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Youth Entrepreneurship in Agribusiness in India



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Executive Summary

This report documents a selected set of case studies of young entrepreneurs in agribusiness in India. Using field visits to their operations and online interviews, we document the issues, challenges, constraints, and opportunities that young agribusiness entrepreneurs face and provide insights for improving the enabling environment, institutional arrangements, and individual capacity for successful entrepreneurship in agribusiness in India.

Indian policies related to youth entrepreneurship have evolved rapidly over the past decade. It is a recognition that the youth force, particularly in agriculture and allied sectors, is key to the effective inclusiveness and engagement of youth and women in improving the livelihood and long-term transformation of the agriculture sector. Further, given the recent policy reforms and the associated challenges, studying opportunities for youth in the agriculture sector becomes paramount to guiding the policy and program implementation process from the youth entrepreneurial perspective.

Indian policymakers operating in the agricultural and rural development sectors recognize youth entrepreneurship as a critical driver for transforming these sectors. Policy and program interventions at the national level reflect this recognition. Recent economic growth in the last two decades in India has also brought the needed preconditions for youth entrepreneurship. Yet the challenges for entering business opportunities for youth in agriculture remain. There are several structural constraints related to access to technology, finance, institutional support, market access, and business mentorship. These challenges are accentuated further by the needed skills and experience relevant for initiating and running businesses, which remain a significant challenge for the youth in rural India.

This paper uses selected case studies of youth agribusiness entrepreneurs to generate new evidence for guiding policymakers to address the above challenges. Specifically, these case studies collectively help to address the following key questions:

- What factors drive youth entrepreneurship in rural India?
- What agribusiness ecosystem exists to promote youth entrepreneurship in agriculture, and what changes are needed?
- Who are the key stakeholders who should collectively work toward promoting youth entrepreneurship at various levels?
- What conditions are needed for the youth entrepreneurs to move from initial startups and micro-businesses to small, medium, and large-scale agribusinesses?

The case studies reported in this paper are based on field visits and online interviews conducted over the last three years. They are presented and discussed to address the above questions and to provide policy and programmatic lessons to policymakers, development organizations, and emerging businesses. The report begins with a conceptual framework and the methodology followed in similar country-level papers prepared as part of a multi-country comparative study. It then presents a set of case studies and identifies key drivers for the success of youth entrepreneurship in India. Lessons and insights from the case studies help identify key policy and programmatic gaps. Finally, a set of concluding remarks is presented.

Absorbing rural youth in agriculture and agribusiness to keep them in the rural areas is seen as an effective strategy for youth inclusion in the development process and for reducing the urban youth migration by the government of India. The share of agriculture in the national GDP is decreasing. However, as part of the economic development process, the sector still contributes 15 percent to the national GDP and

engages 65 percent of the population. With the increased investment in elementary and secondary education in rural areas, the literacy rate has increased in the last three decades, which also enables rural youth for business opportunities. Yet, several challenges remain in engaging rural youth in agriculture and agribusinesses.

Rural youth have a high level of aspirations that drive them and their parents to support their move to urban areas to find a more stable income through regular employment opportunities. Agriculture and related enterprises are left behind by the rural youth who have the education and skills to move to the non-agriculture sector. Youth, in general, prefer to live in urban areas where better amenities are available to bring up new families. Rural youth are also finding it increasingly difficult to find life partners, as young women are not interested in agriculture and prefer an urban lifestyle. Despite these challenges, the policies and programs implemented by the Indian government and the youth entrepreneurial programs implemented by the state governments and the private sector have helped youth entrepreneurship development in Indian agriculture. The case studies presented in this report provide policy, programmatic, and implementation insights and lessons for developing youth entrepreneurship in Indian agriculture.

Policy perspectives

Youth entrepreneurship is supported well in India through national policies and programs facilitating youth development. In addition, several development interventions focus on youth inclusion in rural and agricultural enterprises. National and state policies reflect this emphasis that the policymakers place on developing youth entrepreneurship in agriculture and agribusiness development. National, state, and local governments support youth entrepreneurship in agriculture through various programs. Agriculture and allied sectors such as livestock development, animal husbandry, fisheries, and other newly emerging value chains provide new opportunities for youth to engage in agriculture and entrepreneurial activities. Yet, the implementation of these programs at various levels is thwarted by the need for technical and business skills, institutional support, access to finance, and mentorship for the rural youth to sustain and grow their businesses.

Policymakers can benefit from a feedback mechanism for youth entrepreneurship development. Evidence from analyzing what works and why in different contexts and the emerging ideas and learning from the youth entrepreneurship programs must be conveyed back to the policymakers. There is no systematic support for such a feedback mechanism in the policy process. However, nationally supported agribusiness incubation centers provide specific policy and programmatic feedback insights. In addition, “Pause and Reflect” sessions may be needed for the policymakers to learn from the local implementors.

Youth entrepreneurship programs require better governance at the state and local levels. Institutional support for training rural youth remains limited and needs to be systematically developed. At the policy and strategy development level, there is a need to map the supply and demand for youth entrepreneurial skills that are context and locality specific. Developing strategic plans using such a mapping process must be a priority for the public, private, and NGO organizations involved in youth entrepreneurship development. The current vocational training activities provided for the rural youth should go beyond specific technical skill development to developing the entrepreneurial skills of the youth. However, several intervention programs by NGOs and specific value chains have shown successes that could be replicated.

The range of entrepreneurial activities in agriculture varies widely from input supply, product aggregation, micro-irrigation, and consultancy services to small-scale businesses that produce specialized vegetables for urban markets. These activities require various levels of skills and investments to initiate and run. They

also face different business and technological challenges depending on the context in which they operate. Organizing context-specific business support systems for these categories of businesses will be essential to promote youth entrepreneurship in agriculture and allied sectors.

Institutional mechanisms

Youth entrepreneurship programs have new opportunities due to emerging institutional mechanisms such as farmer-producer organizations and value chain development through programs such as one-district, one-commodity, and the digitalization of the agriculture sector. However, fully capturing such opportunities will require technological, institutional, financial, and capacity support for youth in rural areas. Although several program interventions provide such support, they remain scattered, and a larger institutional business ecosystem remains missing in the rural areas.

Institutional architecture organized by the central and state governments is inadequate for meeting the massive support needed for youth entrepreneurship development in Indian agriculture. Such expansion requires advanced planning and strategic thinking by the state, district, and panchayat-level business support entities. Public sector organizations are generally less suited for such strategic thinking and execution. This is partly due to their limited incentives to bring on more business entrepreneurs, and there is no incentive or recognition for this work in the public sector. What is more appropriate in the Indian setting is the business incubation approach as initiated by the National Bank for Agriculture and Rural Development. Yet these business incubation centers are far and few in between.

Even the existing business ecosystem, such as the agribusiness incubation centers for youth entrepreneurship development, does not go beyond the state level. Given the current policy environment, the involvement of the youth stakeholders at the district level remains weak. Increased effort and investment are needed for the inclusion of youth and their interactions with the business ecosystem, such as business associations and chambers of commerce, and other administrative entities. Youth involvement in these entities should be developed organically to provide mentorship and support to the youth aspiring to be entrepreneurs in the agricultural sector.

In addition, local business chambers, youth associations, and other local businesses are required for youth entrepreneurship activities. Youth entrepreneurs will benefit from organizing the local youth who own micro and small-scale businesses in agriculture to provide mutual support for such businesses in the long run. Experimental approaches by the NGOs and other charity organizations will need to consider how the micro and small-scale businesses initiated through their help could be quickly connected to such a local-level business ecosystem. In the absence of such an ecosystem, an investment must be made to create such a local business ecosystem.

From the institutional perspective, there is a lack of evidence on what works and how – to learn from the youth entrepreneurship approaches that have succeeded or failed. Even large national-level youth development programs do not have the needed data to reflect on their effectiveness and impact. Such program evaluation is rare; even the limited evaluation studies conducted do not provide the feedback needed to modify the existing programs.

Larger and medium-scale businesses can and should help in the development of a local business ecosystem that they can initiate, nurture, and rely on for the smooth functioning of their supply chains in various locations. For example, youth entrepreneurs involved in the input and output aggregation will benefit from such mentorship. These aggregators, while becoming business leaders, will have a specific

role to play in increasing the competitiveness of the value chains that they are part of. Without such incentives-based business development, the sustainability of the business ecosystem for youth inclusion will remain fragile.

Individual factors and skill development

Vocational training of rural youth on various business enterprise opportunities remains the primary intervention to develop youth entrepreneurship in rural areas. However, while initial skill development is critical, business and organizational support are also needed to bring new entrepreneurs into agribusinesses. Trained youth need to be connected to the local business environment and associations of small businesses and mainstreamed as entrepreneurs.

Even skilled youth require a certain threshold level for entrepreneurial spirit and self-motivation. Regular employment and income streams are always attractive alternatives for the youth entrepreneurs who run micro businesses. A high-level effort is needed to sustain an agribusiness that often has high-income variability. These micro businesses may remain successful at the local level. Still, they will move further to become small-scale and medium-scale enterprises if they are mainstreamed in a supportive business ecosystem. For example, entrepreneurs operating at the micro level of business operations, such as input, and output aggregation, need additional skills to deal with their local communities. Leadership and people skills are required to complement their business skills. Such soft social skills are also essential to expand their businesses into areas that go beyond their familiar business spaces.

Local businesses such as nursery development and seedling supply to the local farmers could be expanded into small-scale enterprises if a federation of enterprises is formed in an agroecological region. While the micro businesses improve the income and livelihoods of the youth, they could become self-sustaining through replication and federating them for further expansion. Branding and collective marketing will help such youth entrepreneurship business models.

Youth who are educated and have college degrees tend to sustain their businesses much more steadily than those with less education. Youth who are identified for skill development programs show a high level of enthusiasm and progress when they are financially supported to initiate micro businesses. The challenge, however, is to keep the interest over a long period of time, as they require a minimum of two to three years of continued mentorship and support until they are well established in their businesses. Such mentorship is more readily available when the private sector and NGOs are involved in youth entrepreneurship development but broadly absent in the public sector-supported programs.

Specific models of youth entrepreneurship shed some insights. Youth who develop technical and business skills through business incubator programs, for example, tend to pursue their business opportunities more successfully. This is partly due to their regular connection to the research and innovation systems that backstop the business incubators. Microbusiness operations like training women as nursery operators through women empowerment programs and programs that support specialized cultivation of vegetables for niche urban markets are good examples of the need for this type of backstopping. Such a business environment and ecosystem are essential for moving youth microbusinesses toward sustainability and expansion.

Finally, case studies presented in this paper demonstrate that specialized programs for the development of youth entrepreneurship are necessary but not sufficient to capture the emerging opportunities for rural youth that are currently underway in India. Continued investments in improving market infrastructure,

digital agriculture, skill development, and financial inclusion of rural youth will be needed. Development of the business ecosystems at the local levels where aspiring youth could receive mentorship and guidance is an immediate need in the Indian context. The role of regular policy and strategy refinement based on the lessons and evidence generated from a review of youth entrepreneurship development approaches cannot be overemphasized.

The following broad conclusions emerge based on the youth entrepreneurs interviewed and studied in this report.

Youth entrepreneurs in Indian agriculture have many business opportunities they can initiate and operate. Yet, these opportunities are context and locality specific. Youth Entrepreneurs (YEs) must be aware of these opportunities and fill the market's emerging needs. While there is a need for guiding these entrepreneurs in specific directions, the motivation and intensity of involvement vary depending on external factors such as credit availability, knowledge source for initiating business, an assured market for the products and services, and opportunities for further skill development.

As the agriculture sector in India continues to move towards commercialization and involves high-value commodities and their value chains, emerging entrepreneurial opportunities are already captured by the existing market intermediaries. Yet newly emerging operations such as input aggregation, output processing, seed production system, nursery development, advisory services, niche export markets, small-scale mushroom production, high-intensity vegetable production in glass houses, and online marketing of organic vegetables open opportunities for youth in agribusiness. These opportunities take time to become successes, as they require years of experimentation and gaining of experience by the youth in specific areas of operation.

There are failures along the way, and people drop the agribusiness they started for want of regular income. Yet there is emerging youth entrepreneurship that is generating intense competition among them. This entry and exit of young entrepreneurs in the same business operation result in improvement in service provision. Further, it increases the efficiency of business operations by reducing the price of products and services. For example, when Archana Stalin started her online organic selling operation, she was unaware of similar operations in her district. Within two years, more organic vegetable sellers who entered the market were not necessarily young. She now faces an organized corporate sector that has entered this niche market on a large scale. While it poses tough competition to the youth entrepreneurs like Archana Stalin, it provides options to consumers. This process further induces continuous market innovation to offer better services to consumers.

