders).
- Exposure visit to wholesale vegetable markets and sabzi mandi to keep the input cost minimal.

4. Strengthening of Forward Linkages to Achieve Entrepreneurial Success

- Branding of the solar dried products was done with the name of 'Nutrisol'.
- Linkages with Wholesale and retail customers.
- Support for bulk production transportation and logistics cost.
- Streamlining the solar dried products under standardized packaging and brand name 'Nutrisol'.
- Linkage support through various platforms such Urban housing societies, exhibitions, festival events, corporate office events, Malls.
- Linkage through Self Help Group Federation retail store 'Sankalp' in Uruli Kanchan.
- Regular monitoring and evaluation through well trained SHG federation manager.
- Promotion through Whatsapp business, Facebook page, website, pamphlet distribution, etc.
- Promotion through externally hired marketing expert.

- Marketing through Food truck Vehicle in various parts of Pune and Uruli Kanchan (Post 2nd wave of covid-19).
- Personality development and marketing training through mock sessions.
- Support through aesthetic marketing strategies was provided to bring out rustic rural touch of women entrepreneurs.
- Logistic and delivery support was given to promote online sale and promotion.

5. Outcomes

- The outcomes of the three year long enterprise model have been very positive in terms of the phenomenal change it has brought into the women beneficiaries.
- The project has successfully achieved the objective of building the entrepreneurial capacities of the 120 women participants and many other indirect participants (such as women entrepreneurs from the SHG Federation store Sankalp).
- The exposure to different market avenues and institutions have developed confidence and motivation in the women to take it forward as livelihood option.
- The processing of the B and C grade vegetable has not only added monetary value to the produce but always helped in avoiding the food wastage, and carbon-methane emission which would have generated out of it.
- The project outcomes aligns with 9 Sustainable Development Goals.

SDGs which are directly or indirectly linked to the intervention

1. GOAL 1: No Poverty
2. GOAL 2: Zero Hunger
3. GOAL 3: Good Health and well-being
4. GOAL 5: Gender Equality
5. GOAL 8: Decent Work and Economic Growth
6. GOAL 9: Industry, Innovation and Infrastructure
7. GOAL 10: Reduced Inequality
8. GOAL 12: Responsible Consumption and Production
9. GOAL 13: Climate Action

- The model has also opened a way forward for the farmers who are unable to sell their B and C grade produce.
- With this model, a product line of vegan food items has been established which is appealing to the urban and environmentally conscious customers.
- Milestone in bulk sale: Recent sale of dehydrated ginger in the period of March 2021 - June 2021 has generated a gross profit of ₹ 8,70,863 (the dehydrated ginger was sold at the rate of 165 ₹/Kg which is worth ₹ 17,96,190).

Table 1: Sales Figures from April 2020 To March 2021

| S. No | Particular | Amount |
|-------------------|---|------------------|
| 1 | Sale through SHG Federation store Sankalp | 31,810 |
| 2 | Individual Order sale | 23,285 |
| 3 | Wholesale sale | 1,105,413 |
| Total Sale | | 1,160,508 |

6. Key Learnings

The initiative was a challenging opportunity not only for the women beneficiaries but also for BAIF as an implementing agency, with ongoing efforts for expanding the market affected due to the Covid-19 pandemic lockdown. The production was halted, procurement was stopped and market sale was shut for a few months. However, with the easing of lockdown rules, production and marketing resumed. Home delivery and online promotion was carried out. The overall experience of establishing the enterprise model was very positive and enriching. The exploratory nature of the project made it possible to take risks, learn from the failures, and improvise at every step of implementation process. It was a participatory learning experience where the beneficiaries and team members were learning from each other's mistakes, success and journey.

7. Conclusion

The solar dryer enterprise project has a great potential for expanding and engaging more and more small and marginal farmers, who are hit hard by the uncertainties of market, climate change and debt. This particular model has evolved into a perfect example of enterprise which can achieve multiple goals at the same time, be it empowering the women participants, reducing the food wastage and generating income with low investment renewable technology.

How an Idea of 'Zero Wastage' on Fruit Processing and Value Addition Saved the Orange Cultivation in Darjeeling Hills

An Inspiring Story of Nirmal Farm

Sujit Sarkar, R.N.Padaria, Natasha Gurung,
G.S.Mahra, Arnab Biswas and Shantanu Rakshit

1. Introduction

Besides pleasant weather, the ethereal natural beauty, the Himalayan cold breeze, mighty glacier of Kanchenjunga, musical flow of the Teesta, lush green tea gardens and the breath-taking sunrise, Darjeeling is also a great destination of the world-famous Darjeeling mandarin or orange. The Mandarin orange (*Citrus reticulata, Blanco*) is a major cash crop of the Darjeeling Hills. Mandarin orange is being cultivated since time immemorial in this Himalayan belt. It is a native fruit of Sikkim and Darjeeling, and it is very popular all over the country. The valleys of Teesta and Rangit rivers and their tributaries in Sikkim and adjoining Darjeeling offer an ideal Himalayan climate for the cultivation of mandarin. In hilly terrain, the crop is cultivated on small farm terraces where the application of production technology is minimal. The crops have played an important role in the life of the farmers as it is the main source of their livelihood and a major source of cash for a large number of small and medium growers. It has made hill agriculture vibrant and improved the economic condition of the farmers of this region. In Sikkim, mandarin is cultivated in an area of approximately 8.32 th ha, with a total average annual production of approximately 14.39th MT (APR, 2010-11, Govt. of Sikkim). The area under Mandarin in Darjeeling hill stands at 3.935 th ha with annual production of 38.60 th MT (JIT report, 2016-17, GoWB).

1.1 Declining Area of Darjeeling Mandarin Cultivation

The cultivation of mandarin is declining at an alarming rate and posing a serious threat to the livelihood of mandarin growers and different stakeholders. In 1999-2000, the mandarin cultivation area in Darjeeling was 30,000 hectares. In 2007-08, the area reduced to 1972 hectares, and in 2017, it further reduced to 1600 hectares. It is reported that more than 50% of the total area under mandarin cultivation has already been converted to cultivation of vegetables, spices (large cardamom) and other crops as well as used for tourism. This unplanned conversion has led to socio-economic and environmental challenges.

The findings of a primary survey access through secondary reports (Mukhopadhyaya et al, 1996, Roy et al, 2003, Upadhyay 2000, Yadav 2000, Singh *et al*, 2016) revealed that the problems faced by the farmers include the widespread occurrence of multiple pest and

disease incidence, lack of quality planting material, multiple faulty management practices by the farmers, old orchards and lack of rejuvenation support, acute water crisis, lack of production technologies and training, poverty and poor risk bearing capacity of farmers, lack of awareness and knowledge on scientific cultivation practices, lack of government support, lack of value addition and processing technologies, marketing constraints, etc. Additionally, the age of the orchard in the district ranged between 40-60 years (Ghosh and Singh, 1993, Nayak, 2015) and they need to be rejuvenated or replanted with new healthy plantation. In the region, every year a huge loss to the citrus production was witnessed due to lack of post-harvest processing and value addition facilities. Beside low production and productivity, mandarin growers are plagued with problem of low income due to marketing inefficiency, high price spread, high margin of middle man, lack of market in Kalimpong and Darjeeling, and poor market linkages among others. Due to poverty and lack of economic motivation, the farming communities could not exert their entrepreneurial skills and this impacted their livelihood negatively. Similarly, lack of competency in managing resources had a negative impact on the revival efforts of orange cultivation. All these factors are responsible for the decline in Darjeeling orange or mandarin cultivation.

2. Research Methodology

The present study followed an exploratory and descriptive research design. The case study of Nirmal Farm was selected to find out the role of processing technologies in reviving orange cultivation in Darjeeling hills and how the concept of zero wastage helped in making the enterprise successful. The study covers the in-depth investigation of Nirmal Farm enterprise using primary data collected in 2019. Largely, qualitative data was collected to describe this successful case. A survey was conducted with a sample of 100 orange growers from Bada Mangmaya of Darjeeling district. Descriptive statistics like frequency, percentage etc. were used to analyse the data. All the data and findings presented in the case study reveal the scenario before the COVID-19 pandemic.

3. Evolution of Nirmal Farm to Revive the Orange Cultivation

To combat this challenge, Prawesh Gurung, a young man from Bada Mangmaya, started thinking of ways to bring back the glory of the Darjeeling orange and convince farmers to re-start orange cultivation. He sought help from the local government bodies on many occasions but did not get much success. However, he did not lose hope and continued to look for innovative solutions to make the orange cultivation profitable. He started researching online (YouTube and Google) about different production technologies of other value-added products from oranges and their marketing potential. After extensive research, he realised that orange fruit juice market is unorganized and still developing. The consumers have become health conscious; hence, they are moving towards fruit juices as social drink. Among different fruit juices, orange juice is the most favoured fruit juice in India followed by apple, sweet orange and mixed fruit. He discovered that the value of and preference for real fruit juice greater than synthetic fruit juices. He realised that if the real

orange fruit juice can be substituted for synthetic orange juice available in market, it would be a boon for the consumer and the farmer.

As a result, he procured machines such as juice processor, pulper, fruit washer, storage tank and started preparing fresh orange fruit juice under the brand name of Nirmal farm. Very soon, it became popular among the locals and the tourists in Kalimpong, Darjeeling and Sikkim hills.

3.1 Journey of Nirmal Farm

The business started in 2005. Initially, Prawesh prepared only 20 bottles of orange juice per day and sold them in a nearby shop at Teesta bazaar. He took a loan of ₹ 5 lakh to start the processing centre through PMEKS. As the demand increased, the production increased from 100 bottles to 1000 bottles within one year. They used sugar and pectin as preservative without any other synthetic additives in jam, thus it was treated as natural. Nirmal Farm soon gained high popularity among the tourists and consumers across the state. Prawesh soon realised that in order to survive in the fruit juice industry, he needed more revenue from the business, and depending solely on fruit juice was not ideal due to the stiff competition from synthetic fruit juice companies that were available at lower prices. He observed the different by-products that were discarded after preparing orange juice. He realised that if these by-products are used to make other consumer products then the same enterprise will earn more revenue. He extensively reviewed available literature and papers on processing the by-products of orange and their market potential. As a result, he learnt about the concept of ‘zero-wastage’ in orange through processing and value addition technologies. Zero wastage refers to using all the part of crops or fruits i.e., main parts as well as its by-products for processing or value addition to earn additional income. Thereafter, in addition to orange juice, he gradually started preparing other products such as orange jam, candy, jelly, orange powder, orange cake as fodder, etc., thus, introducing ‘zero wastage’ in his enterprise. At Nirmal Farm orange juice is the main product and left-overs are used as by-product as follows:

- **Juice:** Fruit juice is extracted and used to prepare orange juice, squash and jellies. These are marketed as main products.
- **Pills and powder:** Prepared using the peel, this is a by-product of orange. Peels are washed and sun dried to prevent fungal growth. The dried product is converted to powder and sold to pharmaceutical or cosmetic industry at competitive prices.
- **Seeds:** The seed is used to raise healthy nucellar seedlings and sold to private nurseries, Krishi Vigyan Kendras (KVKs), public institutions and farmers.
- **Pulp:** The leftover pulp from the juicing process is sun dried to prepare cakes. These cakes are sold as feed for cattle.

Soon after introducing the by-products, the demand increased from different sectors such as pharmaceuticals, private enterprises and government undertakings. To meet the production demand, he invested ₹ 20 lakhs towards purchasing machineries and developing infrastructure for processing units. Additionally, ₹ 25 lakh was invested as materials cost for procuring inputs and raw materials and ₹ 3 lakh was invested towards labour and managerial cost. At present, the farm produces approximately 10,000 bottles of juice/year with an annual turnover of ₹ 60 lakh/year. Seeing the performance and its impact on orange cultivation, the farm was awarded the Khadi award for most innovative investment in North Bengal by the Khadi and Village Industrial Commission.

4. Financial Performance

The financial performance on Nirmal Farm in 2019 is shown in Table 1.

Table 1: Financial Performance (2019)

| S.No | Items | Cost (in ₹) | Selling price per unit (in ₹) | Total production | Gross income (in ₹) |
|------|---------------|-------------|-------------------------------|------------------|---------------------|
| 1 | Orange juice | 40/litre | ₹ 50/litre | 50000 litre/year | 25,00,000 |
| 2 | Orange powder | 70/kg | ₹ 250/kg | 5000 kg/year | 12,50,000 |
| 3 | Seed | 30/kg | ₹ 350/kg | 100 kg/year | 35,000 |
| 4 | Jelly | 60/kg | ₹ 200/kg | 5000 kg | 10,00,000 |
| 5 | Total | | | | 47,85,000 |

The table highlights that fruit juice production has increased from mere 20 bottle (500 litres) in 2005 to 500,000 litres in 2019 within a short span of 14 years. The gross income from fruit juice in 2019 (before COVID-19) was ₹ 25 lakhs. The income from orange powder stood at ₹ 12,50,000. Significant income was earned from jelly with annual sale worth ₹ 10 lakhs. Additional ₹ 35,000 was raised by selling the seed of oranges. The table reveals that the additional cost in preparing orange powder, jelly and seed was very less, therefore, increasing the marginal profit significantly. Thus, the concept of zero wastage using food processing and value addition technologies helped 'Nirmal Farm' in earning additional income and surviving in the juice industry.

5. Marketing Strategies

Nirmal Farm adopted a comprehensive marketing strategy covering local, domestic as well as international markets. The strategy helped the company in ensuring that farmers earn remunerative prices for their fresh produce. Over a period of time, the company's brand value and its approach to provide clean, fresh, hygienic and nutritious orange juice left an impression among the consumers, especially tourists in Darjeeling and Sikkim. Nirmal Farm established linkages with reputed retail chain operators in local and state markets.

The company has made its presence in the international market, especially in neighbouring countries such as Nepal and Bangladesh. Moreover, they sell the produce directly from different home stays, tourist points and hotels across Darjeeling and Sikkim. This has further enhanced their profit. In addition to forward linkages, the company also ensured direct backward linkages by establishing a Farmer Facility Centre where all the farmers can come for agro-advisory services, inputs and modern agri-technologies for growing Darjeeling oranges. The primary marketing channels are:

- Farm-Distributor-Wholesaler-Retailer
- Farm-Hotel/Home Stay-Consumers

6. Support to Farmers

The vulnerable and poverty-stricken farmers were in a fragile reality and believed that they were not adept either to revive orange cultivation or to start any business in the orange industry. The whole farming community was low on morale and started to shift to alternate cultivation. Hence, Prawesh Gurung realised that in order to revive the orange cultivation sector, there is a dire need to restore the faith of the farmers as well as build their skills and technical competency. Since Nirmal Farm was economically profitable and witnessing rise in demand, there was ongoing need of raw materials i.e. fresh orange fruits in large volumes. But the production scenario was dismal. Hence, Prawesh started providing technological support to nearby mandarin growers such as Package of Practices (PoPs), nucellar seedlings, healthy grafted planting materials, insecticide and pesticide for pests and disease management, inputs for fertility management. He assured the farmers that he will buy their produce if it remains unsold. The farmers were convinced that if they get higher prices for their 'A' grade produce then they can sell it in Siliguri market at higher prices. But 'B' grade and 'C' grade fruits that earlier remained unsold were now bought by Nirmal Farm. This motivated the farmers to re-start Darjeeling orange cultivation. Over a short span of time, farmers from Bada Mangmaya, Sitong and Mungpoo started cultivating Darjeeling orange. The glory of Darjeeling mandarin was revived.

7. Impact of the Project

7.1 Impact on Productivity

The productivity of Darjeeling orange was very low due to old orchards, disease-infested plantation, deficiency of nutrition and faulty agronomic practices, lack of nutrient management practices, no use of insecticides and insecticides for pest and disease incidence. etc. Therefore, the yield was less than optimum. Farmers shared that they could not harvest even 100 kgs oranges from a 25-year-old tree. This resulted in huge economic loss for the orange growers. Nirmal Farm made interventions to enhance production such as providing healthy planting materials and replacing old diseased plant with new plants. The farm also promoted the use of bio-fertilizer, vermi-compost and bio-pesticide to restore the health of the existing plants in the orchard. The farmers reported significant

increase in yield showcasing collective impact. The farmers reported that prior to the interventions, a five-year-old tree yielded 10 kg which effectively increased to 16 kg highlighting the success of the interventions. Most plants showed an increase in yield by as much as 20 percent. The farmers reported that they were yielding more than 100 kg fruits from 10-year-old plants. This motivated other farmers who had left orange cultivation to revive the practice.

Table 2: Increase in Production of Orange (n=100)

| Items | Year | | | | | |
|----------------------------------|------|----|----|----|----|-----|
| | 5 | 6 | 7 | 8 | 9 | 10 |
| Earlier yield (kg/plant) | 10 | 25 | 45 | 55 | 65 | 80 |
| Present yield (kg/plant) | 16 | 38 | 65 | 72 | 90 | 120 |
| Percentage increase in yield (%) | 23 | 22 | 21 | 19 | 22 | 21 |

7.2 Impact on Farmers' Income

Initiatives by Nirmal Farm helped enhance the production and income of mandarin growers significantly in all the villages. The farmers stated that earlier they could hardly earn ₹ 1.5 lakh per acre with a plant that was 10 years or older. But adopting scientific management practices (timely application of fertilizer and manure, spraying chemical for pest and disease management, weeding, mulching and water management) has increased their production and income to as much as ₹ 2.5 lakh from one acre orange plantation (>10 years old pant); an increase of nearly 40 percent in their income. Similarly, the farmers who planted new healthy plantation reported that the yield of new plantation (<10 year old) was significantly higher than the normal seedlings (raised by guti kalam or nucellar seedlings). Earlier, they could hardly earn ₹ 0.40 lakh from an orange orchard with less than 10-year-old plantation. Since the intervention, their income has increased to ₹ 0.70 lakhs. The farmers also reported that they earned additional income by selling the B grade and C grade fruits to Nirmal Farm which earlier remained unsold.

Table 3: Increase in Income (n=100)

| Sl. No | Items | Income per acre in ₹ (before) | Income per acre in ₹ (after) | Percentage Increase |
|--------|--|-------------------------------|------------------------------|---------------------|
| 1 | Orange (>10-year-old orchard) | 1.5 lakh | 2.5 lakh | 40 |
| 2 | Orange (<10-year-old orchard) | 0.40 lakh | 0.70 lakh | 42 |
| 3 | Income from vegetables as Intercrop (1000 sq. m) | 10,000 | 30,000 | 67 |

7.3 Social Impact: Preventing Migration of Rural Youth

In response to the increasing chaos and stress due to lack of livelihood opportunities and stable income, the rural population of the region started looking for livelihood opportunities elsewhere. Hence, an increasing number of rural youth were migrating to fulfil their basic livelihood needs and feed their families. In their endless pursuit for a better livelihood and a decent status in the community, a social vacuum was created. However, revival of the Darjeeling mandarin cultivation has raised the hope among farming communities, especially youth, to engage in farming for livelihood. Earlier most of the young people migrated to Bangalore, Delhi and Kerala for low salaried options such as unskilled labour due to high level of unemployability in the region. Many of them were unwilling to take up farming due to its poor social status. However, with high profits from orange cultivation many young people are now choosing orange cultivation for their livelihood. This has helped bring socio-cultural balance in the region. One such example is of Maya Chettri from Mungpoo, who shared the story of 38 ladies and housewives, who earlier worked outside, have now started orange cultivation and homestead gardening. This has improved their financial condition as well as their social status in the region.

8. Challenges

Some challenges faced by Prawesh during the journey are:

- **Launching stage:** Initially, lack of knowledge, experience, technology and finance were the major challenges to starting the enterprise.
- **Growth stage:** In this stage, the technical aspect of running the enterprise such as lack of skill for diversification and lack of equipment to meet the increasing demand were the major challenges.
- **Establishing stage:** This includes the legal and policy regulation aspects that emerged as one of the biggest challenge after successful establishment of the enterprise. Nirmal Farm was established on agricultural land but the state department issued a notice to shut down the enterprise as the land was being used as industrial land. Over a period, they also learnt about the different types of licenses that were to be procured. Currently, Nirmal Farm maintains seven types of licenses. As a small scale and upcoming enterprise, lack of in-depth knowledge about these aspects became a roadblock.

Some of the ongoing challenges are:

- **Financial:** The farm needs large-scale financial support to fulfil the dream of scaling and diversifying to more crops such ginger, turmeric, etc.
- **Technical:** Nirmal Farm need technical guidance on value addition and processing through organic technologies and processes.
- **Political situation:** Unstable political situation is a major challenge for smooth running of the enterprise. For example, the 4-month long Gorkahland Agitation in

2017 cost the farm up to ₹ 20 lakh. It is estimated that it will take another 2 years to come back to the present condition as tourists were the major customer for his products.

- **COVID-19:** Since the outbreak, the production as well as marketing activities remain suspended. Since tourism had completely stopped, the farm incurred a huge loss and no support was given by policy makers.

9. Factors that Contributed to the Success

- **Strong will and vision:** It is Prawesh's strong will to try a new concept of business and its successful implementation that contributed as primary factors towards the success of the enterprise.
- **Leadership:** The success of Nirmal Farm can be attributed to the leadership capabilities of Parwesh Gurung. He was confident about the business opportunities in orange industry and it drove him to engage with the farming community with confidence. His leadership qualities and risk-taking abilities helped him to establish and run the enterprise successfully.
- **Financial factors:** The initial financial support from Prime Minister Employment Generation Scheme (PMEGS) helped him in launching the enterprise. This acted as a critical milestone for the enterprise.
- **Technical aspects:** The unique business idea of value-added products and its efficient and effective implementation as well as establishing robust marketing linkages played a role in the success of the enterprise.
- **Social factors:** Networking with the public and private institutions, cordial relations with distributors and a popular places for home stay became the key social factors and drivers of success.
- **Harmony with local culture of farmers:** Being a local resident, the owner of Nirmal Farm was familiar with the culture and the needs of locals. He devised solutions that were acceptable to the farming communities. The interventions were implemented in a manner that were compatible with the local culture. This ensured smooth adoption and long-term sustainability.
- **Timely tapping of the market:** Though the enterprise has an inherent advantage of being located in a tourist place, but its strategy of product diversification using the concept of zero wastage and fulfilling multiple demands from the same farm helped the enterprise in tapping the market more effectively.
- **Branding and maintaining unique quality:** The enterprise has put substantial effort in maintaining its quality while meeting ever increasing demand and continuously fulfilling the consumer's needs through a wide range of products. This has created a positive image of Nirmal Farm in the mind of consumers.