As the youth enterprises analyzed in this study mostly relate to engaging with the smallholder agriculture sector in India, the case studies point to the current opportunities for improving the productivity, incomes, and sustainability of the smallholder sector through youth entrepreneurship promotion. For example, the rice nursery and planting operation studied (Yuga Kannan) and the rural advisory services provided by youth entrepreneurs (Rajesh) address the current challenges of small-scale farmers directly. As the public extension services slowly give their way to private extension systems in India, rural entrepreneurship among youth has a high potential for expansion. Thus, training and skill-building investments are needed to tap into this substantial rural youth population for mobilizing them for productive purposes. This will not only improve farmers' livelihoods but also improve the sustainability of the farming system through the provision of services and knowledge at the right time that is locally relevant.

Youth Entrepreneurs studied in this report have a typical pattern of business development that they have followed. Except for the YEs who were studied as part of the Syngenta Foundation project – who were chosen based on their initial interest to be trained in and supported in specific areas of agribusiness – all other YEs have developed their businesses based on key factors that drive their entrepreneurship. First, the life goal of becoming independent business owners to support themselves is a crucial motivator. Second, the need to serve their community where there is not only a demand for their skills and services but also a common purpose of serving the society that brings satisfaction to the YEs. Third, the YEs who start a business on their own have been gaining skills and experience in their business areas for several years, through which they have identified the factors that contribute to the success of the business operation. Fourth, they could mobilize the resources through social networks and did not depend on formal credit. Fifth, due to their previous experience working for other business operations, they can modify them and adjust to emerging market conditions and new business opportunities. Finally, in all cases, they have been supported by their families or at least not discouraged by them.

Youth agribusinesses are successful when they have a support service provided by an organized industry or a system. For example, agribusiness incubation centers throughout India provide the knowledge needed for starting a business. Youth who have gone through this formal system tend to progress well, even under challenging conditions. These formal support systems have mentors who can guide the YEs through various emerging business challenges. In the absence of an organized business community for youth, these incubation centers play a crucial role for YEs entering specific business opportunities. Similarly, established agribusiness could provide such entrepreneurial support to the youth as part of their corporate social responsibility.

YEs tend to learn from the mistakes of their peers, not just in their line of business but also through general observation of the struggles of other YEs. This peer learning is essential for encouraging more youth to participate in the YE activities. Yet, no formal institutional mechanism that brings the youth together for youth-to-youth learning. Youth Mela, organized by youth, is an opportunity for such a learning process. Yet, more youth entrepreneurs should be encouraged to provide specific services to other YEs based on their experience. This could be organized for a service fee and is an avenue for public-private partnership. The business of Ramesh (YE No. 6), who worked with an educational institution that received funding from the government for promoting youth in the glasshouse production of vegetables, is a clear example of such a private-public partnership.

YEs enter the agribusiness when they are fully supported for a few years (as in the Syngenta Foundation cases) as there is limited risk in engaging in such business operations. Skill training reduces the uncertainty about what type of knowledge and skills they need and should have to run a small business. Initial financial support helps them establish their business. Initial handholding allows them to navigate and negotiate with other businesses and clients. This guided approach to YE development takes away a large portion of the initial risk in starting an agribusiness.

On the other hand, YEs who start on their own must rely on their previous experiences and failures in similar businesses to guide their current operations. They also take calculated risks as they have better knowledge of the business they are entering. Both the guided approach and the approach based on previous experience are needed to speed up youth engagement in the agribusiness sector.

As most youth start and run small-scale operations, business opportunities for rural youth in the agriculture sector are inherently context-specific and driven by local demand for the products and

services. The case studies analyzed in this report indicate that the background, business opportunities, knowledge needed, partnership opportunities, experience required, and specific challenges differ depending on the nature of the business. Thus, there is no single pattern of business development that could be prescribed for YE development. Yet, the design of business development, the support needed from the institutional mechanisms, business ecosystems, and the policy process could play a broad enabling role in promoting agribusiness opportunities among YEs.

The educational level of the entrepreneur matters. Educated youth cope with business uncertainties better as they quickly gather the knowledge needed for redefining their business operations. Education also helps in social skills and negotiation skills. Education puts them in a higher level of social status, which increases the trust of the clients and customers. Education becomes key in service-provision entrepreneurship, as the farmers tend to trust advisors with formal qualifications (Rajesh – YE No. 5). Education also helps in developing financial management skills faster among entrepreneurs. In addition, youth exposed to an urban setting and who have been part of more extensive business operations tend to do better when they start their own business. Thus, a formal association of potential YEs as interns and apprentices in established business operations will help build the confidence and social skills needed for agribusiness entrepreneurship.

YEs who are digitally connected and can latch onto emerging technologies, such as mobile apps, tend to reap the benefits quickly. Connecting to the input suppliers and the final consumers becomes manageable and predictable with digital technology applications. In the case of the organic vegetable supply (Archana Stalin – YE No. 9) case study, the business operations are driven by the online demand collated through the business website, which precisely allows the business operator to procure specific quantities of vegetables from the farmers. This, in turn, helps the farmers harvest only the needed amounts of vegetables from the farm and thereby staggers their harvest over a period. Thus, digitally driven YEs tend to be more successful and highly efficient in their business operations, mainly when it involves input supply and aggregation of products supplied to markets.

Service-oriented entrepreneurship holds enormous promise in Indian agriculture. As the labor shortages in agriculture increase, the need for service provision as a package also emerges as a business opportunity for the youth. As smallholder farmers tend to also work on nonfarm livelihoods, their farms need to be cared for, and the demand for services such as planting and harvesting rice is increasing throughout the rice-growing regions of India. YEs operating small-scale machinery (as in Yuga Kannan – YE No. 7) will be the way of the future in the rice farming systems. Similar emerging patterns must be studied as part of the Indian food system transformation process. The YE agribusiness strategies must be developed proactively to guide the YE development process in Indian agriculture.

1. Introduction

1.1 Introduction to multi-country study series

Youth and their role in agriculture and agribusiness in developing countries are high on the development agenda for two reasons. With the advent of COVID-19, the loss of employment opportunities for youth has forced them back to rural areas. This backward migration provides an opportunity for the effective engagement of youth in agriculture and related enterprises. Additionally, youth in rural areas, while wanting to benefit from agriculture, are not interested in production-oriented activities. Engaging these youth and mobilizing them for agribusiness enterprises could be an effective pathway to food system transformation. Further, the inclusiveness of rural women and youth in agriculture and agribusiness is imperative for ensuring the benefits of food system transformation reach all the segments of the rural communities.

This paper is a part of a series of country-level reports documenting the lessons learned from case studies of youth entrepreneurs in agribusiness. Based on a set of case studies of youth entrepreneurs in India, this report develops a set of lessons and recommendations for policy and program interventions. Case studies conducted in various parts of the country reported here provide policy and programmatic insights for youth empowerment by effective engagement in rural agribusinesses. Using a conceptual framework that employs a systems perspective, driving factors that facilitate scaling up and scaling out of youth entrepreneurship programs in agriculture and agribusinesses are identified. The cases studies reported here were selected to represent a wide range of agricultural enterprises to draw specific lessons for identifying investment needs, including the development of skills and capacity of the youth, improving the institutional and business environment for youth-based businesses, and the development of policies and strategies needed for creating enabling conditions that facilitate youth engagement in agriculture and agribusinesses.

At the global level, there is a high-level recognition that transforming the food systems is key to attaining the SDG goals of eliminating extreme poverty and eradicating hunger and malnutrition, as indicated by the UN Summit on Food Systems (UN, 2020). Transformation of food systems cannot, however, happen without rural transformation in developing countries. Rural transformation, in turn, depends on several common underlying trends that are observed, including an increasing proportion of the young population that is unemployed or underemployed who see agriculture as an unviable profession. This leaves a large aging population on farms that have low productivity, are cultivated under a degraded natural resource base, and often use unsustainable farm practices. Strong engagement of the rural youth in agriculture is a precondition for revitalizing rural economies.

Recent UN (2019) estimates project that the youth population will grow by seven percent per year through 2030, reaching a total of 1.3 billion. Developing countries are the home to 1 billion youth, and about half of them live in rural areas and depend on agriculture for their livelihoods. Inclusive economic development in these countries will crucially depend on empowering this burgeoning youth population through engaging them in agriculture and agribusinesses.

The status of youth in the global development process presents both challenges and opportunities. For example, a recent report by ILO (2020) estimates that about 20 percent of the youth worldwide are categorized as not in employment, education, or training (NEET). Yet these young people have the potential to acquire new skills to prepare them for work and entrepreneurship. They are also early

adopters of digital technologies, which can enable them to access new information, markets, and finances. The World Youth Report (UN, 2018) estimated that about 13 percent of the youth are unemployed worldwide. The increasing cost of higher education, low wages, job insecurity, and limited on-the-job training opportunities constraint their effective participation in the economic development process. While developing entrepreneurial skills could be one way of engaging them, they will require skills training, start-up grants, mentorships, and access to technology, infrastructure, and financial services to be successful (UN, 2018).

Youth Entrepreneurship is seen as a strategic approach to integrating rural youth into economic opportunities (USAID, 2019). Innovations in the use of information and communication technologies (ICT) further enhance such approaches enabling youth to start their businesses. In addition, access to ICT by rural youth can help in adopting technological innovations in agriculture and agribusinesses and in helping to increase the operational efficiency with which they engage in entrepreneurial activities through better access to digital platforms, reducing transaction costs, and increasing market linkages (USAID, 2019).

Youth engagement in agriculture and agribusiness opportunities needs to be context-specific and should recognize several pathways to their prosperity (SFI Advisors, 2019). First, the commercialization of the smallholder pathway quickly helps the rural youth to see agriculture as a profitable business. Linking them with the existing value chains and through the producer-based organizations will further strengthen their market access and information base, including the reach of the extension and advisory services. Second, youth could engage in providing extension services as private extension agents. Third, they could serve as agribusiness entrepreneurs in the input supply operations and in product aggregation and linking farmers to the markets. Finally, rural youth could also take up business opportunities in the processing sector through agribusiness incubators. In all these pathways, they will need the support of the broad policy environment, institutional backup such as a multistakeholder agribusiness ecosystem, and building of their individual skills that connect a large number of rural youths to market and business opportunities (SFI Advisors, 2019).

As mentioned above, this report is a part of a series of country-level reports that address the issues, constraints, challenges, and opportunities that youth face in engaging in the entrepreneurial pathway to prosperity in agriculture. In this report, we document a set of case studies of youth entrepreneurs in India to fill the evidence and knowledge gaps on what youth interventions work and why. We ask the following specific questions.

- What are the drivers of successful rural youth empowerment through entrepreneurship?
- Which policies and programs can help address the challenges of rural youth entrepreneurship?
- What are the best approaches to developing youth entrepreneurship in rural areas?
- Which entrepreneurship development models meet rural youth needs?
- How can different actors be incentivized to engage in rural entrepreneurship?
- Who is best placed to 'deliver' on youth entrepreneurship?
- How can one ensure good governance and alignment of interests and activities across multi-stakeholder initiatives?
- What roles should private and public organizations play in generating youth entrepreneurial opportunities?

The rest of this report is organized as follows. The following sub-section explains the methodology and conceptual framework used in this study. Section 3 examines the overall youth status in India, with a specific focus on policy, institutional and regulatory, technical, and individual factors that affect youth

entrepreneurship in agriculture. Section 4 presents selected case studies and synthesizes the results of the case studies. Key findings and recommendations are presented in Section 5. The final section provides concluding remarks.

1.2. Methodology and Conceptual Framework

Entrepreneurship as a driver of the development process has been studied for a long time, particularly the factors contributing to success or failure. A broad set of enabling factors that drive the success of entrepreneurship has been identified. Entrepreneurship is likely to be successful in an ecosystem that includes enabling policies and regulations, adequate infrastructure and financing, access to and adoption of technologies and innovation, as well as skilled entrepreneurially minded people. Such an ecosystem is typically the result of work by numerous stakeholders. They include academia, industry, government, and entrepreneurs themselves.

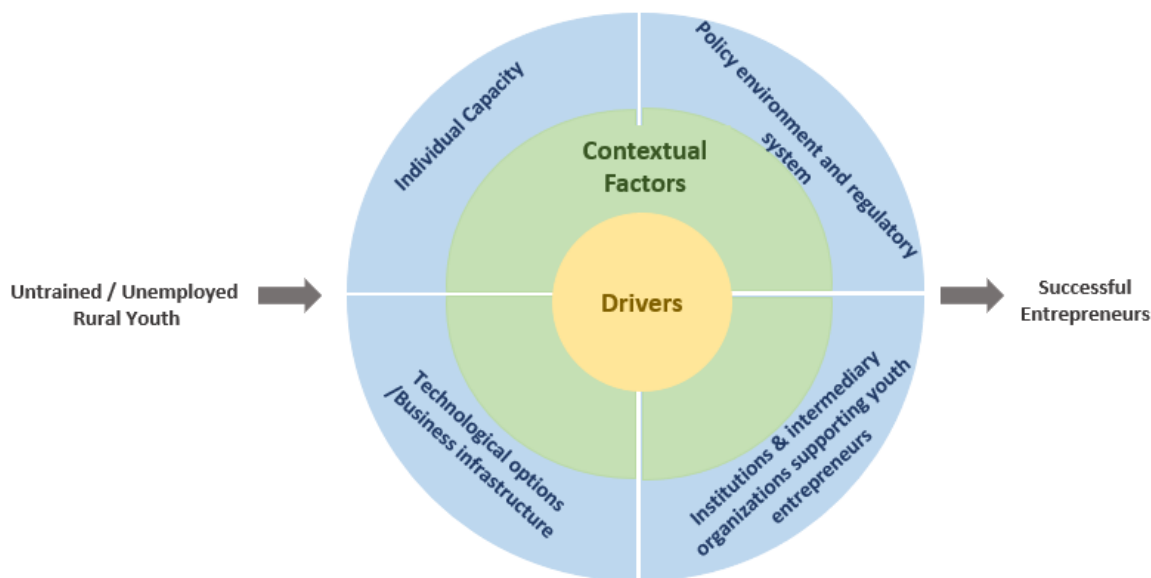
Even within this kind of ecosystem, the development of youth entrepreneurship in agriculture poses additional challenges. First, rural youth typically have limited knowledge and business skills, as well as little or no exposure to the business environment. Second, while the youth, in general, face risks associated with markets and technologies, the rural setting poses further uncertainties in terms of weather, production, and price risks. Such risks are exacerbated by limited infrastructure for rural communities. Rural youth, thus, typically face a higher chance of business failure than urban entrepreneurs.