- **Capacity-building of farmers:** The enterprise has trained the farmers on production technologies, pest and disease management, etc., that has enhanced production and output. This is a win-win for the enterprise and the farmer.

10. Conclusion

Nirmal Farm established itself as a prominent enterprise in less than a decade. It has become a leading producer of fresh orange juice in West Bengal and emerged as a successful model for management and operation of individual enterprise with community involvement. The capacity of the leader to conceive an idea, translate it into a business and push it forward through its rough and tumble is worth quoting as an inspiring example for others. In today's day and age, we often hear about post-harvest losses, and dumping of fresh vegetables and fruits every year due to excess production and low market demand is also not uncommon. Nirmal Farm presents a great example of how an innovative idea of zero wastage with proper application of processing and value addition technologies makes the industry profitable for companies as well as for farming communities. The same concept can be replicated by young entrepreneur, FPCs and start-ups. This model is a win-win for all the stakeholders involved.

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Impacting Lives of Grashiya Tribes in Gogunda and Kotra Block of Udaipur Rajasthan through Intervention in Custard Apple Value Chain

Rakesh Kumar Gupta and Namita Pandey

1. Introduction

In India, 8% of the total population comprises of Scheduled Tribes (ST) (approximately 10 crore) and 50% of them depend on forest for their livelihood. They live in an ecosystem privileged with natural resources. However, due to lack of infrastructure, market accessibility and knowledge, they are unable to reap the benefit of these resources. They are forced to live in poverty, devoid of basic facility like health, education, electricity amongst others.

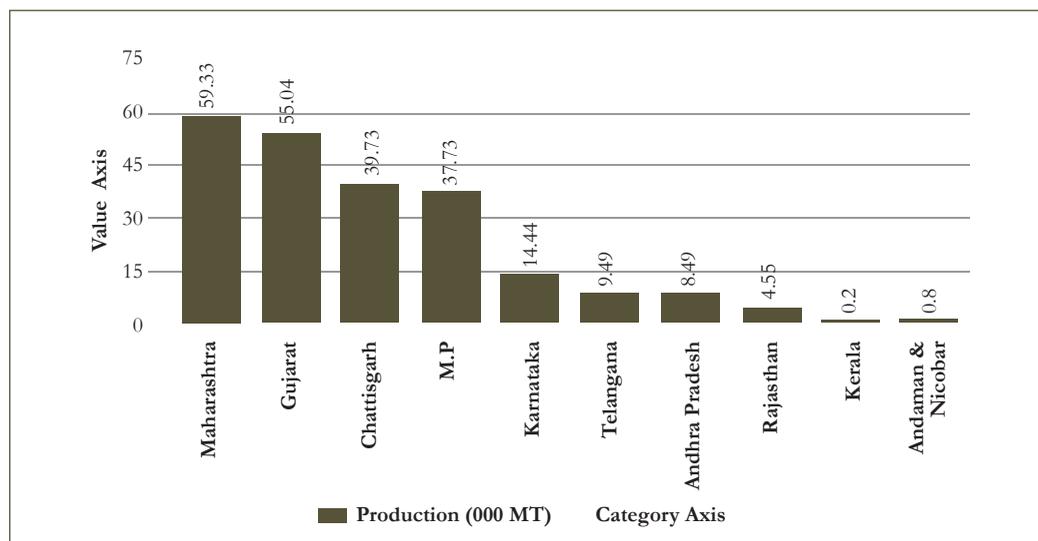
In 2015-16, Gramshree Development Services Private Limited, ventured into the tribal belt of southern Rajasthan's Kotada and Gogunda block in Udaipur. Kotada has been identified as one of the most backward blocks of Rajasthan. This block was almost inaccessible before the four-lane national highway NH-27 was built in 2010. Grashiya and Bheel tribes dominate these areas. Normally, people from outside or even from Udaipur did not venture into these areas after 3 pm as it was considered notorious and unsafe. The area is blessed with different natural resources like mahua, custard apple, gooseberries, tamarind and other minor forest produce. However, due to lack of access to market, awareness and infrastructure, the tribals were unaware of the commercial value of this produce. Deeper understanding of the issue brought out that Kotada, Gogunda and Sayara blocks of Udaipur are a natural hub of custard apple (45 lakh kilograms in Rajasthan, Source: National Horticulture Board, 2015). Custard apple is highly perishable and it was observed that traders used to buy this fruit from tribal at ₹ 50 to 80 for 20 kg, which used to further reduce to ₹ 3 to 4 per kg.

Gramshree undertook a pan India assessment and found similar situations existed in tribal dominant districts of Madhya Pradesh, Chhattisgarh, Telangana and Maharashtra.

With the above challenges in mind, in 2016, Gramshree worked towards finding solutions that could help the tribal groups get a better price for their produce of custard apple and other minor forest produce. The intervention started with a small pilot in association with the Village Forest Management Committee. It later expanded to a cluster-level business owned by different levels of community institutions such as Farmer Producer Organisations promoted by non-governmental organisations (NGOS), cluster-level federations promoted by the State Rural Livelihood Mission and Van Dhan Vikas Kendra promoted by TRIFED.

2. Decoding the Problem

Gramshree was able to appreciate the pain points and the customer segment through a well-defined process that helped to decode the functioning of the market and the pitfalls that needed rectification:



Source: National Horticulture Board, 2015

Figure 1: Custard Apple Production in Select State

2.1 Decoding the Problem at the Farmer Level

Gramshree spent more than 5 years with the tribal families to identify the challenges faced by them. The organisation tried to understand the way these challenges could be mitigated. In a way, a family-level SWOT analysis was performed that had the following findings:

- **Strength:** Land, forest and non-timber forest produce available in the region. Traditional knowledge in agriculture, livestock and other activities.
- **Weakness:** Lack of access to market, lack of awareness about market and its distribution system. Dependence on old age methods in agriculture, lack of innovation or diversification. Small landholdings and lack of sources of irrigation.
- **Opportunity:** Abundance of natural resources. Less usage of chemicals and fertilizers in agriculture.
- **Threat:** Dependence on natural resources, norms of forest departments.

2.2 Decoding the Problem at Market Level

2.2.1 Customer Interaction

The Gramshree team understood the entire process before entering the market. In the process, the custard apple orchard industry in Pune was explored and interactions with more than 50 buyers across Maharashtra, Rajasthan and Gujarat were held.

2.2.2 Market Insights

The above-mentioned activities implemented over three years brought out crucial insights. Thereafter, Gramshree entered the market through a pilot in 2016-17.

2.2.3 Geographical Study

Opportunities in multiple states were explored. These included Madhya Pradesh, Rajasthan, Chhattisgarh, Maharashtra, Delhi and Uttar Pradesh. It helped Gramshree understand the market across the country.

2.3 Solutions Introduced by Gramshree

2.3.1 Community Collective Solution

Farmers are mobilised under the producer groups and producer companies aids them in providing collective power. Gramshree used this platform to reach out to the community for different interventions.

2.3.2 Value Chain Solutions

Awareness: Farmers have been made more aware about the quality as well as the market potential of their produce through interventions and processes of village-level collection practices. As a result, they are now able to demand a better price for their produce.

Marketing: More buyers in the market are reached either through one-to-one contact or through online websites like Trade India and India Mart. Samples are provided to interested clients. Institutional buyers are even granted a visit to the processing unit so that they can get a clearer picture of the quality. To convert more leads, discounted price is offered on the first purchase. Logistic partners are used to deliver products to the customers.

Storage: Gramshree is making use of the latest Browning Free technology to store the final produce of products like custard apple pulp. This has been developed by the Horticulture Department of Rajasthan College of Agriculture. This technology allows for storage of the product for two years (if kept in cold chain). Similar interventions are in progress for other foods such as jamun pulp and gooseberries.

Profit: The intervention by Gramshree in the supply chain of products like custard apple has increased the profit margin of farmers by more than 100% since their selling price has increased from ₹ 5 per kg to ₹ 14 per kg.

Employment: More business has led to increased employment with tribal women getting the opportunity to work.

Quality: The customer is able to access better quality and organic fruits that are healthier to consume.

3. About the Organisation

Gramshree Development Services Private Limited is a social start-up working in Kotda, Gogunda, Kumbalgarh blocks of Udaipur and Rajasmand districts in Rajasthan. It has been founded by two development professionals with more than 35 years of combined experience. They have formed the organisation with the vision of impacting the lives of tribal families by empowering women so that they can take control of their lives.

The idea is to help women contribute to their family income and play a more critical role in deciding the future of their children. It has been found that financial independence helps in building the confidence of women.

Gramshree has impacted lives of more than 2,000 tribal families directly and an additional 3,000 families through its partnership with community-level organisations. Efforts by Gramshree have declared Udaipur hub the of custard apple production. The intervention has been replicated in other states like Madhya Pradesh, Chhattisgarh and Telangana. Gramshree has directly expanded their work in Madhya Pradesh and Rajasthan.

4. Problem Statement

Gramshree implemented their first intervention in Kotra and Gogunda block of Udaipur, Rajasthan. The region is dominated by Grashiya tribes. These tribes live in a condition devoid of basic facilities. Due to small landholding and rainfed agriculture, they depended on natural resources for cash income. Custard apple was available in abundance. Due to the small shelf life of the fruit and lack of access to market, the tribal groups were forced to sell custard apple at the rate of ₹ 3 to 4 per kg. It was found that this challenge was also prevalent in other regions of India and impacted the lives of more than 5 crore tribal families.

5. Pilot Phase (2016-2017)

When Gramshree decided to work on solving this problem, the major challenge was the short shelf life of the fruit. Hence, selling raw fruit was not the option. Mr. Rakesh Gupta, Founder of Gramshree, learnt about the Browning Free technology developed by the Maharana Pratap University of Agriculture and Technology, Udaipur. This technology had a dee-seeding machine and a recommended preservative that prevented the custard apple from browning. Since this technology was developed by the university, its market acceptability was not established.

Mr. Rakesh Gupta, with his past experience in establishing the different value chains, understood that the technology required to fulfil the need of the market and would not work if it did not solve the real challenge at hand. A detailed market study was conducted in 2016-2017, and visits were organised to different part of Maharashtra and Gujarat, where demand for custard apple pulp was high. Simultaneously, Gramshree undertook the first pilot in 2016-2017.

Various challenges emerged as the idea was new and no one in the intervention area had witnessed this process.

1. No one was ready to provide the initial investment required for machinery and working capital.
2. Gramshree was keen to establish the processing unit in the tribal village but getting the required physical space was challenging.
3. Custard apple is available deep in the forest; hence, it required coordination with the forest department.
4. Tribal women had never done such type of work, hence, training them on different aspects of the food processing, especially ensuring hygiene, was a challenge.
5. Gramshree founders and their friends invested their own money for the pilot. ₹ 5 lakh was invested wherein ₹ 2 to 3 Lakh was invested in the machinery and the remaining was used as working capital.

5.1 Collaboration with the Forest Department

Custard apple in south Rajasthan is available for a limited period of two months. Production starts around early October and ends by November end or sometime December first week. Hence, the process of getting the machinery, finalisation of venue for processing, establishing a fruit collection centre in the village through women groups had to be done before end of September.

Gramshree initiated the discussion with different stakeholders simultaneously from July, 2016. Contacts were maintained with the supplier for critical machinery such as blast freezer, crate suppliers and the forest department. Gramshree contacted the forest department official of Udaipur range, Mr. Fateh Singh (Assistant Conservator of Forest rank) and Mr. O.P Sharma (Divisional Forest Officer from 2016 to 2019). The idea of establishing a mini-custard apple processing unit was appreciated by the official and they wanted a similar kind of activity to be implemented that could provide an earning and livelihood option for the tribal families. After several discussions, it was suggested to work with the Village Forest Protection & Management Committee (VFPMC) established by the Forest Department around their forest naka. A unit was established to collect minor forest produce by the forest department using central government funding in Jhadoli village, Gogunda block, Udaipur. It has space for processing and storing raw fruit.

An agreement was drawn between Gramshree Development Private Limited and VFPMC Thamlaberi in September, 2016. It was agreed that member of the VLFMC will be working in the processing unit and VFPMC will provide the place for one and half month at ₹ 5,000/-.

The forest department installed three deep freezers in Jhadoli unit from their own fund. This also helped Gramshree in using its limited resources judiciously.

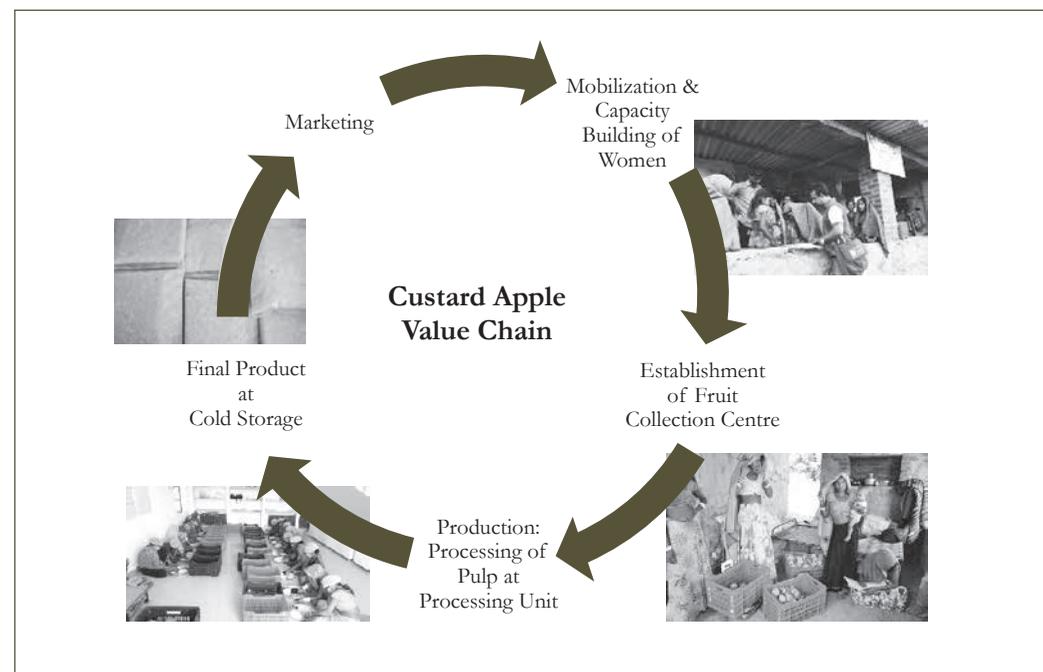
Gramshree hired their first field person on September 1, 2021. Under the guidance of Mr. Gupta, he started working on mobilisation of tribal women into self-help groups and producer groups. The aim of mobilising them under a group was such that they could be trained on different aspects of processing and storing custard apple. The objective was to establish a fruit collection centre at the village level that was managed by women, so that the women are not forced to sell their produce at throw away prices.

It was not easy to mobilise women in such a short period of time in addition to gaining their trust and building their capacity to run a fruit collection point. The challenge was compounded as the market was dominated by men.

As it was a pilot, it was critical that Mr. Gupta, who was based in Delhi, spend 20 days in the field to ensure that all the system were in place before the processing started. Tribal women in the village were trained on different aspect of fruits, such as ripening, plucking grading, weighing and so on. They were also trained on documenting the process and maintain an individual member pass book to ensure transparency.

Another set of tribal women were trained on different aspect of processing including personal hygiene, unit hygiene, scooping, packaging, sealing, hardening and cold storing.

5 Step Process which was followed by Gramshree during the first pilot is depicted below :



1. Mobilising women and establishing the fruit collection unit: Tribal women were mobilised in self-help groups and trained on grading, sorting and weighing. Simultaneously, a custard Apple collection centre was established in the villages.
2. Following this, a venue to establish a processing unit was selected in the villages, and equipment and machinery were procured.
 - a. Fruit was brought from villages to the processing unit at a central point.
 - b. Women were trained on (i) processing hygiene, (ii) scooping, (iii) de-seeding, (v) packaging and (vi) maintaining cold chain.
3. The seeds were extracted manually in the first year, pulp was packed in 1 kg food grade pouch and hardened in blast freezer. The final product was stored in deep freezer in the proceeding unit.
4. The final product was then dispatched to be stored in the cold unit in Udaipur.
5. The product was then sold to ice-cream manufactures and traders who supplied it to caterers.

During the pilot, fruit was procured from 5 villages. It helped 250 families to get an average price of ₹ 9 per kg as compared to ₹ 4 per kg. Thirty tribal women were employed in the processing unit.

Gramshree went through many challenges while establishing a food processing unit such as improper infrastructure, irregular electricity, lack of capacity of tribal women on food processing and ensuring hygiene as per FSSAI norms.

In its pilot, Gramshree produced 3,000 kg of pulp using 16,000/- kg of fruit during the first pilot.

5.2 Learnings from Marketing during the Pilot

- Whoever approached Gramshree for sale of pulp, they first came to know that the production is taking place in Rajasthan.
- This made them reluctant to take the product in the first go. Secondly, Gramshree was competing with the products coming from Pune, in terms of quality and pricing.
- Gramshree faced some difficulties, but they were able to sell their product as the quality of the product was appreciated by the buyer.
- In the first year, Gramshree was able to find the buyers in Udaipur, Jodhpur and Ahmedabad.

As a result of the pilot, Gramshree understood the market, competitor, market size, buyer's mindset and different segment of buyers. The key learning that emerged was if quality would be maintained, only then there is a bigger market waiting in the future. This gave Gramshree the confidence to implement another intervention to tackle other challenges in the field.

Gramshree implemented another pilot in 2017-2018. Under this intervention, they produced 4.5 MT of pulp and generated a revenue of ₹ 9 lakh. Farmers received an average price of ₹ 10 per kg as compared to ₹ 4 to ₹ 5 per kg in other areas where Gramshree had not yet reached.

6. Collaboration with Community Institution & Entrepreneurs

In 2018-2019, Gramshree planned the expansion to test different aspects (enlisted below) that could help expand this model at a pan India level and at the same time scale production.

- Introducing de-seeding machine: Gramshree was de-seeding manually which causes the challenge of spoilage of fruit at peak time. Secondly, it restricts the scale. Hence, during this expansion, Gramshree planned to experiment with a de-seeding machine to increase the scale of production per unit.
- Gramshree planned to introduce frozen jamun slices, using the same machinery and provide another window of processing during June and July.
- Gramshree wanted to test the challenges that could emerge in expanding the model in other geographies of the country so that they could be shared with other stakeholders who would be involved in the expansion.

Gramshree decided to take a leap of faith explore the opportunity for expansion in Madhya Pradesh as a result of two incidents:

- A tribal girl, Mamta Madhawi, who belonged to Pandurna block of Madhya Pradesh got in touch with Gramshree to explore an opportunity of establishing a mini-processing unit in her village Vada Mal.
- Satpura Self Reliant Farmers Producer Organisation promoted by Reliance Foundation in Junardeo Block of Chhindwara district reached out to Gramshree for collaboration.

Chhindwara district of Madhya Pradesh has great potential with respect to custard apple cultivation. However, the first hurdle in executing the pilot was the lack of confidence in terms of finding a partner in executing this idea. Gramshree's idea was to build the capacity of local community institutions and local entrepreneurs, so that they could handle the processing, and Gramshree could help them in marketing. The key challenge was to find partners who would be willing to take this risk.

To boost the confidence of potential partners, Gramshree suggested the idea of a partnership in which each partner would invest 50% and the field partner will ensure the production under technical guidance of Gramshree team while the responsibility for marketing will lie with Gramshree.

Gramshree proposed an investment of ₹ 6 lakhs, with 50% investment by each partner. The model was executed in Madhya Pradesh.

In 2018-2019, Gramshree produced 17 MT of custard apple pulp, that is, 7 MT in Madhya Pradesh and 10 MT in Rajasthan in collaboration with 3 VFPMC. Additionally, 2 MT of

jamun pulp was also produced. It benefited more than 2000 tribal families, ensuring them a better price of fruit. More than 180 women received an additional earning in the range of ₹ 5000 to ₹ 8000 during the processing season.

This expansion helped Gramshree to increase its marketing outreach to other parts of the country by 2019. Gramshree was able to link to the buyers in Maharashtra, Gujarat, Madhya Pradesh, Delhi, Rajasthan and Uttar Pradesh. Gramshree has been able to build their trust among the buyers and at the same time has been able to impact the live of tribal families.

7. Innovation

In the last three years, one of the major challenges faced by the Gramshree was establishing the mini-processing unit in the interiors of tribal villages of different parts of the country.

Gramshree collaborated with another start up working in solar energy field, Devi Dayal Solar Solution. The challenge at hand was that once the product was packed, it needed to be stored at a temperature of -20 degree Celsius. However, power cut of 3 to 4 hours is normal in the interior tribal villages of Rajasthan and Madhya Pradesh, and the same is assumed in other parts of the country. Many times it gets extended to more than 8 hours a day. Hence, running the unit under genset was not viable. Gramshree learnt about Devi Dayal Solar Solution, who had developed a solar run deep freezer. Gramshree collaborated with them and installed six solar run deep freezers and one pick-up with four solar mounted deep freezers for transportation of the finished product under frozen condition.

This required one-time investment and ensured the quality of the product through the value chain. This innovation has provided opportunity to establish mini-processing unit in interior villages where electricity is not dependable. It will help Gramshree in reaching interior villages throughout the country.