Evidence-based literature on youth entrepreneurship development remains limited. Understanding the issues, constraints, challenges, and opportunities that rural youth face in initiating and successfully running their businesses requires studying them in their setting. In this paper, we take two broad approaches to studying rural youth entrepreneurship and developing testable hypotheses. First, a systems approach places rural youth in the entrepreneurship ecosystem, as well as further embedding this within the broader food system. Second, we employ a multi-stakeholder perspective for analyzing and addressing the challenges. This two-pronged approach enables us to develop specific hypotheses to be tested through case studies. It also provides opportunities for identifying the relevant multi-stakeholder organizations, groups, and individuals along the value chains.

Conceptual Framework

Figure 1 illustrates the conceptual framework used in this study for identifying a set of hypotheses tested through case studies. The framework allows the delineation of contextual factors which are necessary but not sufficient, as well as drivers which are both necessary and sufficient for the successful development of rural youth entrepreneurship. It also enables evaluation of each case study across four 'key component' groups: policy environment and regulatory system, institutions and intermediary organizations supporting youth entrepreneurs, technological options and business infrastructure, and individual capacity and skills. Each of these components comprises a set of contextual factors and drivers that support and encourage rural youth empowerment through entrepreneurship, as presented in Table 1.

Figure 1: Framework for rural youth empowerment through entrepreneurship



Source: Authors' compilation

The advantages of using this framework are fourfold. First, it helps identify issues at the policy and entrepreneurship ecosystem level in various political economy settings. Second, it enables categorization and comparison of individual capacity and skill constraints that youth face in different policy and business environments. Third, it can trace needed interventions at the institutional and regulatory level, where gaps may work for and against youth engagement in agribusinesses. Finally, it is readily amenable to operationalization and application to a broader set of country case studies.

Table 1: Selected key factors and drivers for rural youth empowerment through entrepreneurship

Strategic Areas	Contextual Factors	Drivers
Policy environment and regulatory system	Political environment development for youth/youth migration	National youth policies / Social investment/youth investment / youth development fund
	Public-Private Partnership opportunities	Harmonized policy system, including an established entrepreneurship ecosystem
	Infrastructure for business / access to assets (such as land, markets, etc.)	Agribusiness strategies / policies (across agribusiness value chains)
	Governance and judicial system	Export / market / trade opportunities
	Sound financial system Regulatory environment	Access to credit and insurance Regulatory support
Institutions and intermediary organizations	Enabling business environment / financial services	Multi-stakeholder approaches to youth and market opportunities Access to finance and credit

supporting youth entrepreneurs	Existence of Chambers of Commerce Existence of technical institutions / skill development institutions / building youth capacity Existence of youth associations – networks, and mentorships institutions Development of institutional partnerships in value chains	Access to knowledge and skill development Support from Chambers of Commerce for youth development Farmer organizations, etc. encouraging youth development Agribusinesses courses available at technical institutions or post-secondary level
Technological options / Business infrastructure	Telecommunication infrastructure / ICT and its adoption Availability of technology and innovation Value chain development opportunities, agribusiness incubators, and academic and research linkage Information and knowledge system supporting youth Rural roads, storage/logistics infrastructure	Connectivity/access to internet/Cost of mobile / data Access to new technology and its adoption by youth Youth are guided by an entrepreneur ecosystem with multi-stakeholder participation Access to relevant and reliable information Access to input and output markets/processing and storage facilities
Individual capacity / Skills	Working/family business experience Professional incubator facilities for the youth Access to knowledge and research Mentorship in business, networking, and community support	Incentives and motivations Education/aptitude for learning Ability / soft skills exposure Business attitude and professional outlook, and skills

Source: Authors' compilation

Based on this conceptual framework, we developed four sets of hypotheses for studying the challenges and opportunities facing agricultural youth in developing their enterprises. Each case study presented has four sub-sections analyzing these hypotheses.

Policy and regulatory environment: This component addresses issues related to the policy environment, particularly the constraints it poses and the support it provides for the development of youth entrepreneurship. It also highlights potential policy and regulatory changes needed to further promote youth entrepreneurship in agribusiness. Drivers of successful youth entrepreneurship include effective national youth policies, social investments, youth development funds, agribusiness strategies related to youth, access to credit and insurance, as well as market and trade opportunities. We hypothesize that an enabling policy environment that nurtures an entrepreneurship ecosystem and facilitates the empowerment of youth entrepreneurs through multi-stakeholder participation is essential.

Institutions and intermediary organizations supporting youth: This component focuses on the roles played by relevant institutions and intermediaries in developing youth entrepreneurship. Key drivers include access to knowledge and skills development, support from Chambers of Commerce to pursue entrepreneurship ventures, and the availability of and access to agribusiness courses at technical or post-secondary institutions. We hypothesize that institutional support through multi-stakeholder approaches for connecting youth to agribusiness opportunities, providing credit, business education, skills development, and partnerships can drive engagement of rural youth as entrepreneurs in agribusiness opportunities. Several successful examples of such a multi-stakeholder approach in agricultural development have been documented elsewhere (Winter et al., 2017). Although the framework needs to be adjusted and contextualized, multistakeholder initiatives have been applied as a collective action tool to address issues related to climate-smart agriculture, agricultural planning, and building the resilience of the market chains (Winter et al., 2017).

Technological options and business infrastructure: These factors and drivers relate to technological solutions, including access to mobile technology and other infrastructure needed to run agribusiness successfully. Information and knowledge about markets and prices can be made available to entrepreneurs through ICT. Payment through mobile phones and other infrastructure for online transactions is increasingly important for small businesses in developing countries. The development of cold storage facilities for commodities, as well as logistical support for marketing and production locally and internationally, is also needed. Finally, support for Research and Development (R&D) helps adapt technologies to local conditions and ensure continuous improvement so that YE remains competitive. We hypothesize that the availability of, and access to, appropriate technologies and infrastructure facilities help engage large numbers of agricultural youth.

Individual factors: The involvement of youth entrepreneurs in agribusiness also depends on individual factors. Studying these characteristics helps clarify the areas in which the youth may need help to develop specific technical skills and gain human, financial, political, social, and material capital for effectively initiating and expanding businesses. Key drivers include incentives and motivation to pursue entrepreneurial opportunities, education and aptitude, ability, soft skills, and business attitude. We hypothesize that factors that contribute to the development of individual capacity and skills of youth will help generate numerous agricultural youth entrepreneurs.

Case Study Selection

Based on initial consultations with the policymakers in the ministry of agriculture, Indian Council for Agriculture Research, and youth entrepreneurship program implementers, potential youth entrepreneurs were identified for the case studies. Developing the final list of case studies reported here involved considerations related to the type of agribusiness, nature of the operations, age of entrepreneurs, number of business years, and the commodities and the value chains that the entrepreneurs were engaged in.

The final case studies reported here represent a wide range of emerging opportunities for YEs in India. They include micro businesses such as nursery development and seedling selling, installation of micro-irrigation systems, and small-scale business such as agricultural consultancy, product aggregation, input supply and dealership, and polyculture production for niche markets. Collectively these case studies represent both traditional approaches to YE development and approaches where YE are trained through nationally supported business incubation systems. They also include YEs who have started small businesses through their own initiatives based on the experience gained from their jobs in larger organized business sectors.

Data Collection and case study interviews

Once we identified the case studies representing a range of entrepreneurial activities in agriculture, we employed the conceptual framework described earlier to develop and describe the cases. To guide the interview process, we developed a detailed questionnaire for conducting field interviews. Interviews included both personal interviews and online interviews due to the COVID-19 situation in 2020-22. In addition, implementers of the youth intervention programs and policymakers were also interviewed to understand the institutional constraints in youth entrepreneurship development in agriculture. The case study development included field visits to business locations where the case study youth are operating. The format of the interviews relied on the pre-designed questionnaire but was kept flexible in exploring the details of the specific context and circumstances of the youth entrepreneur studied.

2. Rural Youth Entrepreneurship in India

In this section, we present an overview of the status of rural youth and youth-related policies in India within the context of studying opportunities for youth entrepreneurship development.

2.1. Youth population in Indian agriculture

As in many developing countries, the Indian agriculture sector has a large potential to absorb youth and provide entrepreneurial opportunities. These entrepreneurs, nurtured through appropriate policy and programmatic support, can play a vital role in the emerging policy reform scenario in the country (Kumar and Babu, 2020). Seizing this emerging opportunity for the youth and empowering them through entrepreneurial opportunities will require nurturing their creativity combined with their innovative capabilities. Facilitating youth participation in rural entrepreneurial activities will further help in providing additional employment to rural youth, resulting in improved livelihoods and poverty reduction among rural youth and their families.

Attracting and retaining rural youth in Indian agriculture remains a major challenge in India (Bhat et al., 2015). Agriculture remains an unattractive sector for earning a meaningful standard of living compared to wage-earning in the towns and cities, which have become more accessible through improved roads and rural infrastructure over the last three decades. Youth policies and programs in developing rural entrepreneurship, therefore, will require a concerted effort at all levels. The case studies presented in the later sections of this report help to understand “what works and why” in empowering rural youth towards entrepreneurship in the agriculture sector in India.

The challenges and constraints rural youth face in starting and successfully running an agribusiness are interconnected and range from policy and program issues to individual skills and opportunities. Equally, the solution to these challenges needs to be integrated. Lessons from the case studies collectively help the policymakers, program implementers, development partners, and rural practitioners to contextualize the rural youth challenges and develop programs that facilitate rural entrepreneurship among them. The youth in rural India are better educated than their previous generation, and yet they lack entrepreneurial skills and financial services.

Despite the successes in the aggregate production levels of various commodities, the Indian agriculture sector continues to face various challenges. Recognizing these challenges will help place the youth

entrepreneurial strategies in the right perspective. Youth in rural areas are entering into agribusinesses in the agriculture sector that have a high level of concentration of smallholders who have fragmented land, land that has degraded over the decades, depleting water availability due to low levels of water tables resulting in low productivity and profitability. In addition, rural areas have labor shortages, and the markets for produced commodities are a major challenge. These issues present both a challenge and an opportunity for rural youth to engage in rural agribusinesses.

2.2. Policy and regulatory environment for youth entrepreneurship

Policy initiatives focusing on youth entrepreneurship in India's agricultural sector are discussed below.

India Youth Policy (2014): The [National Youth Policy](#) (NYP) of India, introduced in 2014, identified the problems Indian youth face and the potential areas of interventions to develop and promote the economic development of the youth. In addition, it provides an overall framework for multiple stakeholders to develop actions for addressing the challenges faced by youth.

The NYP policy recognizes the fragmented nature of the youth in India and the lack of coordination among the youth organizations. The NYP gives emphasis on the generation of the youth workforce with not only employable skills but also with social values and inclusiveness of the youth from marginalized and disadvantaged communities. Providing an overall framework for the coordination of youth development, the NYP promotes youth participation in skill development, sports, political engagement, and social inclusion. NYP is backed up by funds allocation for its implementation. For example, a targeted expenditure of USD 6.16 billion was allocated towards youth development during the initial announcement of NYP in 2014 (National youth policy, 2014). The budget allocation since the announcement of the NYP has varied, but still, a substantial level of resources is allocated to youth-related programs.

In addition to the NYP, other documents provide further guidance and have made several recommendations for the development of the youth. For example, the [Report of the Working Group on Adolescents and Youth for the formulation of the 12th Five-Year Plan \(2012-2017\)](#) clearly defines various categories of youth for identifying responsibilities for various ministries to implement youth-related programs. It classifies the youth as those between the ages of 18 and 30 years. Youth between the ages of 13-18 are identified as adolescents, and the interventions related to this group fall under the education and child development ministries. The report also recommends that the NYP focuses on those youth between 18-30 years of age and developing intervention programs for them is the responsibility of the Ministry of Youth Affairs. The report also recommends that all the state governments develop state-level, regional, and context-specific youth development and youth mainstreaming strategies through their Department of Youth Affairs. In the 13th Five-year plan, youth development was also given high priority.