8. Impact

Gramshree has specialised in the value chain of frozen custard apple, jamun and is expanding to other products such as gooseberries, tamarind and mango. Gramshree undertakes production directly and also provides technical and marketing support to farmer producer organisations and community-based organisations promoted by NGOs and State Rural Livelihood Mission to scale up the benefit of the solution.

Anita Grashiya, a 20-year-old girl from Dang Village, worked as in-charge of the processing unit. The income sources of her family were limited to ensure food for the family while higher education was a far-off dream for her. She is the first girl in the village who is pursuing higher studies (Bachelor in Arts) from a private college in the block headquarters. In one season, she earned ₹ 7,000 from sale of fruit and by working in the processing unit. She used ₹ 5,000 for paying the fees of the college and rest of the money for purchasing her books. She is able to pursue her dreams by getting this employment opportunity at her own village.

Gramshree has been able to impact the lives of more than 5,000 tribal families in the last 5 years and has a vision of impacting lives of 1 lakh tribal families through intervention around different value chains across India.

9. Accreditation & Recognition

The intervention on custard apple value chain by Gramshree has been recognised across different platforms as enlisted below:

- Gramshree received first prize in 2018 at the I-pitch event organised by Vilgro.
- Gramshree received first prize under the agri-start-up category and was awarded debt support of ₹ 25 lakh and incubation support under CIIE Ahmedabad.
- Awarded the most impactful agri-start at the FICCI Business Excellence Awards in October 2018. The award was handed over by then Honourable Minister of Commerce & Industry Government of India Mr. Suresh Prabhu.
- Received runner-up prize at the Green Business Challenge organised by Icco and ISEED in 2019.

Vishakhapatnam's Sustainable Coffee Chains Reviving Old Spice Routes

Smriti Ahuja and Dhruv Joshi

1. Introduction

1.1 Coffee Around the Globe

Circa 500 A.D., Kaldi, a shepherd accidentally discovered coffee when he observed that his goats were jumping around after grazing red cherries of small shrub growing on the hill slopes of Ethiopia. Little did the boy know that someday Ethiopia would be the world's premiere caffeine provider, that will be consumed globally at the rate of 2.5 billion cups every day in 2017-2018. In October 2018, coffee exports globally reached 10.41 million bags compared to 8.89 million in October 2017. With a 17 per cent surge, this has been the largest per month volume of export to date. As per projections, by 2050, the global consumption of coffee would have doubled.

1.2 Nature of the Problem

Visakhapatnam district, officially known as Vizag district, is located in Andhra Pradesh, India. It has coffee plantations nestled in the valleys of the Eastern Highlands' deciduous forests. The Eastern Ghats are a discontinuous range of mountains along India's eastern coast that run from northern Odisha through Andhra Pradesh to Tamil Nadu and cut through four major rivers of peninsular India. These coffee plantations enjoy natural irrigation and have rich soil that does not require chemical additives to cultivate superior quality coffee. Despite the rich natural resources, majority of the tribal population in the district remain below poverty line. Although, plenty of coffee is grown in the districts, the farmers have to sell it through middlemen at throwaway prices due to lack of storage capacity and lack of access to markets.

A quick method to check coffee weight is by putting the beans in a drum filled with water. The number and volume of cherries floating indicate the weight of the produce. Ideally, the weight should be balanced with the output.

Earlier, the farmers used to collect the fruits and dry it, which led to quality-related issues. Whenever a sample was sent to a buyer, it received a low score card rating leading to low market prices fixed by the cupping connoisseurs¹. Coffee processing requires a drying facility to avoid flavors related to soil and grease. The ideal coffee outturn is 56 percent (hulling coffee cherry should give 56 kg beans out of 100 kg raw material).

¹ Cupping is a method of roasting and preparing a decoction of coffee for sample tasting, Graham H. Fleet, 2014, Cocoa and Coffee Fermentations, p.381

1.3 Key Challenges

Coffee was first introduced in Eastern Ghats of Andhra Pradesh in 1898 by the British in Pamuleru Valley in East Godavari district. Subsequently, it spread over to Visakhapatnam region in early 19th Century. After independence, the Andhra Pradesh Forest Department developed coffee plantations in the valley, and in 1956, the Coffee Board appointed Andhra Pradesh Girijan Cooperative Corporation Limited (GCC) to promote coffee plantations in the valley². In 1985, the GCC promoted Girijan Cooperative Plantation Development Corporation (GCPDC) exclusively to develop coffee plantations in tribal areas. All the plantations developed by GCC and GCPDC were handed over to the tribal farmers at two acres per family. Since the market is controlled by private players, it takes up to seven hands for a produce to reach from a village to town. With no guarantee of 100% down payment, the farmers are dependent on the marginal returns offered to them by the middlemen. It is difficult to even provide for basic needs such as health, clothes, nutrition and education of a farmer and their family. Moreover, the area comprises of small tribal hamlets that have poor accessibility to roads. Where road connectivity exists, it is ridden with dirt tracks that make transportation of material difficult. This creates a vicious cycle of dependency of the farmers on private players for credit and price fixing as there are no immediate competitors. Due to this monopoly of prices, the middlemen decide the price without involving the farmer.

Café Coffee Day (CCD) founder, Siddharth Hedge, and other entrepreneurs had played a vital role in removing the monopoly at the time of PV Narsimha Rao, then Prime Minister of India. Siddharth Hedge had a share of 20% coffee market; this opened channels of multiple modalities for coffee. Earlier, it was only considered as a commodity in the western world. Subsequently, the focus shifted to increasing the value of coffee ventures. Earlier, coffee was presented as a 'rich man's drink' with tea being the main beverage. Indian companies like Madras Coffee only offered coffee at reasonable prices and for publicity.

1.4 Opportunity

India is the fifth largest exporter of coffee in the world, and the third largest producer and exporter in Asia. India was the only country in the world where all varieties of coffee

Araku region, a largely tribal area became popular for its beautiful valleys and coffee gardens. Later, Anand Mahindra and his colleagues started producing and selling coffee under the brand name of Araku Coffee and started marketing it in Europe. They achieved this after putting continuous efforts for 15 years and now they are selling 1 kg of coffee powder at 100 Euros in the European market.

Dr. Sudheer Kumar Chowdhary,
Cluster Lead – MACS & GCFAMCO

are grown under a 'well-defined two-tier shade canopy of evergreen leguminous trees'. India's coffee growing regions are one of the 25 biodiversity hotspots in the world. In 2017-18, Arabica coffee, despite covering 50% of the soil in India (2,28,910 hectares) for production, produced only 30% of the volume (95,000 ton at 478 kgs per hectare).

Two different coffee varieties are commercially available worldwide, viz Arabica and Robusta. Arabica has higher preference because it has more intense taste, better quality and higher caffeine content³. On the other hand, Robusta varieties were dominant a few years ago, but blends with pure Arabica are now sold as premium products all over India. Appreciation for coffee has been increasing and the coffee culture, which was earlier restricted only to southern India, is now spreading across the country. While demand for ready-to-drink coffee from big coffee conglomerates continues to rise, artisan coffee from single origin and single estate is also making inroads in Indian coffee markets.

Further, the newest trend that has caught on in the last couple of years is coffee tasting and coffee pairings. Coffee tasting workshops in metropolitan and urban centres are a common affair, where coffee enthusiasts learn about various flavour notes of different coffees and gain insight on identifying good quality coffee and the best way to prepare a cup. While cappuccino and macchiato are making waves, cold coffee with whipped cream and condiments is now the hot favourite.

In India, 2 billion coffee cups are consumed every year, and the industry value stands at 4 billion rupees.

2. The Initiative

2.1 Stakeholders

In 2019, Indian Micro Enterprises Development Foundation (IMEDF) identified the opportunity to develop a coffee chain under the Scheme of Fund for Regeneration of Traditional Industries (SFURTI), Ministry of Micro, Small & Medium Enterprises (MSME). The scheme launched in 2005 with the objective to promote cluster development by organising traditional industries and artisans into clusters and providing them support with a long-term sustainability and economy of scale lens. In addition, the scheme provides sustained employment and enhances marketability of products of such clusters by providing support for infrastructure, design, market and improved packaging. This approach makes a paradigm shift from a supply-driven selling model to a market-driven model. SFURTI links various stakeholders and on-ground organisations working in the area of development of clusters. Through the scheme, the agencies such as implementing, technical and nodal agency come into play to interweave the implementation of the programme.

IMEDF is the social enterprise development vehicle of the Development Alternatives

³ Ramesh Namdeo Pudake, Utkarsh Jain, Chittaranjan Kole, 2021 Biosensors in Agriculture: Recent Trends and Future Perspectives, pg355.

² India. Coffee Board, 2004, Indian Coffee Bulletin of the Indian Coffee Board, Volume 68, pg. 37

Group (DA). It was registered as a Nodal Agency by the Ministry of MSME, Government of India on October 24, 2017. Now, as a Section 8 Company under the Companies Act, 2013, it is set up with an aim to boost an ecosystem for green and inclusive entrepreneurship. Grown to be a unique nodal agency, it is developing clusters in multiple sectors such as handloom, natural dyes & handicrafts, medicinal plants, non-timber forest produce, artefacts, gold and services. It has a portfolio of 23 clusters, country-wide presence and 32 on-ground local partners.

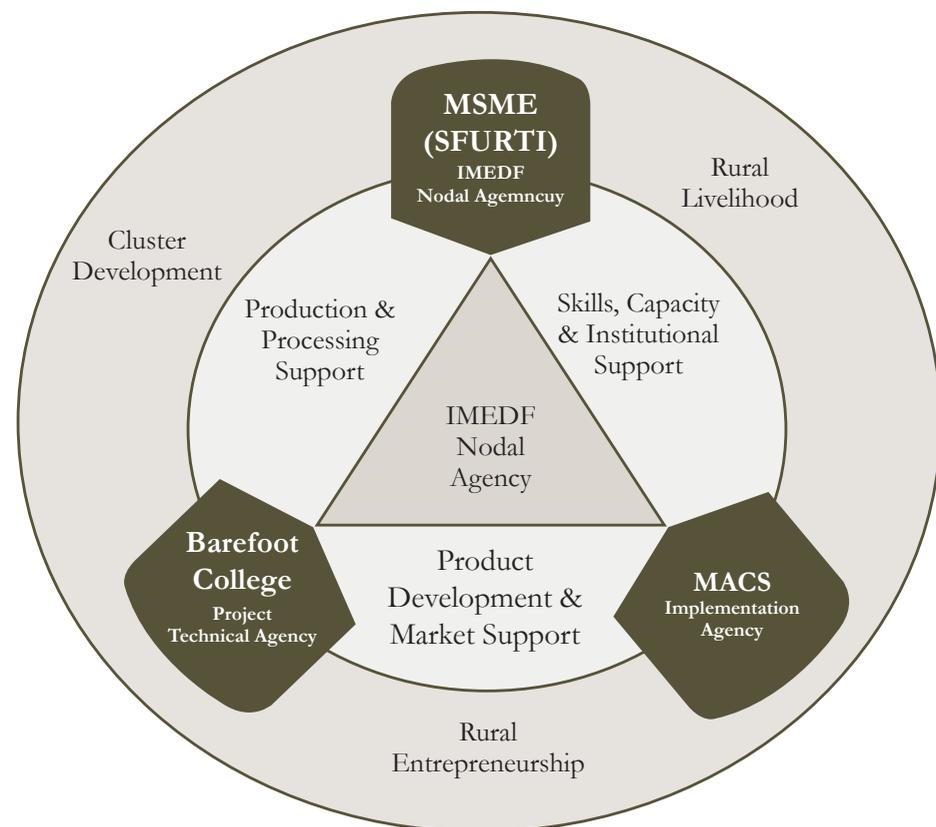


Figure 1: Cluster Development Model under SFURTI

DA is a unique collaboration of organisations focused on not-for-profit research, charity objectives and social enterprise ambitions. It comprises of the Society for Development Alternatives, Society for Technology and Action for Rural Advancement (TARA) and its affiliate social enterprises, of which, IMEDF is a special purpose vehicle committed to accelerate impact in the areas of entrepreneurship and job creation in India.

IMEDF, with its on-ground local partner, Mani Amma Chaitanya Shrivanthi (MACS), started to develop Vishakhapatnam Coffee Chain into a cluster under SFURTI in 2019. MACS is a non-governmental organisation located in Visakhapatnam, Andhra Pradesh, and

is registered as a “society”. Their main focus is on issues related to water (irrigation and drinking), agriculture, animal husbandry, skill development and health care. Ms. V.C. Aliveni and her team are rebuilding the organisation with the support of the community.

2.2 Background of the Problem

Agriculture is the main stay of nearly 70% of the households in Vizag district. Though Visakhapatnam city is industrially developing, the rural areas continue to be backward. Rice is the staple food of the people making paddy the principal food crop of the district, followed by ragi, bajra and jowar. The main cash crops are sugarcane, groundnut, sesame and chillies. There are no major irrigation systems in the area, and only about 36% of the cropped area is irrigated under 1) the Ayacut of the Medium Irrigation System⁴ and 2) Minor Irrigation Tanks. The rest of the cultivated area is covered under dry crops depending upon the vagaries of the monsoon. Overall, productivity of the crops is low. Power consumption by industries is 43.669 million KWH while it stands at 46.052 for agricultural purposes. By 2006-2007, all 3,335 villages in the district were electrified. This includes electrification using solar power system.

The forest area in the district has been showing a quiescent decline since 1955-56 perhaps due to *podu* (slash and burn) practice, indiscriminate grazing and browsing. The Forest Department has implemented initiatives to conserve soil and included the Coffee Board to evolve cultures suited to non-traditional areas. Girijan Corporation and Integrated Tribal Development Agency are also implementing initiatives to wean out tribals from the pernicious practices of ‘podu’ cultivation*.

To stem ‘podu cultivation’, regeneration programmes are being implemented. The Chinthapalli Teak Plantation is an off-shoot of this initiative. The latest development in this programme is rise of teak, silver trees and coffee plantations, as the agency areas are found suitable agronomically for coffee growth. Coffee plantations have been raised in about 10,000 acres of Chinthapalli, Minimuluru, Devarapalli and Ananthagiri regions by several agencies for numerous purposes.

2.3 Geography

The cluster is being developed by IMEDF and IA MACS in Chinthapalli region of Vishakhapatnam district with 500 women farmers. These women farmers have been granted financial assistance of ₹ 1.65 crore through the collaboration of the Nodal IMEDF, Barefoot and MACS.

⁴ India (Republic), 1967 Superintendent of Census Operations, Andhra Pradesh, District Census Handbook, Andhra Pradesh, Census 1961: Visakhapatnam, pg. 41-50.

* Sakarama Somayaji, 2009, Environmental Concerns and Sustainable Development Some Perspectives from India, pg 256-257

2.4 When Did the Case Take Place?

The cluster was approved by the Ministry of MSME through a process of steering selection committee in January 2020 (under the SFURTI scheme, mentioned above). With the financial aid provided, the farmers have been given exposure trainings to visit various coffee and spice estates. They have also met cooperative societies in nearby areas of Sirsi, Sitapur, Tellapur, Sakleshpur, Hassan, Belur, Chikmanglur, Mudigere in Karnataka. These visits, as part of soft interventions of the SFURTI programme, gave the farmers insights into building healthy and sustainable coffee farming models in the coffee plantation and processing industry. The major tribal groups found in the district are Bagata, Kotiya, Kondadora, Nookadora, Konda Kammara, Konda Kapu, Gadaba, Mali, Porja, Mannedora, Khond and Valmiki. Earlier they were growing millet.

Coffee intercrops with spices such as cinnamon, cardamom, pepper, nutmeg and annatto plants. Intercropping benefits the farmers by providing regular harvests throughout the year.

3. The Coffee Cluster

3.1 Location and Identity

Visakhapatnam district comprises of three revenue divisions divided into 43 mandals (local government area). The district consists of two natural divisions viz., the agency area and the plain area. The agency area mainly consists of hilly regions covered by the Eastern Ghats which runs parallel to the coast and stretches over a length of about 161 kms from northeast to southwest lying in the interior parts of the district. It is situated between 170 10' and 180 25' of the eastern longitude. Visakhapatnam has a territorial jurisdiction of 11,167 sq. kms and has a population of 42,88,113 as per Census 2011. The agency area consists of 11 mandals in the Paderu Revenue Division and 6 mandals consisting of 45 villages in the Tribal Sub Plan area.

The cluster area in Chinatapalli employs 500 women farmers with an average land size of 1 to 3 acres. The farmers have been growing coffee and other spices on this marginal land. The table below highlights the Strength Weakness Opportunity Threat SWOT analysis of the cluster.

1. The Environment section looks into ecosystem of the current farming practices. Some key indicators are climate, soil, rainfall and cropping pattern.
2. Social Life and Rural Institutions section looks at the tribal community, their knowledge systems and gap in rural and urban development.
3. Support Services and Infrastructure section looks into the key linkages among financial and institutional organisations and identifies challenges in establishing these connections.
4. Primary Produce and Production section is involved in the scaling up challenges and possible opportunities.
5. Markets shows the key aspects of current marketing practices, channels to reach an appropriate market size in domestic and international trade of coffee.

Table 1: Coffee Cluster SWOT Analysis

| Strengths | Weakness | Opportunities | Threats |
|--|---|---|---|
| ENVIRONMENT | | | |
| <ul style="list-style-type: none"> • Good soil quality due to absence of extensive farming and prevalence of multi-cropping agricultural practices. • Majority of the cluster landmass falls under Godavari River Basin. The area experiences anywhere between 1200-1500 mm rainfall. • Recognised as a biodiversity hotspot the ecology of the cluster provides natural soil protection/erosion control, carbon sequestration, natural pest control and improved pollination. All factors essential for a healthy shade-grown coffee crop. | <ul style="list-style-type: none"> • Dependence on rains for irrigation. Farmlands are mostly tank irrigated, water for which is attained through construction of check dams, recharge tanks and micro-irrigation systems. • Lack of proper maintenance for the existing community water resources. • Increased deforestation due to Timber trade and cultivation of staples like grain / rice. | <ul style="list-style-type: none"> • Implementation of new age permaculture and organic farming techniques may curb deforestation as a result of improved yield. • Promotion and plantation of native tree species with help from AP Forest Dept. • Leveraging MGNREGS funds to build community water resources, through participatory planning, budgeting and accounting. | <ul style="list-style-type: none"> • Deforestation for high priced woods and allotment of tribal lands for mining industries manifest in climate change which reflects in reduced rainfall and also affects streams which are irrigation sources. • Increasing number and strength of coastal storms like HudHud and Fani that negatively impact farm produce. • Market forces and contract farming for staples that require use of chemical/ synthetic fertilisers and pesticides. |
| SOCIAL LIFE & RURAL INSTITUTIONS | | | |
| <ul style="list-style-type: none"> • Tribal customs and traditions that celebrate importance of environment and related sensitisation the transfers to younger generations through various festivals. • Existing sensitisation towards organic and eco-friendly farming practices for consistent yields. • Better levels of literacy - language and arithmetic-provide ease for establishment of, and capacity building, institutions like FPC / Co-op / SHGs / AFFs | <ul style="list-style-type: none"> • Increased migration among youth for jobs in cities, due to high farm input costs, small landholdings and reduced yields. • Existing patriarchy limits socio-economic growth of women, especially when they form a larger portion of total rural labor. • Interference of local politics to a certain extent leads to failure at grass root level. • Legacy of subsistence living and barter hinder development of an entrepreneurship mindset. | <ul style="list-style-type: none"> • Integration of processing capacities for value-added products may create better job opportunities for resident rural youth and women of the cluster. • Formation of FPCs and Co-ops to help finance and manage post-harvest activities, will provide ease wrt post-harvest needs of the farmer. • DWACRA, VELUGU, SERP, GCC are working hard to facilitate credit facilities and institutional support. | <ul style="list-style-type: none"> • Increase migration of other tribes / tribal groups from neighboring or home state as a result of mining allotment may increase social conflicts. • Changing views of young generation towards agriculture and aspirations of urban life risk degradation of the earthy and rooted tribal fabric, further will lead to reduced manpower for agriculture. • Increasing apathy among tribals due to the abysmal state of livelihoods which promotes a culture of free emoluments (cash / kind) |

| Strengths | Weakness | Opportunities | Threats |
|---|---|---|--|
| SUPPORT SERVICES & INFRASTRUCTURE | | | |
| <ul style="list-style-type: none"> Existence of experienced and community trusted Ground Partners like MACS that has been providing development solution to tribals at this cluster for decades now. Existence of Giri Chaintanya Co-op that has already mobilised over 500 farmers to aggregate produce and create market linkages. Concerted efforts from Central and State Govt through APSSDC, ANGRAU, CDAP, FFS, ICRISAT, IPM, IWRM, MEDP, NMSA, RKVY, SMAM, and alike. | <ul style="list-style-type: none"> Given the hilly terrains where the cluster lies, mobility becomes a concern wrt to connectivity through roadways, along with limited access to telecommunication networks and other logistical needs like internet and postal services. Weak and sparse spread storage infrastructure - stocking points / warehouses. Weak publicity of government schemes and limited reach and manpower of government institutions/ agencies/ depts. at the cluster. Complicated and lengthy paper work for availing government schemes. | <ul style="list-style-type: none"> As part of the 12th State Action Plan of Andhra Pradesh, state government is focused on important aspects like - Increasing storage capacity through construction of warehousing facilities through PPP models. Providing support and ease the process for acquiring certification and license for food processing and creation of value-added agri products. Creating seed banks to ensure farming of coffee using ingenious and resilient coffee plants. Coffee Board recognises coffee grown in AP as a rising star. | <ul style="list-style-type: none"> Considered a Naxal / Maoist area, the cluster may get ignored or sidelined. Inspite of high volumes of coffee production, the cluster is still considered a non-traditional coffee area and thus may not receive the same attention and benefits as coffee clusters in Karnataka or Kerala. Lack of proper paperwork and credible background information at the hands of farmers / SHGs / FPCs may result in rejection of applications when availing any and every government and non govt support services. |
| PRIMARY PRODUCE AND PRODUCTION | | | |
| <ul style="list-style-type: none"> Consistent soil quality due to the decades old - small scale farming with low-cost and natural farm inputs, low levels of farm mechanisation, multi-crop farming as a source of subsistence living on small land holdings and practice of farming below tress shade. Prevalent tribal ancestral culture and belief of living in harmony with the surrounding environment. Prevalent practice of inter/ multi-cropping along with coffee. | <ul style="list-style-type: none"> Reduced avg farm yields from almost 700 Kgs/Hectare in 1970s to approx. 450 Kgs/ Hectare. Inherent limitations in farm mechanisation for farming, due to the terrain and the existing practice of growing coffee under forest cover. The existing methods of dry processing of coffee beans does not produce a high quality primary produce needed for making high-quality processed goods. | <ul style="list-style-type: none"> Augmenting revenues from coffee with secondary crops like pepper, that are grown as part of multi / inter-cropping along with coffee has the potential for increasing income generation. (A report from AP govt. stated annual avg. gain of ₹ 60,000 / per acre from primary as well as secondary produce, which is being provided further support for increase in gains of upto ₹ 1 Lakh per acre.) | <ul style="list-style-type: none"> Threat of crop damage from climate change issues as well as lacking storage infrastructure. According to Government estimates, about ₹ 50,000 crore worth of agri produce is lost annually due to post- harvest loss, a major slice of it due to inadequate storage and transportation facilities. High cost of transportation due to road accessibility issues resulting from the remoteness of the cluster. |