The Government of India newly created the Ministry of 'Entrepreneurship and Skill Development.' In addition, there have been several initiatives recently by the Government of India that can contribute to skill development among rural youth. They include:

- Prime Minister Employment Generation Programme (PMEGP),
- National Rural Livelihood Mission,
- National Urban Livelihood Mission,
- MUDRA, National Skills Mission,
- the National Apprenticeship Promotion,

- Pradhan Mantri Kaushal Vikas Yojana (PMKVY),
- Deen Dayal Upadhyay Grameen Kaushal Yojana (DDU-GKY),
- Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

The Government of India has also set up a Rural Development and Self-employment Training Institute (RUDSETI) for building entrepreneurial skills among the rural youth. Other innovative programs such as Hunar Se Rozgar Tak, Skill India, Digital India, and Startup India provide opportunities for rural youth to initiate entrepreneurial activities.

2.3. Youth in agriculture and agricultural entrepreneurship

India's growing youth population presents both an advantage and related challenges. The rural population in India is 68 percent, and the youth form 28 percent of the total population. While this can bring demographic dividends to the rural and agriculture sector, the high numbers of rural unemployed youth present imminent challenges to policymakers. About 350 million youth in India are in the age group of 10-25. As they come out of educational institutions, they need to be absorbed into productive sectors. Agriculture and agribusiness provide an effective source of employment and entrepreneurship to the youth. Given the limited public sector opportunities, unless the private sector is developed, the new generation of youth will not find productive employment. Thus, developing entrepreneurial opportunities for youth who can help absorb these young people in productive activities becomes a paramount policy concern.

Given the risks and uncertainties associated with agricultural operations, rural youth prefer to move away from agriculture to more stable professions. In this context, attracting rural youth to agriculture requires three basic conditions. First, agriculture should provide adequate income for them to maintain a reasonable standard of living. Second, youth engagement in agriculture should go beyond production agriculture. And third, youth and their activities should be connected to a business environment that keeps them linked to urban business settings. Agribusiness opportunities provide them with all these conditions and is a good starting point for the rural youth to be engaged in agriculture and to develop an ecosystem from which more youth can benefit. Some of the case studies described in this report point out this possibility.

In addition to the aspiration-related challenges to engaging youth in agriculture and agribusinesses, rural youth face other challenges. For example, low-level skills in starting and running a business remain a major challenge. Even educated youth have challenges in accessing knowledge and information. Due to land fragmentation, the availability of land to youth remains low, and hence limited opportunities to use the land as collateral for accessing finance for agriculture and business opportunities. In addition, fragmented markets and limited market infrastructure for agricultural products also pose additional challenges. Finally, the participation of youth in the local business ecosystems and further in the policymaking process as stakeholders remains limited.

Nevertheless, the agricultural sector still provides several opportunities that are emerging. There is increased emphasis on value chain development. The one-district-one-commodity policy of the government of India gives an opportunity to focus on a specific commodity value chain for youth involvement. Recent development in the farmer-based organizations that are engaged in product aggregation in agroecology-based and geographical areas gives additional opportunities for educated youth to be involved in the development and management of farmer-driven businesses. Finally,

investment in the development of business incubation centers throughout India, although in limited numbers, provides renewed opportunities for youth to initiate and adopt new agricultural businesses.

A major scheme of the government of India in the context of engaging youth in agriculture was launched by the Indian Council of Agriculture Research in 2013. The program is called Attracting and Retaining Rural Youth in Agriculture. Through the Farmer Science Centers called Krishi Vigyan Kendras, located in each district of India, this program trains rural youth in agricultural operations, including agribusiness. The major goal of this program is to keep youth in rural areas productively engaged in the agricultural sector. While each program is funded through different departments, they aim to increase self-employment and agribusiness opportunities for rural youth.

In addition to the above-identified policy and institutional framework in India for developing YE in agriculture, emerging areas provide new opportunities for youth involvement in agricultural entrepreneurship. For example, several private firms are using new tools, such as cloud computing technologies, to design and apply agricultural technological interventions. Youth can be trained in data collection and aggregation using big data analysis tools. Recent developments in artificial intelligence and machine learning methods also provide opportunities for educated youth.

New developments in supply chain management, including distributed ledger technologies, such as blockchain and smart contracts, can enhance the participation of a new generation of youth entrepreneurs in agriculture. In addition, innovations on the Internet of Things (IoT), as applied to agriculture and agribusiness, can enhance the use of digital communications technologies and platforms, including mobile phone-driven financial management and e-commerce platforms, that will pave the way for a new generation of young entrepreneurs in India.

The development of digital-based agricultural extension systems that harmonize educational materials and farm-level advisory services can support the production systems that young entrepreneurs will service. Technologies and businesses that effectively use the Global Positioning System (GPS) using satellite technologies and radio frequencies will help increase efficiency increases in precision agriculture. Such production systems will benefit from the entry of young entrepreneurs for operations that guide farmers. Using and renting drones for plant protection and field operations are becoming common, where youth have an immediate entry point through developing their technical and business skills.

Finally, vertical farming and suburban farming can effectively use robotics which can lend itself to the machine hire and advisory services offered by young entrepreneurs. All these developments will, of course, depend on the technical and business skill levels of the youth in rural areas, investment funds made available to the youth through various programs, development of a business environment where the youth can jointly learn through mentorship, and the policy and regulatory environment that facilitates youth involvement in these operations as entrepreneurs.

In summary, India has developed several policies and strategic interventions for developing rural youth. Several programmatic interventions already exist to guide the youth entrepreneurship process in the agriculture and agribusiness sectors. However, several challenges remain, as brought out by the case studies presented in the next section of this report.

3. Case Studies and Findings

Entrepreneur 1: Rita Devi – Seedling nursery operator, Jharkhand State

Summary

Rita Devi is a 29-year-old Agri-entrepreneur (AE) from Gola Block, District Ramgarh, Jharkhand state. She started her enterprise in 2017 by aggregating the produce of small farmers and connecting them with traders. Rita, in association with Syngenta Foundation India (SFI), had also started a hybrid tomato seed production unit along with providing other advisory services to the farmers in her area. Today, Rita's small and steady steps into agri-entrepreneurship have earned her a national award and increased her investable capital. As a result, although the project on hybrid tomato seed production ended, she has been able to diversify her business into non-farm enterprises, keeping her agricultural business to three sets of agribusiness activities – output marketing, input supply, and seedling nursery. She remains an active agri-entrepreneur despite having challenges with juggling the family with two school-going children and her husband joining the construction industry for extra income.

'My experience with the Syngenta Foundation India's program has helped me to see the bigger opportunities in life through agribusiness. I was able to help many of my community members earn a higher income. I am happy I received the President's Award for the best young farmer in the country. However, it is hard work, and without the support of my family, I could not have done this.'

Background

Rita Devi completed her 12th grade and married Sakthi Ram in 2008. In 2009, she joined a local NGO, PRADAN, and became a member of a Self-Help Group. In 2017, Rita Devi's name was suggested by PRADAN to get trained under SFI's Agri Entrepreneurship initiative (AE). She boldly took the plunge and traveled to Aurangabad, 1600 kilometers away in Maharashtra state, for a weeklong training in hybrid seed production. She also undertook a 45-day residential training held at Ranchi in aspects of managing a farm, including basic agriculture, business development, leadership, investment management, and practical training in the management of tomato seed production systems. The curriculum followed was directly taken from the course content developed by the Syngenta Foundation. She was trained under the AE program of SFI-India and was provided with certification at the end of the course. Rita Devi was also given leadership, achievement, and motivational training in Ranchi for five days. On returning from these courses, Rita Devi connected with and signed up a total of 200 farmers for her business activities, of which she works very closely with around 90 farmers. Currently, she runs a combination of enterprises related to the training she received: output marketing, input distribution, and a nursery for seedling production and sales.

Occupation before current venture and reason for the change

Before embarking on the current venture after the training from SFI-India, Rita Devi and ten other women were a part of the self-help group organized by PRADAN. In 2009, as part of this activity, she started a saving system, and the women saved with the group. The minimal weekly savings ranged from Rs 10 – 20. Rita was entrusted with the responsibility of fund management and conducting regular meetings with the group. In the next couple of years, Rita Devi also took responsibility for the Women Empowerment and Justice Committee in her village. As a result, she made close contact with many women farmers and developed a relationship with them built on trust. However, this engagement was on a purely volunteer

basis. Rita did not earn any stipend for performing these roles. These self-help groups would save collectively and give loans to any member who needs to start an entrepreneurial activity.

'The business training, I received as part of the SFI program helped me to combine my organizational skills and leadership skills with starting a business to help my family to earn additional income.'

Before this training, in addition to her participation in the PRADAN SHG activities, Rita Devi operated as a smallholder farmer with her husband. She tended to a cow, about ten goats, and some chicken for family milk,

egg, and liquidity purposes. Her motivation for attending the SFI training and being part of the AE program was to earn additional income for the family. When the AEI program opportunity knocked at her door, Rita Devi was already well-versed in handling people and had gained the trust and friendship of the village women. It was an easy transition to the role of an entrepreneur through SFI.

Challenges and support received

After returning from the SFI-India training, Rita Devi signed up a total of 200 farmers, of which she works very closely with around 90 farmers for her business activities. She observed that some farmers took up onion production but did not earn a remunerative rate for their produce. She spoke to her mentor Mr. Satyajit Pati, an SFI project officer. He suggested that a late Kharif onion crop should be produced to help farmers capture a low supply period. Consequently, she formed a group with five farmers, and they took up late Kharif onion production. The market price they received was 20-30% higher than the regular market price. This helped her gain farmers' trust, and she slowly started helping farmers with the marketing of their other products as well.

Rita Devi has helped over 244 farmers connect to the market for higher returns. As a business venture, this market connection operation helped her earn an additional income of Rs 3,000 - 5,000 (approx. \$50) in a month during the season and a total of approximately Rs 40,000 in a year. While this was an additional income, it was certainly not sufficient for Rita and her family of four, including her two young sons. Rita took additional training through SFI's Centre of Excellence for Seed Production to earn more income, which led to her venturing into hybrid tomato seeds production. Rita states that seed production is highly demanding as it requires strict attention to detail and processes to maintain genetic purity. It also demands a sizable up-front investment.

'My satisfaction in running a business in my community comes from the opportunity to connect my fellow community members to the markets they were not able to work with before.'

Rita Devi took a loan of Rs 150,000 to start the hybrid seed business. Although the seed production business was lucrative, she faced challenges related to the wilt disease, which brought her seed yields down. The average yield for a seed crop is 15 to 20 kg per acre. But she was only able to get about 7 kg of seeds. This jeopardized her return and the prospects of settling her loan. While the price was good for the hybrid tomato seeds (Rs 10,000 per Kg), the low seed yield was a challenge in achieving the profit. SFI not only helped her to compensate for the loss but also bought the seeds back to assure the market for the hybrid seeds produced by her. After two seasons of unsatisfactory performance, Rita Devi had to stop producing the hybrid tomato seeds. Despite the hardships in hybrid tomato seed production, she showed high levels of sincerity, hard work, perseverance, and leadership in helping other women learn the techniques of growing hybrid tomato seeds.

Rita Devi became good in the controlled production and the package of practices of the seed production of crops. At the end of the second year, her confidence level as a young entrepreneur was still high as she kept learning from her challenges. She was interviewed by a local television channel about her challenges and how she overcame them. She was recommended for the national competition of innovative farmers by the Farm Channel of the National Public Television (Doordarshan Kisan channel). She traveled to New Delhi for the competition, where the nominated farmers were interviewed about their ability to manage farming operations. A three-member panel interviewed her along with several other women farmers. At the end of the final interview round, she scored 86% and was selected as the national winner of the young women farmer award (Central Mahila Kissan Award). She was given the best women farmer award by the President of India in New Delhi. She flew on an airplane from Ranchi to New Delhi for the first time to receive the award.

Her organizational skills through organizing the SHG and her training in production, leadership, and business management helped her to train about 150 more women farmers in seed production activities.

'The organizational skills I gained working with the women's self-help group were useful when I was interested in starting a business.'

Rita Devi received support from several sources.

First, Rita Devi was a married YE and had two children before joining the SFI training activities. Family members helped in childcare when she was out on business activities. YE's husband, Sakthi Ram, supported her entrepreneurial activities. Coming from a society where women are not easily allowed to venture into business activities, this was instrumental for

Rita Devi to take up the training to become SFI's AE. The family provided no financial support for YE activities, although she saved small amounts as part of the SHG in her village. Her husband did not go beyond high school and did not have business knowledge before the SFI training that Rita Devi received. However, he had agricultural knowledge to bring in and supported her with her business activities. Rita Devi was already trained by her family – in her mother's home to rear cattle, goats, and poultry. She was also a smallholder farmer, which further helped in her agribusiness activities.

At the community level, there was a spirit of collective action among women, which was useful for Rita Devi. The SHG that she was able to provide leadership before joining SFI activities was helpful in having financial skills and in having minimal savings. Although she did not receive any material support from the community, she received some support from the women in organizing the production activities through the membership of the SHG. She often consulted the SHG members in undertaking various business activities, as they were also clients for her business.

Rita Devi received help from the private sector and the NGOs as well. She received loans from private banks for purchasing the pickup truck the family bought, which is currently being rented out and used for her furniture-renting business. In her input distribution and output marketing activities, she gets support from the marketing agents, particularly for getting the inputs in advance, which she could pay back when she distributes them to the farmers in her village. SFI provided initial support for the hybrid tomato seed production operation. Initially, the technology and the hybrid seeds were supplied by the SFI as part of the program. SFI also provided full technical training for her through residential training for 45 days and achievement and motivational training. The Agri-Entrepreneur Mentor from the SFI regularly guided her. She learned new business and marketing skills and strengthened her technical skills through SFI training activities and further learning by doing.

Details about the venture

After the SFI program on hybrid tomato seed production came to an end in 2018, Rita Devi ventured into vegetable seedling production to supply to her village farmers. The SHG network she has worked with became handy in reaching out to the women farmers who became her regular customers. In addition, due to her ability to mobilize women farmers, she identified their input needs for various farming operations. She started selling these inputs with the local input dealers, which also helped her to earn additional income. At the end of the cropping season, she was also able to find a market for the crops produced by the farmers in her village. She became an aggregator of the commodities for selling them to the wholesale purchasers at the block level.

Business activities and net revenues

	Business activity	Year	Total revenue (Rs)	Net revenue in (Rs)
1	Input and output marketing	2017	42400	15687
		2018	380000	223000
		2019	318000	147000
2	Nursery	2017	85000	41300
		2018	46000	14000
		2019	42500	15000
3	Seed production	2017	230500	78000
		2018	565000	258300
		2019	64000	18000

Nursery seedling production and sales for vegetable crops are her core business. The key inputs include the polythene shed installed, which is maintained every year, and the quality seeds to produce seedlings. The output from the business is the seedlings of vegetable crops grown by the farmers in the villages around her community. Creating business and marketing opportunities for the products, maintaining the quality of the products, and ensuring ongoing production activities are the joint responsibilities of the YE and the SFI. An additional outcome of the seedling business is the provision of employment opportunities for both young men and women and training individuals to start their businesses in the community. Creating a sustainable business prepared to overcome production and marketing challenges is also an outcome of the approach by the SFI.

Prospects

While earning avenues for Rita Devi have tremendously increased due to SFI training, her business portfolio has shifted to a more commission-based portfolio. Larger and risky initiatives, such as the hybrid tomato seed production unit, were abandoned. However, other activities such as a smaller group nursery,

‘Women farmers of our area are very backward. I was lucky to be chosen by the SFI to become a successful entrepreneur. Now that I know the business skills, I can start any business and run it successfully. I would like to help other women farmers to gain additional knowledge for expanding their livelihood opportunities.’

supplying inputs for a commission, and market linkage for produce have been taken up. She attributes this portfolio change to her inclination to help fellow women farmers to gain knowledge in various agriculture enterprises and getting them involved in diversifying their livelihoods.

Impact on the community

Rita has formed strong relationships with farmers through her activities. Rita's farm, where she cultivates vegetables, is now a regular venue for educational visits by farmers. NGOs and other organizations are eager to learn from her experience. Many organizations started reaching out to her as a key point of contact for last-mile delivery of services. Under Jharkhand State Government's rural livelihood program, JOHAR, Rita Devi has been instituted as the secretary of a Producer Group of 72 women farmers. She promotes high-value agriculture by training farmers on the proper techniques and skills. She earns a commission on aggregating produce under this scheme.

The institutional and regulatory environment

Rita Devi received training and mentorship support from SFI. Additionally, SFI partnered with IDBI Bank to offer low-interest credit to agriculture entrepreneurs and other smallholders. Rita Devi received a loan through this scheme which helped her begin seed production. In general, such institutional arrangements are needed for the youth in the area to start agribusiness opportunities. Extending rural credit schemes to the rural youth, which an institutional mechanism could guarantee, is a critical factor in helping youth to get involved in agriculture and agribusiness activities.

Current challenges faced by the YE

Rita Devi has become a mature young entrepreneur. However, she continues to face challenges juggling business and family commitments. With their initial income in the first two years, they expanded their business activities to other nonfarm commercial activities. Her husband returned to construction work, leaving the business activities to Rita Devi. It remains a struggle for Rita Devi to balance family, business, and farming activities, including livestock rearing. She also is keen on spending more time with her teenage sons as they move through middle and high school.

In summary, Rita Devi took the bold step of enrolling in the SFI training. Unlike other women who did not join the training, she was not scared of starting a business. The success of her work, coupled with the relationships she built with farmers, has helped her gain popularity and become a mentor and trainer. With her current business activities, she can take advantage of other government programs that help women farmers in the community. Her expansion from farm-oriented business activity to small-scale business ownership is challenged by her circumstances, which do not allow her to expand further. She is content with her current role as an entrepreneur in the village, connecting farmers to the input and output markets and guiding farming operations. Her case provides insight into how a village-based entrepreneur trained in business and technological aspects could serve as an effective intermediary for business and technology transfer to her community.

Entrepreneur 2: Nanda Kishore Murmu, Seedling nursery, input supply, and output aggregation, Gola District, Jharkhand State

Summary

Nanda Kishore (NK) is a 32-year-old YE from the Torpa village of Gola district in Jharkhand state, situated about 200 kilometers from Ranchi, the state capital. Through the support of the SFI, Nanda Kishore and his wife, Niti, were able to turn their life around through agricultural entrepreneurship. They come from the lowest rung of the caste system in India, called *scheduled tribes*.

His status as a smallholder farmer did not allow him to meet the lifestyle he wanted to live. He saw the

'As I am selling seedlings to farmers, I am also selling them with the inputs they need for growing vegetables. They go together and increase the volume of my business'

entrepreneurial (for him, it was additional income earning) opportunity that came through

SFI as something that they could do on the side by providing better quality services to fellow farmers in the surrounding villages. His wife Nitti was already a part of the self-help group (SHG) for women for several years before they heard of this SFI business opportunity. The women members of the SHG later became her clients for NK's seedling nursery, input supply and output aggregation businesses. This is a key factor for their successful maintenance of

the business over the years.

'Although farmers were growing vegetables in our area for long time, they did not have the right varieties of seedlings to plant and they faced low yields and high losses during continuous rains. There was a demand for quality seedlings that can grow vigorously once planted'

Background & motivation

NK comes from a poor socioeconomic background, and his family was traditionally classified as a household under the poverty line for at least two generations. Being a scheduled tribe in the caste system further worked against him to keep him poor as they are the most vulnerable group, and the poverty level is high among the tribal castes. Their land holdings are small – on an average less than an acre, and they manage their livelihoods with additional labor income. Before

starting his entrepreneurial activity with SFI, NK's family cultivated about 3 acres of land, and he also leased land from other smallholder farmers to grow rice and other

'Advisory Service provision was my goal- but I combined it with business objective so I can be gainfully engaged in a livelihood activity as well.'

vegetable crops. His wife was part of the local self-help group and developed a network of villagers

who worked through an NGO in identifying additional livelihood options. When SFI announced that they were looking to develop YEs in the area, NK and his wife were eager to join. Their standard of living was below

'My background as agricultural graduate and my farming background helped me to establish my trust and credibility with the farmers.'

the poverty level, and they were barely managing to feed their family of four. What motivated NK to consider earning additional income is his vision to educate his children in the nearby town for high school and send them to college when they grow up. Moving out of poverty and giving better education to their children were the motivating factors for NK and his wife to sign up for the YE training with the SFI.

Business operations

NK started his business in January 2018 after the nursery and business training he received from the SFI. He serves about 150 farmers living in the nearby villages within a radius of about five kilometers. The nursery business most attracted him as he lived along the main road, which lends itself to the clients stopping by and buying the seedlings when they travel on the main road. Thus, the location became one

of the significant success factors in establishing his entrepreneurial activity. In addition, the site of the poly house, which is behind his house, helps his wife to manage it and conduct business transactions even when he is not available on the farm. This added advantage of location and family support helped NK quickly establish himself as a reliable source of vegetable seedlings in the area. As the demand for seedlings among the smallholder farmers in his place is regular, NK and his wife have a stream of income from the nursery business throughout the year. Another factor contributing to NK's success in the nursery

'Working in the field as a sales representative gave me the advantage to know the market well in advance and the buying behavior of the farmers in my area.'

business is that the region receives regular rain for three seasons, and the vegetable production is well integrated into the cropping system of the farmers in the villages in his area. Thus, the demand for quality vegetable seedlings is also uninterrupted throughout the year, providing the YE with regular business opportunities.

NK has also started his input marketing business along with the nursery business. This was possible partly due to his travel to the input dealers in Gola town for his nursery business. This further helped him to connect with the input dealers who would support him in serving his network of farmers. NK would collect aggregated quantities of the inputs needed by the farmers and purchase them at a bulk price from the input dealer in Gola town. He distributes them to his network of farmers in smaller quantities for a margin. Initial success in the first season from the nursery business and the input marketing business helped him to venture into the output marketing business. He started the input marketing business with the support of SFI and earned about Rs 3000 per month. He was able to make some savings, and with the additional earnings from the nursery business, NK was able to expand into the output marketing business in the second year. The total revenue for the three types of businesses in the first three years is given in the table below. On average, about a third of this revenue remains with him as net profit.

'The positive income flow that came from the nursery business was helpful to start my output marketing activity. I did not start my output marketing in the first year, due to lack of investment needed.'

Business activities and net revenues

	Business activity	Year	Total revenue in (Rs)	Net profit (Rs)
1	Output marketing	2018	0	0
		2019	25800	8500
		2020	157000	58000
2	Nursery	2018	30998	10200
		2019	112000	36000
		2020	105000	38800
3	Input marketing	2018	92000	27500
		2019	353137	108000
		2020	437000	120500

Technical and research support

SFI identified NK as a potential young entrepreneur. The YEs in the region were selected for the SFI program through the self-help groups that were already in operation by PRADHAN, a popular NGO in the region. After his selection as a YE by the SFI program, NK was given the technical and business training by SFI to start a business. This training opportunity helped NK to understand the business principles and enabled him to initiate the business. SFI also provided research support through access to technology

through the hybrid vegetable seeds for producing seedlings in the polyhouse. This technology support and the research backed by SFI were instrumental in the success of the YE's in the nursery business. SFI also provided technical support for establishing the polyhouse next to NK's house. Further guidance was also given in identifying the right inputs and outputs for his business operations. Such technical support, backed up by skill-building activity, can increase the confidence of the YEs as they start their new businesses.

Institutional support

The SFI model of YE development provides additional support for the initial years of the YEs by advising them on critical business issues and by helping them to manage their finances. This is done by tracking the money invested in the business, the volume of business that is transacted, and the total revenue earned by the YEs. NK was given such institutional support from the beginning. The technical skills gained through the training were complemented by regular visits and advice from the SFI field staff. This helped establish the nursery business and the poly house that supports the nursery business. Regular advice from an SFI mentor helped NK and his wife gain business confidence. In addition, continuous support on the financial management from SFI and tracking their finances enabled them to keep track of their business costs and revenues.

'Regular visits by the SFSA mentors helped to me to clear any doubt about my business decisions. I felt I can always check with someone before making a big mistake and lose money'

Regulatory and operational issues

'There is high expectation that we meet the quality standards, as in the past spurious fertilizers and chemicals has reduced the reputation of the agrochemical dealers.'

Obtaining a license to operate an agribusiness is a challenge in Jharkhand state. Even after three years of operating the three types of businesses, NK still needs a license to operate his business as an agricultural input dealer or output aggregator. This situation does not allow him to establish his operations as a business entity and register it with a name. Without a proper business license, he cannot store agrichemicals and other inputs for his farmer clients well in advance and in periods of critical need. However, due to the small-scale nature of his business operation, he can continue the business services he provides the farmers. Obtaining a business license as an input dealer will also help him to scale up his operations. Due to a lack of supervisory infrastructure and the associated accountability issues, the state government has been slow in issuing business licenses to new entrepreneurs. Once the institutional capacity of the state improves for monitoring and verifying new business ventures, it is expected that the YEs in the state will be able to get their licenses without delay. Until then, the likelihood of YEs expanding their business is limited under the SFI model.

'The local extension workers see us as the businesses working to exploit the farmers. This image has affected our profession and reduces the incentive to enter this business.'

Individual capacity and personal skills

NK's wife fully supports his entrepreneurial activities. She is more educated than him and was exposed to women who were entrepreneurial through village-level self-help groups. Niti has been able to develop cordial relations with the fellow women members of the SHG and has a reputation as a good supporter of the local women through guiding the group. This was partly due to her education level and earlier exposure, as she had studied up to high school. When NK started his entrepreneurial activity, Niti's social capital with rural women became handy. This has helped NK and his wife to successfully run the business throughout the year with an adequate number of farmers to serve.