| Strengths | Weakness | Opportunities | Threats |
|---|---|--|--|
| | <ul style="list-style-type: none"> Dependence on single revenue stream - selling unprocessed raw produce, immediately after harvest, to bulk buyers/ exploitative middlemen which hinders potential for income generation. Lacking awareness, exposure, skills and knowledge of food processing, for creation of value added products, among tribal coffee farmers. Dependence on not so credible suppliers for seeds and other farm inputs like manure. | <ul style="list-style-type: none"> Potential for reducing production costs through establishment of a processing unit at the cluster level. Potential for creating multiple value-added products with progressive price bands, that will be based on bean size, moisture content and coffee plant types. Concerted efforts of AP Govt. (TRICOR) to provide ease in providing loans / credit/ banking facilities to tribal SHGs and FPCs. | <ul style="list-style-type: none"> Threat of crop damage from climate change issues as well as lacking storage infrastructure. According to Government estimates, about ₹ 50,000 crore worth of agri produce is lost annually due to post- harvest loss, a major slice of it due to inadequate storage and transportation facilities. High cost of transportation due to road accessibility issues resulting from the remoteness of the cluster. |
| Strengths | Weakness | Opportunities | Threats |
| MARKETS | | | |
| <ul style="list-style-type: none"> Well defined marketing mix - Product, Price, Place and Promotion - for tapping multiple customer segments to increase potential for revenue generation. Good uptake of B.Barefoot Coffee from respective channel partners during the soft/ trial launch period - Sept 2018 to Feb 2019. Launch of EASTERN GHATS COFFEE by Hon. CM of AP in mid 2018-19. Robust marketing and distribution plan already in place for the upmarket product line - B.Barefoot Coffee. Trial bulk-sale orders of green coffee already received. | <ul style="list-style-type: none"> Lack of knowledge and understanding around go-to-market strategy among farmer groups and federations. Lack of dedicated and experienced team for managing FPCs / Co-Ops. Lack of seed funds specifically for conducting marketing and branding activities. High transport costs for outbound logistics from farm to cup, which in turn affects margins. Lack of awareness and knowledge on fluctuating market trends and prices among FPCs and Co-Ops. Higher negotiation power of big conglomerates for procurement of primary produce. | <ul style="list-style-type: none"> Increasing interest in traceable value chains and organic products among urban consumers. The rising fame of Araku Valley Coffee in international and domestic markets, creates potential for the cluster, as the coffee grown in the target mandals has similar taste profile, tree types, soil quality and weather conditions. The recent push by AP State Govt to connect SHGs to big corporations for procurement contracts at fair price. | <ul style="list-style-type: none"> Existing habits and trust for ready-to-drink coffee sold by corporate brands Dependence on global market prices for sale of primary produce. Rapidly changing market trends. |

| Strengths | Weakness | Opportunities | Threats |
|----------------|---|--|---------|
| MARKETS | | | |
| | <ul style="list-style-type: none"> Lack of knowledge and infrastructure to align sale of primary produce with global price trends. Merging customer segment of independent coffee roasters looking for good quality coffee. | <ul style="list-style-type: none"> Potential for creating multiple product types with varying prices subject to permutation combinations around grade of coffee beans, processing methods and formats of consumption. Increasing consumption of coffee in northern and western parts of India. | |

3.2 Socio-Economic Conditions and Needs of the Beneficiaries

After identifying the beneficiaries, the cluster was formed incorporating the roles of IMEDF for grant distribution, monitoring and evaluation. MACS has conducted 20 trainings since 2020 to the women farmers to mobilise and aggregate coffee production.

With the support of the grant linking the local NGO to other experts on coffee, the ecosystem enablers established a value chain addressing the farmers' issues of access to market, skill training, exposure visits to successful farm models and technology to upgrade the current farming practices of hulling and processing.

3.3 Background and Details

IMEDF, as a nodal agency, has been instrumental in developing this cluster as a model cluster for introducing state of the art technology, grant distribution and cluster management. It continues to monitor the cluster through regular updates, reports and evaluation of the technical and implementing agency. With experts on-ground, it has helped render consistent increase in yield by improving soil quality and providing access to and facilitating hands-on regenerative farming. IMEDF has also facilitated development of value-added products, through integration of processing capacities by establishing needed infrastructure and upgrading, procuring required machinery, tools & equipment, sales channels and end user customer. It has also assisted the cluster by creating a network of agencies to establish market linkages through targeted marketing, branding and distribution of raw produce as well as value-added products and by tapping multiple revenue streams that cater to various customer segments.

3.4 Constraints and Available Alternatives

The Chintapalli area is naturally blessed by ample shade for the coffee plantations. Besides introducing intercropping methods, the available alternatives help generate extra income for

the farmers throughout the year. Earlier, three types of coffee namely Arabica, Robusta, Tree Coffee were grown here.

Arabica is made from beans of Arabica plant. The beginning of rainy season triggers Arabica plants to flower, fragrant and white blossoms. Eight or nine months after flowering comes the fruit - deep red, shiny and plump like cherries, each containing two Arabica seeds or beans. Working alongside tribal coffee farmers, IMEDF, with on-ground support from MACS, is presently harvesting, processing, marketing and selling premium quality Arabica coffee as Graded Arabica Green Beans. The beans are graded as per size and categorised as AA, A, B and C (in descending order of bean size). This type of coffee finds a market for bulk purchases by big corporations for ready-to-drink ground coffee as well as by commercial coffee roasters that cater to domestic or institutional consumption. Roasted arabica coffee beans coffee is mostly consumed after roasting the green beans in any of the common roast profiles – light, medium and dark. Each roast has a its unique palate. This type of coffee is generally bought by boutique cafes, gourmet restaurants and specialty food stores, and targeted towards consumers that have their own grinding machine and prefer freshly ground coffee. Roasted arabica ground coffee is the most commonly marketed filter coffee, prepared by grinding roasted coffee beans.

Before the intervention, the farm practices were completely unorganised. There was poor management related to cherry plucking, drying and hulling to get the desired quality and quantity of output. The farmers were not up to date as compared to the other coffee plantations.

Farm mechanisation has also made things easier with introduction of technology such as brush cutters and earth auger. Earlier, all operations were manual, time consuming and labour expensive. By introducing brush cutters which is a multipurpose machine, some farm operations have become easier. Drying the cherries takes about 21 days using the dry hulling method. The grant support also provides space to store raw material and working capital. These are essential components that were missing earlier.

In wet-line, the basic process is same but the cherries are transported to a pulping unit, the external layers and mucilage are washed and parchment is removed. Drying the parchment takes about 1-2 weeks and is based on the moisture levels. The new pulper machine can process up to 2.5 tonnes per hour.

The Special Purpose Vehicle (SPV) was formed in 2016, and it is expected that the 15-member body of Board Members will take over the project by 2022. The SPV is registered under section 5 of Andhra Pradesh Mutually Aided Cooperative Societies Act, 1995 (APMACS) Act 1995 G.O.M.S.No.118A & Co-op IV as Giri Chaitanya FAMCO for community development under the supervision of V.C. Aliveni, CEO Mani Amma Chaitanya Shravanthi. The project objective is to generate livelihoods worth ₹ 24 crores over a period of 3 years for 500 coffee farmers. The project aims to generate total revenue base of ₹ 36 crores over a period of 3 years. These funds help the SPV in creating a community-corporus fund for

addressing other community needs. The scheme recognises the farmers as stakeholders and provides support in form of hard infrastructure, machinery and training.

4 Factors Contributing to Success

4.1 Formation of Body of Members from the Society

By establishing the SPV early, the farmers have learned from the successful plantations in states of Karnataka and Andhra Pradesh. They are now learning that if the right practice is followed, the yields increase over time. These institutional linkages are also supporting the farmers in other interventions such as awareness of government schemes, integration of other programmes and farmer insurances under Kisan Yojna. Every farmer has a bank account linked to their Aadhaar number and can also access better education facilities for their children.

4.2 Challenges Faced in Implementation

Transportation is a major challenge and large shares of the profit is spent on transportation. The cluster has now applied for a subsidy from the Department of Horticulture to purchase a vehicle for transportation.

4.3 Impact of the Intervention on the Community

Social : The women have higher income and are able to spend it on the children's education. They are able to send them to private schools and spend a little extra on their houses. The purchasing power has increased, however, tribals do not spend money on their health. There is prevalence of taboo in these cultures related to diseases such a fever, jaundice which is often ignored.