'Helping farmers with additional knowledge about the markets and buying the produce from them also helps them to be successful.'

Challenges and opportunities faced by YE

Although NK and his wife have been successful in the first three years of their business operations, they continue to face challenges. While NK's initial nursery business picked up well with the temporary low-cost polyhouse, continuing his business successfully meeting the increased demand for the seedlings will require the establishment of a permanent polyhouse. This will involve a high level of investment. Due to a lack of adequate cash NK has postponed this project. As he is not a licensed business, he will not be able to get the loan needed for establishing a permanent polyhouse structure from formal credit institutions.

While SFI has provided support for the initial establishment of the business, NK would like to see regular support from the state extension department to the farmers of his business area. He believes that by educating the farmers on new technologies, such as using high-quality inputs, his business success can be guaranteed for a long time. Thus, the development of the YEs needs more extensive support from the technical and business environment of the government. Continued extension services and complementary support after the initial technical business training will be essential for scaling up SFI's approach to YE development in the agribusiness sector. Given that the state extension system is weak, continued investments will be needed through the private sector and NGOs to nurture new YEs in the state.

NK buys the needed inputs in bulk from local dealers in Gola town and sells outputs he aggregates with the support of the SFI mentor. However, in the long run, he would like to be part of an association of small business owners which can support him through an exchange of information. Such an association can help him to take his business grievances to the state government's attention. To be part of a larger business ecosystem, he will need a license as an agribusiness operator, which remains a challenge.

Working with SFI mentors has opened further opportunities for further interactions and partnerships with other YEs from other regions of the states. For example, NK has been able to collaborate with another SFI-supported YE undertaking a micro irrigation business to supply drip irrigation equipment to the farmers in his area. This is likely to increase his income in the future.

Entrepreneur 3: Surendra Turi - Input and output aggregator, Gola, Jharkhand State

Summary

Surendra Turi is a 26-year-old YE from Gola Block, District Ramgarh, Jharkhand. He started his entrepreneurial activity in December 2017, when he was identified for training by the Syngenta Foundation India (SFI) for YE skill development activity. After receiving training from SFI, he started the input supply and product aggregation business which engages 125 local farmers. Today, Surendra is a well-respected young entrepreneur in his community providing regular service to his community of smallholder farmers. He is slowly diversifying his business beyond the initial activities to add additional commodities and expand the coverage of the farmers to more villages in his area. A major challenge is to formalize his business with a license from the state, which still eludes him.

'A major benefit of my business to our village and the farmers is getting the inputs in time and at a cheaper cost than they were experiencing before.'

Background

Surendra finished an MA in Sociology at the local college and was looking after his family farm when the call came for the SFI training. He applied and was selected for the YE training that was offered by SFI. Under SFI's Agri Entrepreneurship Initiative (AEI). He underwent a 45-day residential training held at

'As I am one of the few educated people in the village, people have trusted me over the years to help them with applications to government programs. This helped me to build a quick relationship with the local farmers.'

Ranchi in various aspects of managing a business which included basic agriculture, business development, leadership, investment management, and practical training in business management. The certification from SFI was useful for building his confidence to initiate a business on a small scale. He was already a well-known youth in the community, and when he talked to the farmers of his village and neighboring villages, they readily joined him as his clients. Surendra was also given leadership, achievement, and motivational training in Ranchi for five days. On returning from these courses, Surendra was able to connect with farmers better and explain to them the objective of his business interests and how

it will help the farmers to save money, effort, and time in getting the inputs for their farm operations from the nearby town market. Currently, Surendra has 125 farmers in his network that he is providing service through his business, which involves input supply and output aggregation.

Occupation before current venture and reason for the change

Surendra was finishing up his postgraduate degree and was going to become a schoolteacher. He was looking for a regular job that would bring in regular income. But that would require additional training in the form of undergoing teachers' training and additional investment of money in education. He was able to help the family farm as both a supervisor of farm activities as well as a helping hand in several farming operations. This experience of involvement in basic farming operations gave him good exposure to the problems of farmers in his area. The major motivation for signing up with the SFI training activity for YE is the high prices that the farmers paid for the inputs in their area and the scarcity of inputs during critical periods of farming, such as seeding and fertilizer application. Further, he also saw that farmers were not getting the right prices for their produce after harvesting due to a glut in the market for their produce, as all the farmers were producing similar outputs. In addition, the traders in the market were not paying the farmers on time and were charging high levels of commission for their services. So, the farmers were at the losing end both on the production levels and in making a profit due to middlemen deciding their prices.

Challenges and support received at the beginning of the venture

Surendra started signing up the local farmers for his business after returning from the training offered by the SFI. He was supported by the SFI project officer Satyajit Patil in his meetings with the farmers, which helped him to present himself as a credible young entrepreneur. The project officer also helped Surendra

'As I learned farming through helping my father and my brother in their farming operations, I knew the challenges of the smallholder farmers. This helped me to empathize with their problems.'

to make connections with the input dealers and the traders in the nearby Gola town. In the first season in 2018, he was given guidance on how to manage the resources and keep the accounts for his business. With the help of the project officer, he was able to collect the input needs of the farmers, agreeing with them that he would supply them the

inputs at a price that is less than the price they pay in the town market when they buy the inputs directly from the input dealers. This was an incentive for the local farmers to sign up. In the beginning, Surendra received a high level of support from his joint family, where he lived with his brother and his family. He used his family home premises as temporary storage for the inputs that he bought from the town and delivered to the farmers. Further, he continues to use the extra spaces in the premises of his house to conduct periodic meetings with the farmers who have become his regular clients. In addition to the

mentoring support, the SFI also provided him with seed money to start his business. This helped Surendra to quickly jump in and establish himself as a local youth agribusiness entrepreneur.

Surendra started input delivery and nursery businesses in the first year. The motivation for the nursery is to support him with additional income. As all agricultural operations are seasonal, the nursery could

‘helping farmers with additional knowledge about the markets and buying the produce from them also helps them to be successful’

provide regular income as vegetables are grown throughout the year. With the SFI training and funding initial support, he established the nursery and started selling the seedlings of vegetable crops. His nursery is a low-cost nursery that provides seedlings for the farmers of his and the surrounding village. As his house is located on the main street of his village through which the local road is also plying, his nursery is successful.

Starting the second year, he added the output aggregation operation in 2019 and continued it in 2020 as well (see the table for the total revenues on these business activities). In all these operations, Surendra gains up 20- 30 percent as net profit.

Business activities and net revenues

	Business activity	Year	Total revenue in (Rs)	Net revenue (Rs)
1	Output marketing	2018	0	0
		2019	99410	23600
		2020	135000	41500
2	Nursery	2018	11941	2300
		2019	91962	28500
		2020	56280	18850
3	Input marketing	2018	48390	15000
		2019	272797	98660
		2020	418710	13600

Surendra was initially helped by the SFI with seed funding to start the business. In addition, he took a loan of Rs 100,000 from his family to start the input and output marketing business. The initial capital access was crucial for buying the inputs in aggregate and distributing them to farmers in his network. Some farmers make the payment for the inputs at the end of the season. A major challenge was to identify the input dealer who would provide a reliable supply of quality inputs. Surendra also used part of his capital to aggregate crop outputs by paying the farmers right after the delivery of the outputs at his house, where he stored his regular supply from the farmers. Immediate payment to farmers helped Surendra to establish the needed trust among the local farmers. Not only was Surendra able to provide a ready market for the farmers, but he was also able to provide competitive prices at the doorstep of the village.

Surendra gained experience in the first two years of business to run independently. He can identify the e farmers well before the start of the crop season. He can work with the dealers in Gola town and negotiate with them for a better price for the inputs he gets from them. Bulk purchase on behalf of fellow village

‘Until I started the business I did not know that our smallholder farmers needed help in buying their inputs and in selling their products. Very were exploited by middlemen both in the beginning and at the end of the season’

farmers gives him the edge to negotiate competitive prices, providing him a profit margin while serving his fellow farmers. Surendra is now conversant with maintaining business records of his business to track the payments for the input dealers and the money received from the farmers

for the services he is providing to them. He is also confident that he can train more youth in the neighboring villages to take up the input supply and product aggregation business like the one he operates. The organizational skills taught by the training received under SFI helped him to become a self-reliant businessman.

The social capital that Surendra and his family had in the village was helpful in quickly organizing his business. His family lives on the village's main street and is known for helping farmers in distress for a long time. His older brother is a well-known farmer in the village, taking on farming after their father, who had retired from farming several years ago. The ladies of the household were also respected by the village

'I started on a small scale to learn about the business. After a year of support from SFI I was able to see the potential in this business. More than the income, I enjoy helping the farmers of my village.'

women, who always lent a helping hand to their fellow village households. Yet the villagers needed help to organize themselves to buy the inputs and sell the outputs in an organized fashion. When Surendra started the business, they quickly signed up to become part of his business. There are still

many farmers who are waiting and watching his business. They are currently buying the inputs directly from the town as they can arrange transport by themselves, and some of them have had good connections with the input dealers for many years. The farming community that Surendra can help is the group of farmers who cannot mobilize their resources before the crop season. They depended on the credit given by the input dealers in the town. Now that service has been taken up by Surendra for a profit margin, that is a win-win for both Surendra and his fellow farmers.

Prospects

Surendra has been able to convince himself of the viability of the business opportunity that was given to him by the SFI. Yet he feels that the source of income in the business needs to be more regular. To have long-term income stability, he would like to get a steady job as a schoolteacher and explore the continuation of the business part-time. This business seasonality calls for additional activities that Surendra could get involved in after the beginning of the season and after the product aggregation from the harvest period.

Impact on the community

Surendra has developed a unique business relationship with fellow smallholders in his and surrounding villages. He is seen as someone who has solved a long-standing problem of accessing timely input for the area's farmers. Surendra himself has a high level of satisfaction from serving his fellow villagers. As he learns about the problems of the farmers, Surendra tries to get additional knowledge and advice for his clients through interactions with the local extension workers and his business mentors. Farmers have been able to repay the credit they take from Surendra right after the harvest. The farming community feels they have a better deal for accessing inputs at competitive prices and getting a reasonable price for their outputs collected by Surendra. Surendra feels that timely payment to the farmers as soon as they deliver their outputs will keep them in good standing with him.

'After I started the business, the farming community I serve feels a sense of solidarity with me. They see me as their local champion who could reduce the cost of inputs and get a better price for their outputs.'

Current challenges faced by the YE

Surendra has grown into the business opportunity given to him through SFI. His training helped him to become confident as an entrepreneur, albeit on a smaller scale. Surendra has been trying to make the business a formal operation by registering the business under state licensing rules and regulations. This

will allow him to expand his business to other villages and increase operations volume. As more farmers join him in his network as clients, his business must become formal to avoid legal challenges. Yet, the state-level business licensing mechanisms take a long time to issue business licenses. This has been a source of frustration to Surendra, although the SFI mentors are helping him navigate the paperwork needed to obtain the business license. Under such conditions, the development of youth entrepreneurship in the state could be slow.

Entrepreneur 4: Thirumal– Rajalakshmi Fertilizers - Agro-input Dealer, Dharmapuri, Tamil Nadu

Summary

Thirumal is a self-made 35-year-old young entrepreneur who runs an agricultural input dealership in the Dharmapuri District in Tamil Nadu State. His vision in business is to serve farmers with high-quality inputs for their farming operations. Over the years, he has been able to develop and maintain a regular set of loyal clients. His initial aim was to start a business that would be a one-stop

‘When I started the business of input dealership, farmers were not adequately served by input industry. There, I saw an opportunity to both make a living by supplying them with quality inputs. This was my motivation for venturing into dealership.’

‘Selling wide range of inputs is my key to success.’

shop for all input needs of the farmers. He has already developed a relationship with his clients in his previous employment positions, working for various input industries. Thirumal founded Rajalakshmi Fertilizers (his mother’s name is Rajalakshmi). The clients of his dealership range from smallholder farmers who

take the products on credit to large farmers who order the inputs in advance of the season and pay cash for their purchases. This broad client base has helped Thirumal to rotate his finances and manage his business with limited dependency on the formal sources of credit from commercial banks to run his business. As he has a diversified portfolio of chemicals and fertilizers that can be applied to crops grown throughout the year, there is less risk of seasonality in his business.

‘What we’ve done differently is to actually influence what and how smallholders produce.’

As his client base is repeated every season and every year, Thirumal can forecast the demand for the inputs that he will deal with in a reasonably accurate manner, and this avoids the major challenge of the disposal of unsold chemicals. His postgraduate education in agricultural extension has become handy in keeping his client base, as he also advises the farmers who buy the chemicals from him on the recent development in technology and innovation and the market opportunities for the outputs they produce. He also conducts a regular search on the internet for new information produced by the researchers and documents them for use by the client farmers. Thus, he has become a regular source of advice for his clients. He has three employees to help him with his business but spends most of the time himself to be at the service of the farmer clients who prefer to consult him before buying the products. He has no intention of expanding the business as his time is fully consumed by this one enterprise. As this provides him with a comfortable livelihood, he has no plans for expansion. He also does not want his children to take over the shop from him, as he feels that input chemical dealerships will not be successful unless they are operated by entrepreneurs who have full knowledge of the agricultural practices and the cropping systems in the locality they are operating.