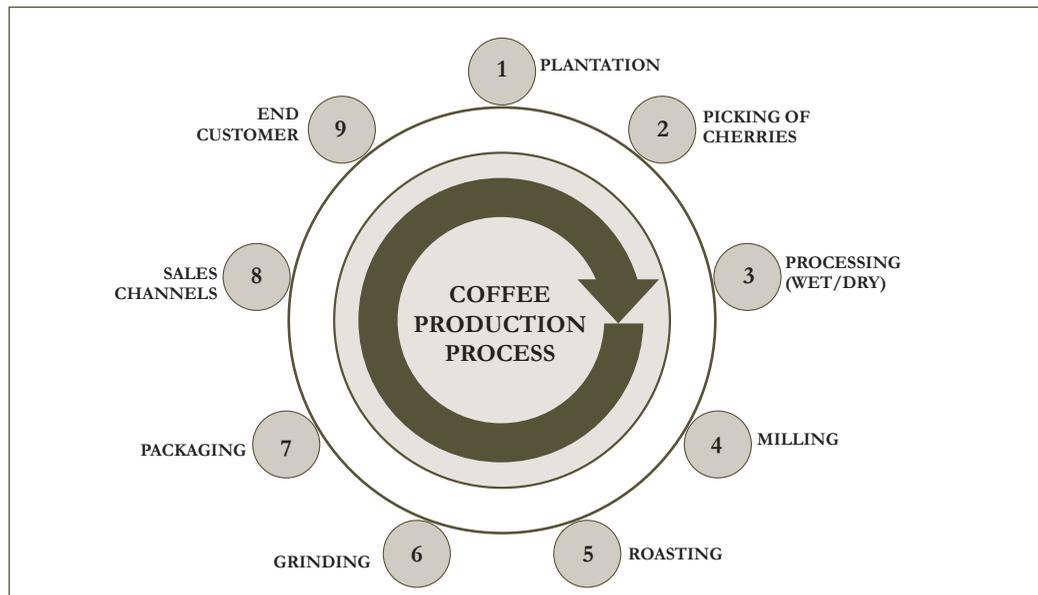


Figure 2: Coffee Production Process

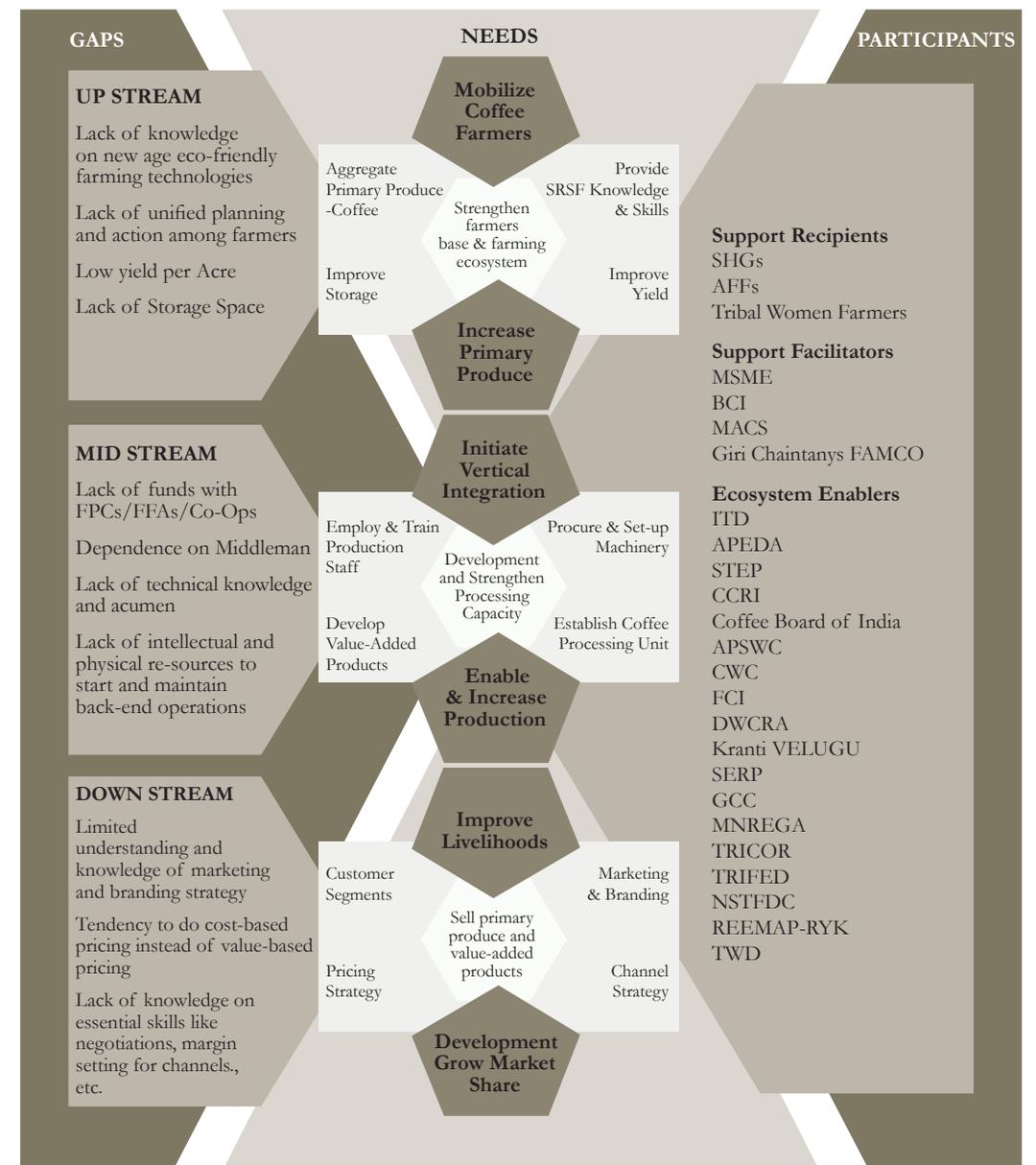


Figure 3: Cluster Value Chain

The cluster is on its way to become a women-led sustainable social and economic uplift for the rural poor. It provides access to life changing technology and learning for those who are not formally educated, ensures dignity, enables improved quality of life and allows aspirational income for the rural poor. It also provides systems change approach at scale. It is also ensuring a multi-stakeholder approach designed to clear the barriers facing the rural poor in achieving their own aspirations and self-reliance leading to a world in which everyone has access to Learning, Unlearning and Relearning. This approach ensures long-term change through inclusive and participatory approaches by engaging communities in sustainable livelihood opportunities. It elevates confidence by exploring latent skills and competencies and enabling deeper understanding of coffee value chain.

Economic: This approach facilitates a holistic support to the ecosystems – financial, physical and intellectual through collaborations with regional agencies and institutions. The farmers now earn 20% higher, with an average income of ₹ 7,000 per month.

Environmental: The farmers were trained to feed dry material (leaves, grass and dried branches which are the raw materials to prepare the compost) directly to the stem; this method generates heat during the decomposition of raw materials which results in damaging the root system of the plant, since the coffee plant has an elaborate root system stretching up to 20-25 kms⁵. The aerial and root systems of the plant are connected and the root system also serves as a reserve for carbohydrates, and produces and accumulates key phytohormones such as auxins, abscisic acid and cytokines⁶. Any alteration in the aerial part of the plant such as pruning, excess fruit loads, pest attacks and diseases can lead to depletion of the root system, potentially causing root death, especially of roots with smaller diameters.

With the intervention, the coffee farmers are now trained to prepare small drenchers between the coffee plantation rows to dump the organic dry matter to promote the decomposition process for the preparation of manure. This composts the dry leaves within 3 months and reduces the burden of transportation to hilly areas. This path embodies indomitable spirit of rural knowledge and wisdom through respect for organic and eco-friendly farming practices.

The proposed intervention addresses the following Sustainable Development Goals: SDG 1, 5, 8, 10, 12, 13 and 15.

5. Scale and Sustainability

5.1 Large-Scale Production

Larger scale production is possible with increase in production and refinement of process every year. The project is phased in a manner that in the first year, the new parchment

⁵ F. M. DaMatta, C. P. Ronchi II, M. Maestri I and R. S. 2007, *J. Plant Physiol.*, pg. 19, 485.

⁶ Adriana Farah, 2019, *Coffee Production, Quality and Chemistry*, pg. 12

produce is sold, in the second year, coffee formulations are developed and the third year involves manufacturing coffee products. Since all produce cannot be pushed into the retail channel, hence, bulk marketing is also required for major share of the produce (60% to 80%), since the market has a lot of players. The major product range is:

- Arabica Medium Roast Ground Coffee (75 gm & 300 gm)
- Arabica Dark Roast Ground Coffee (75 gm & 300 g)
- Robusta Medium and Dark Roast Ground Coffee (75 gm & 300 g)
- Arabica/Robusta Roasted Whole Beans bags (1 Kg and 300g)

The brand stands for inclusive growth for tribal communities and community-owned livelihoods. The potential consumer of this segment will get access to the products through luxury hotels, boutique cafes, gourmet restaurants and specialty food stores. These products are sold in bulk and retailed through e-commerce such as easternghats.in.

6. Conclusion

The crop in major coffee producing countries like Colombia, Brazil, and South Africa have failed this year as commercial production on large scale without the natural forest habitat has resulted in disease, etc. Hence, India can capitalise this opportunity and get best prices for the next ten years. These countries were growing Arabica coffee which is very sensitive to climate and biodiversity changes; although it fetches higher price than Robusta. India has a clear edge as we grow both types of coffee without disturbing the ecological balance. By using technology, Robusta can fetch good price because of its use in caffeine-based drinks and beverages.

The environment plays a major role in growing coffee, and forests provide the right environment for coffee plants as coffee requires shade and ploughing not is allowed in the forests, making it a win-win for both.

By introducing wet processing technology (a process of removing the pulp from the green coffee inside, getting the parchment off the coffee cherry), changing the drying period up to 21 days and introducing efficient farm management practices, the average increase in yield has been up to 20% per kg. The farmers now earn a return price of ₹ 70/kg compared to earlier prices of ₹ 45-50 per kg.

The Red Fields of Visakhapatnam and Resilient Enterprises*

IMEDF is a special purpose vehicle of the DA Group that accelerates the development of micro enterprises at scale. IMEDF is the nodal agency for the SFURTI programme empanelled with the Ministry of MSME. SFURTI consists of 16 clusters and 24 partners across India. Vishkhapatnam Coffee Cluster is one of these clusters which employs more than 500 coffee producers from 27 villages with tribal communities of over 5,000 members.

On most days, the residents of Chintapalle village in Visakhapatnam can be found in their coffee fields - patches of red surrounded by forests. The fields give off a fairy tale-like energy with people humming and picking on fruits. These fields are part of a cluster that employs 500 coffee producers from tribal communities and links them with traders who procure coffee in bulk at fair prices. With the lockdown, there is of course silence in the fields. With the traders no longer procuring, the coffee producers have been forced to sell their beans at cheap prices in the local market. With little to no income and insufficient supply of ration by the government, the families are living by the day.

VC Aliveni leads a civil society organization in the area working to strengthen the coffee cluster. Since the lockdown, she has been distributing food kits to tribal communities where the government has not been able to reach. She shares, “with every passing day the misery of tribal communities is increasing, and they were finding it hard to even manage a single day’s meal. With a team of 30 members, we decided to make food kits.” Each kit includes 10 kg of rice, 2 kg of dal, 500 g of chilli powder, 250 g, turmeric powder, 1 kg of sugar, and oil, with 4 soaps. Over the past two weeks, her team has distributed more than a hundred kits and they are planning to extend their reach to more communities.

Indigenous communities and daily wage laborers continue to be the worst hit by the pandemic. Changemakers like Aliveni have added some hope in communities that needed it the most.

Aliveni is the Director of Mani Amma Chaitanya Shraavanthi. You can reach MACS at: manyammacs@gmail.com or +91- 8500254151. She is a part of the SFURTI network of Ministry of MSME and Development Alternatives’ IMEDF.

** Coffee Cluster – Resilience in the times of COVID-19 (an article published in the DA newsletter, May 2020)*