Background & motivation

'Working in the field as a sales representative gave me an advantage to know the market well in advance and the buying behavior of the farmers in my area.'

Thirumal grew up in a farming family in the Dharmapuri district of Tamil Nadu, where his parents were smallholder farmers. Coming from a farming background, after high school, he opted to study agriculture in

'Advisory service provision was my goal- but I combined it with the business objective, so I can be gainfully engaged in a livelihood activity as well.'

college, and he went on to finish his MSc degree in agricultural extension as his specialization. Soon after his postgraduate degree, Thirumal joined as a sales representative in a leading agrochemical company called Rallis India. Rallis has a reputation as a trustworthy chemical company among farmers in India and particularly in Tamil Nadu state. While seeing the difficulty of the smallholder farmers in accessing fertilizers and chemicals in a timely fashion, Thirumal was motivated to start his own agrochemical distribution store – called a dealership. These dealerships are supported by one or two key agrochemical companies. The academic training, along with the field experience gained as a sales representative of an agrochemical company, equipped Thirumal to become confident in helping farmers through his own business. He resigned from the salesman job and started his dealership with the support of his family.

'My background as agricultural graduate and my farming background helped me to establish my trust and credibility with the farmers.'

Business operations

Thirumal invests in buying products from chemical companies by showing surety of the funds in the bank in his account. The chemical companies will set the target for him to achieve in the sales for chemicals as there are several competing products for every product that he is selling through his dealership. There are about three major crop seasons in the Dharmapuri district. Farmers plant different crops depending on the water availability in their area, although most of the crop production in Dharmapuri is rainfed.

Thirumal has about 1500 farmers on his list who buy agrochemicals from him regularly. Financially the business has been rewarding for Thirumal and his family. Every crop season, he sells up to Rs150,000 (US\$ 2000) per day worth of agrochemicals, although the sales are minimal during off-season days. Through this entrepreneurship, Thirumal earns about Rs500,000 (US\$ 6666) per month on average. As a sales representative, with his experience and ability, he would be earning a maximum of Rs200,000 (US\$ 2666) per month with all bonuses included. Thus, by becoming an entrepreneur, Thirumal roughly tripled his income.

Technical and research support

Thirumal attends workshops and seminars organized by the local research institutions of the Tamil Nadu Agricultural University, which is the state university. The Farm Science Centers also conduct frequent training workshops that have helped him to keep abreast of the developments in agricultural research that is pertinent to his clients.

Institutional support

Thirumal received various types of intuitional support for initiating and running his business. First, the commercial banks were open to providing him with loans for starting his business. The support of the national policy for youth development and the emphasis of the state government on the support of Agri-clinics were helpful in facilitating this loan. Thirumal received about 25 % of the initial investment

'Unless we update our knowledge, we can't be competitive in the input industry. Farmers prefer to gain new knowledge along with inputs they buy.'

made in the business from the commercial bank. Second, he had several mentors who helped in the initiation of his business. The business ecosystem that Thirumal is part of helps the agricultural dealers to work together to address their common challenges. Although most of the members of the input dealer's association he is part of are older than him, they have been a valuable source of information and inspiration to Thirumal. Knowing that there is a common platform where the input dealers can address their business issues and take them up with the local authorities has helped him to run his business smoothly.

Regulatory and operational issues

'There is a high level of scrutiny by the pesticide inspectors. We are careful not to violate any rules and ensure the farmers get the best products for the problems they face. Yet some spurious products can enter the market when some new entrants to the business want to make quick money. We need to be vigilant of this all the time.'

Input dealers are subjected to strict regulations by the state department of agriculture. They need to be licensed and approved. Their products will be spot checked for their expiration date and for quality. Having a good standing with the regulatory officials is a key factor for Thirumal's success. There is no room for negligence and shortcuts in his business. Violation of any rules and regulations will cost him a high level of loss and damage his reputation. On the other hand, Thirumal agrees that when there is a common set of rules and

regulations for operating the dealership, he gets to work on an equal playing field with all other competitors. In addition, the chemical companies that he is dealing with – Nagarjuna fertilizers, UPL, and Rallis India Ltd – all have their own regulations that are given to the dealership. Violating these also can result in the dealership being taken away from Thirumal.

Challenges and opportunities faced by YE

Thus, while the business is highly profitable, it also comes with a high level of intense personal involvement by the YE. The business cannot be left to employees to run. This is a major challenge to expanding his business. Moving from a single dealership to ownership of multiple dealerships is not possible. Further, he is not able to expand his portfolio to other business activities due to his heavy involvement in this operation.

Thirumal's technical knowledge and the information gathering about what crops are grown by the farmers in the district have helped him to meet the demand from the farmers. He has also been keeping up to date about the policy and programs introduced by the state and central governments. In addition, tracking their agricultural policy changes helps to take advantage of the promotional programs. His education at the postgraduate level has been useful in keeping up with the competition.

One of the major challenges Thirumal faces is the timely arrival of fertilizers and chemicals to meet the needs of the farmers. As all the farmers apply fertilizers at the same time at the beginning of the crop season, particularly for the cereal crops such as rice, constant monitoring of the demand and supply for fertilizers in the market is needed to stay ahead of the competition.

Farmers demand a high level of efficacy from the agrichemical products. As farmers' knowledge about alternative and competing products increases, selling the same product from the same company brand is not a good business strategy. Yet, new products take time to come into the market. This constant struggle to keep up with farmers' emerging demands is a challenge. On the pesticide side of sales, pests constantly

evolve and develop resistance. Sometimes pests come back with heavy resurgence. This unpredictability is a challenge in Thirumal's business.

'We have work hand and hand with the local extension services. When they recommend a generic chemical to the farmers, we should be ready with our own brand that meets that need. We also constantly educate the extension workers, so they recommend the right pesticides to the farmers. They have a direct link to the research department.'

Smallholder farmers often do not pay cash for their products. They take the product in credit and return the money after the harvest of the product. The general tendency is to add the interest involved in this service to the price of the product sold. This can reduce the ability to compete. Yet this is a common practice among agrochemical sellers. In addition, when the crop fails, these smallholder farmers do not repay the money, and it is hard to hold them accountable; even with this kind of loss,

keeping the client base is important to benefit from the good seasons.

Competition among the dealers remains high as farmer numbers are shrinking in the district. Old farmers are moving out of agriculture as their children find regular jobs in the urban areas and support them. Young farmers maintain their farms mostly as part-time operations. In general, interest in farming is also going down among the youth. This has implications for the agrochemical business. In addition, the trend towards organic farming is increasingly pushing the demand for agrichemicals down. The long-term prospect of the agrochemical business in the area is low unless a few dealers go out of business. Thirumal hopes his business is not one of them.

Entrepreneur 5: Rajesh Nallaiah, Independent Agricultural Consultant, Madurai District, Tami Nadu

Summary

Rajesh Nallaiah is a young entrepreneur from the Madurai District of Tamil Nadu. He was educated at Tamil Nadu Agricultural University and earned a Ph.D. in agronomy. After several years of working for others, he decided to start his own consultancy business advising farmers in their operations. He helps farmers by supplying the right type of inputs, arranging for farmers to get the subsidies

'The experience working for private agribusinesses that organize farmers is fundamental for developing needed business contacts with the farmers if one has to become agribusiness entrepreneur in a particular region'

'My agricultural education helped me to get strong technical skills and the respect from the farmers who seek expert advice before venturing into the new enterprises.'

given by the government under various schemes, and supporting the establishment of polyhouses, nurseries, and roof gardens. He associated himself with the local University-based Agribusiness Incubation Center and built his credibility and customer base among the local farmers. Using his technical skills combined with the entrepreneurial skills

developed through working with several companies, he can sustain his consultancy business by serving his clients by charging a fee for his advice and services. He started his consultancy in 2018 and now can earn up to Rs 50,000 per month. His sincerity in advising farmers and making them profitable through his advice has gained him respect among farmers and helped him to sustain a client base that provides a regular flow of income. This model is emerging as a potential business model for young entrepreneurs but will require policy guidance, institutional mechanisms, and individual capacity for replication.

Background & motivation

Rajesh Nallaiah is the Director of RNR Agri Developers Multilocation Farming and is an agribusiness Consultant to farmer producer companies and a trainer of farmers for the NGO sector. He started his

consultancy company on 01 October 2018. He was a practicing agronomist for AgroEcrops Exim Ltd, which helped groundnut farmers to produce high-quality oil seeds. Prior to this private company experience, he was an assistant professor of agronomy and taught undergraduate students for RVS Agricultural College, Thanjavur, a constituent college operating under the Tamil Nadu Agricultural University. He served as a Farm Supernatant and Coordinator of field crop trials for the agricultural college for two years. He had international exposure to agricultural research, working as a research scholar and project coordinator for the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, conducting field trials, lab analysis, multilocation trials, and data analysis.

'Working in the field for several years allowed me to study the farmers' attitude towards the market and price risks they face, and I was able to use this to help them through my agribusiness consultancy.'

When Rajesh decided to go on his own and start an agribusiness consulting company, he needed to build his credibility as an independent advisor. However, by this time, through his earlier fieldwork with the private sector,

'With the new agricultural laws that support the development of the private sector in agriculture, we have opportunities as agribusiness consultants.'

he has developed good contacts with the farmers of Madurai districts and other surrounding districts. In addition, he associated himself with the Agribusiness Incubation Center of the Tamil Nadu Agricultural University as an agribusiness startup and effectively used their institutional support to build his consultancy business.

The motivation behind starting an agribusiness on his own is his desire to work for himself and to provide the support that his family needs as his children are young and growing up. He also enjoys the independence of decision-making that comes with the self-operated business. He decides how much he would like to take on for his consultancy and uses this as an opportunity to balance the business–family life needs of his time. His previous jobs in the private sector took him away from home for days at a time, and his family life suffered. Also, he sees that in the long run, he can build a sustainable business operation that can provide a stream of income for his livelihood. His case study as a YE and his business model open opportunities for many educated youths to become agribusiness entrepreneurs. This is particularly true under the current policy reforms that provide opportunities for the development of 10000 Farmer Producer Organizations throughout the country in the next five years.

'I was able to establish the trust with farmers as I could show that I was associated with the local state university as a researcher.'

Business operations

Rajesh has been successfully running his agribusiness consultancy for the last three years. In addition to providing pure advice to farmers in their production operations, he has also expanded his portfolio to related business activities that help him not only earn more money but also to keep servicing his clients to complement the advice that he provides. He supplies inputs such as seeds and fertilizers as needed by the client farmers. In selected cases, he also helps to market their products through aggregation. In addition to production and marketing-oriented services, he is also helping farmers to take advantage of the support provided by the state and central government schemes for a service fee. His research on nursery development during his employment as a researcher in ICRISAT has come in handy as well, as he guides farmers to raise nurseries for selling the seedlings which go along with the development of poly houses, for which Rajesh provides technical advice as well. He is also using his expertise to advise urban

clients who would like to develop vegetable gardens on the rooftop for a service fee and supplies the needed garden accessories.

Technical and research support

Rajesh gets his technical and research support by directly communicating with the researchers in the state agricultural universities. He also keeps abreast of the

'My ambition was to become independent business owner using my technical skills. Providing advice to farmers also brings high level of satisfaction and if I can get paid for it, which takes care of my livelihood, there is nothing like this.'

recent products in the market by interacting with the input dealers regularly. His education and research background are also useful in his agribusiness to constantly update himself on technological innovations. He regularly studies the policy and program support that the government of India

provides and brings them to benefit farmers.

Institutional support

The agribusiness consultancy enterprise that Rajesh established greatly benefited from the institutional support provided by the Agribusiness Incubation Center (AIC) that was established at the Tamil Nadu Agricultural University Campus in Madurai. The AIC provides initial support to young agribusiness startups in several ways. First, it provides office space on a rental basis, which helps the entrepreneur with an official business address that is authenticated and well-known to the public. Second, AIC provides a meeting place and conference room facilities for the agribusiness entrepreneur to bring his clients and conduct meetings and training sessions. Third, AIC functions as a platform for farmers and clients who are seeking help in their agribusiness and connects them with the right type of agribusiness advisor to them. Finally, associating with AIC also places the young entrepreneurs in touch with a large network of businesses and supporting institutions such as local banks that help in financing business operations. The advice that is provided by the AIC advisors has been helpful for Rajesh to regularly update his knowledge and the opportunities for growing the agribusiness consultancy.

'Support of the Agribusiness Incubation Center in proving the initial contacts of the farmers and business opportunities, in guiding me with specific business skills, and in building my credibility with the farmers and farm communities cannot be measured in value terms. Every young entrepreneur needs such handholding for the successful establishment of his or her business.'

The consultancy service part of his agribusiness did not require any investment, to begin with. However, his association with the AIC helped him to spend some time with the farmers who would visit the incubation center. This helped him to identify the demand for his services and organize himself to meet such demand. The business activities that he is currently involved in are a result of careful studying of the business opportunities while based at the AIC. Agribusiness startups can benefit from the handholding support provided by the AIC until they establish credibility to operate on their own.

Regulatory and operational issues

The establishment of the Agribusiness consultancy by Rajesh benefited from the emerging approach to value chain development in the State of Tamil Nadu, which included contract farming and the formation of farmer-producer companies. The farmer-producer companies require additional support to identify the markets for their producers. They approach the AIC, which is mandated to start a specific number of FPOs in a year. This combination of the opportunities created by the AIC in their own FPOs has been a source of business opportunity for several independent agribusiness consultants, including Rajesh. The recent announcement of the Farmer producer Act of the Government of India of establishing 10,000 FPOs in the

next five years has increased, enabling the agribusiness environment for Rajesh and others who are venturing into agribusiness consultancies.

Challenges and opportunities faced by YE

The Agribusiness Incubation Center provided an opportunity to connect Rajesh with the farmers who needed business support for their enterprises as well as the newly created farmer-producer companies in the surrounding districts. This is a huge network that any agribusiness entrepreneur would like to get access to when he or she starts a business. While his agribusiness consultancy has had a good start, Rajesh faces several emerging issues in expanding and operating his business.

'There is a high level of competition among the input dealers who also provide the credit and advice on the input needs for the farmers. Farmers are not highly used to receive independent advice from the experts unless it comes free of cost – as in the public extension system. But this is slowly changing to the advantage of independent operators like me. This is a good sign of modernization of agriculture.'

Agribusiness consultancy depends on the service fee that the farmers are willing to pay for the advice and other services provided by the consultant. When farmers get their problems solved, there is no need for consultancy unless they face a new problem in the farming enterprises. Thus, the demand for agribusiness consultancy is not regular. This further requires Rajesh to have a large set of farmers to serve in his client database. Further, they are spread in a larger geographical area which will require additional travel from his home base.

As a young agribusiness entrepreneur, Rajesh's reputation depends on the quality of inputs that he can supply to his clients at a competitive price. As he does not have his own input dealership, he depends on the availability of fertilizers, seeds, and other agrochemicals in the district-level dealers in his area of operation. A major concern is the timely availability and quality of inputs which often remain unpredictable. The dependency on the input dealers for the supply of inputs to his clients puts him at a disadvantage and difficult situation to operate in this business area. Bulk purchases are not possible as he deals with one client at a time.

'In my attempt to get the benefits of the government scheme to the farmers, I do face competition with the existing public system. Although not highly reliable, farmers tend to trust government employees more than private operators. This means it is by doing good work and showing the benefits that independent agricultural advisors will be able to establish. This will take time. The local extension workers see us as the businesses working to exploit the farmers. This image has affected our profession and reduces the incentive to enter this business.'

Output markets and price fluctuations highly influence his output aggregating business. Farmers are not fully dependable as they sell their produce to whoever comes first to buy and when they are offered even slightly higher prices than the one that is agreed upon before the buying season. This happens even when the farmers are part of the farmer-producer organization.

Thus, the output aggregation business is also subjected to a high level of uncertainty.

Overall, Rajesh is doing well with the combination of business enterprises that keep him busy throughout the year and brings in regular income.

Entrepreneur 6: Ramesh, Polyhouse vegetable production and marketing, Chennai

Summary

Ramesh, aged 23, and his partner Anton, aged 26, established a polyhouse in 2018 on the outskirts of Chennai, a south Indian city. They supply fresh vegetables for salad making in modern restaurants and the kitchens of the high starred hotels. The business-to-business model they embarked on has worked well so far. There is a

'I did not want to work for someone 9-5 every day and earn limited income at the end of the day. I wanted to become a businessman and was exploring opportunities from the high school days.'

continuous demand for the vegetables produced by them. Although they have been successful so far, the establishment of this agribusiness did not come easy for Ramesh and his partner. They continue to face challenges in building and expanding their business. As the polyhouse they established requires highly skilled technical workers to run the operation, scheduling and programming the operation increased the cost of operation. Transportation and logistics have been difficult as the delivery of fresh vegetables requires continuous cold storage. The COVID pandemic has made it more difficult due to transportation restrictions. Skilled workers with multitasking experience for managing the polyhouse are difficult to find, and this increases the risk of production failures unless trustworthy production managers are employed. Finally, the learning-by-doing process they have undergone has been costly and made them financially vulnerable to expanding and scaling up their business.

The policy of the government of India in encouraging the development of youth entrepreneurship and, more specifically, the opportunities for youth to enter agribusiness with the new Indian laws have been helpful in attracting ambitious youth into agribusiness. In addition, the business environment is conducive to obtaining business loans and grants for specific enterprises that the Government of India has been supporting. Further, educational institutions such as the Indian Institute of Information Technology (IIIT) and the Agribusiness Incubation Centers provided the needed technical and business skills development. In addition, educated youth with basic business acumen can venture into agribusiness, guided by these supportive business environments. This has led to the success of the YE studied in this case study.

Background & motivation

Ramesh has been looking for opportunities to start his own business. During his second year in college, he joined hands with his partner to think about business opportunities. They heard about a government program that was helping the youth establish businesses in various emerging fields. They bumped into hydroponics as an opportunity. However, they did not have any experience in this field, and at the same time, there were no other businesses to use as an example to follow. In addition, there were no established markets for the outputs that would be produced in the hydroponics system of production, and they would be competing with the farmers producing fresh vegetables surrounding Chennai city. They need to identify the niche market and the niche products that will reduce their competition with local farmers and increase their comparative advantage. They observed a growing trend of young middle-income class consumers exposed to the Western world who demanded fresh vegetable salads in restaurants. At the same time, the restaurants were not able to meet this demand for a quality supply of vegetables. Buying these from regular farmers will expose the consumers to unsafe foods through the contamination of water-borne and soil-borne pathogens. Their products must be guaranteed free of any pathogens. The only way to produce such quality vegetables is through controlled production conditions. Hydroponics in poly houses could guarantee such quality and food safety.

'Working in the field as a sales representative gave me the advantage of knowing the market well in advance and the buying behavior of the farmers in my area.'

his second year of college, he was asked to write a business model for one of his courses, which triggered his interest in becoming an entrepreneur. His discussion with the seniors in college indicated that

'The support provided by my family in allowing me to start the business is key for my success. Not every young entrepreneur gets such support from the family. The average middle-income families want their children to become professionals and earn regular income as starting a business could be risky.'

someone else. This freedom allowed Ramesh to explore business opportunities with the help of his friends, who were exposed to a business venture. At this time, he met one of his seniors, with whom he later joined hands to develop the poly house business. This case study shows that a combination of policy, institutional, and technological support, along with individual motivation, can promote youth entrepreneurship.

Business operations

Ramesh approached a professor of technology at the Indian Institute of Information Technology to understand the technology involved in the development of the poly house to produce vegetables under controlled conditions. Indian Institute of Technology, Chennai, has an incubation center of technology which is a NIDHI-PRAYAS center for business incubation under the Government of India scheme.

The National Initiative for Developing and Harnessing Innovations (NIDHI) program of the government of India's Science and Technology Department helps nurture knowledge-based and idea-based technology and business development. It is an innovation-driven entrepreneurial system for wealth and job creation. It nurtures startup companies by helping them to identify business opportunities and to scale them up by working with technological and financial institutions. It brings together venture capitalists and the private sector to create a business and entrepreneurial environment. PRAYAS is a competitive program that specific centers identified by the NIDHI on a competitive basis in which institutions and young

'We must create demand for our products and distinguish them from the current market. Without such distinction, our business cannot be profitable.'

Ramesh grew up in a small town called Tiruvannamalai in the north-central region of Tamil Nadu State. His parents belong to a low- middle-income group of households, as his father worked as a schoolteacher in a government school. After finishing high school, Ramesh moved to Chennai to start his college studies in business management. During

'My background as agricultural graduate and my farming background helped me to establish my trust and credibility with the farmers.'

some of his seniors have actively moved on to become independent business owners. His parents were supportive of his ideas, although such an entrepreneurial approach is rare among students from low-middle-income households, which are normally risk-averse. Ramesh's parents were not dependent on the job-based income that Ramesh would earn if he were to go for employment working for

someone else. This freedom allowed Ramesh to explore business opportunities with the help of his friends, who were exposed to a business venture. At this time, he met one of his seniors, with whom he later joined hands to develop the poly house business. This case study shows that a combination of policy, institutional, and technological support, along with individual motivation, can promote youth entrepreneurship.

entrepreneurs could compete for start-up funds. IIIT, which is a Nidhi-Prayas center, helped Ramesh further to associate with it to learn the broad aspects of technology and the investments needed for the establishment of the poly houses. However, as the business involves agricultural produce, the demand for the outputs of the poly house must come from specialized customers such as restaurants and hotels.

The creation of demand and establishment of a market for hydroponically produced vegetables

To learn business skills and establish a business, Ramesh was asked to visit the Madurai-based Agribusiness Incubation Center.

Ramesh and his partner supply fresh green vegetables used for making salads in high-end restaurants that serve western foods. These restaurants cater to the demand of the tourists and those who are exposed

'In our business we needed support both on the technological side and from the business angle. The support provided by IIIT and the Agribusiness incubation center could not be overvalued for young entrepreneurs like us. We don't know how we would have managed without such support.'

to western eating styles. They serve young clients who are increasingly eating out, particularly those working in the IT industry with above-average incomes. Ramesh's business operation entails the production and supply of fresh vegetables produced in a safe environment. Production of fresh green

vegetables using hydroponics techniques ensures safe food for those eating fresh vegetables uncooked. Ramesh and his partner invested in a polyhouse outside Chennai city and supply fresh vegetables on a scheduled approach to the restaurants with which they have prearranged contracts. The establishment of the polyhouse that uses hydroponics meant additional investment in the internet of things (IOT) that allow them to control the weather and the production process through the supply of nutrients and water in appropriate measures.

The hydroponics approach to vegetable farming does not require soil, and the nutrients are mixed with water. Plants intake nutrients through roots that are submerged in nutrient-mixed water. This technology helps to reduce land requirements by more than 95 percent. The wastage of water is reduced by 95 percent, and the system uses less energy and resources than conventional production systems. The automation system that they have developed has given them the opportunity to become pioneers in the business environment. They have registered and have a license for their operation, which also requires the hiring of auditors to keep track of the business revenues, costs, and tax payments at the end of the year. They have kept a university professor who specializes in hydroponics as their technical and business advisor. They also have hired skilled workers who manage and run their production operations.

Once the hydroponics farm was established and put in operation, the production process involved regular investment in the inputs and labor. Their operational area is about 5000 Square feet in enclosed space. The vegetable production in the first six months of 2019 required about US\$13000 as the total cost per month of investment to get back a net return of US\$ 660, and the partners each can earn about \$330 per month. This income is like that of a young fresh graduate who would be working for an information technology company. However, Ramesh and his partners are confident that their business could be expanded as they are investing their time to expand their client base for their products.

Ramesh and his partner spend most of their time on the business development part of the business, leaving the technical support to the professor, who helps as a consultant. The business development involves contacting potential restaurants and establishing them as regular buyers of their outputs. A major portion of their production process is allocated to microgreen types of vegetables, including butter lettuce which has high demand among the restaurants that they are working with. In addition to micro greens and fresh vegetables, Ramesh and his partner also produce medicinal herbs in controlled environments. There is increased demand for medicinal herbs among high-income urban households.

Technical and research support

The technical and research support for the project was given by the Indian Institute of Information technology through their MadeIT incubation center. Their technology nurturing and provision of technical expertise helped Ramesh and his partner to start their hydroponics business. The technical support is such that the hydroponics farms could be developed in peri-urban environments where land availability is

limited. As they are closer to the urban markets, the produce could be delivered the same day with limited need for refrigeration and long-distance transport. MadeIT Incubation Center is supported by the Government of India's Nidhi-Prayas program, which supports entrepreneurs with funding once their idea is accepted by the Incubation center. Associating with MadeIT helped Ramesh to obtain seed funding of about \$15000 to invest in the hydroponics farm. The farm was built with the support of IIIT, whose professor guided the project as a consultant. The Entrepreneur Development Cell of the IIIT and their support are key to Ramesh's success so far in the business. This technology support helps young entrepreneurs who have a passion for agriculture to venture into their own businesses. Ramesh's agribusiness is a classic example that has a high level of technological and institutional support because of a policy environment that enables youth entrepreneurship.

Institutional support

While technology and financial support were obtained through the Nidhi PRAYAS program of the Government of India, Ramesh had very little experience in business operations and in the development of the market for his produce. He was advised to become a business start-up with the Agricultural Incubation Center, which provided him the institutional support for developing the business part of the enterprise. Associating with the Madurai Agribusiness Incubation Center helped Ramesh to develop a business plan for his business and develop business skills related to contacting potential consumers and maintaining them. Showing his association with an institutional setting that is providing business support, he helped sign-up clients in Chennai city.

'We are currently exploring to expand our market into other niche areas such as the medicinal plants. As the business becomes known to youth we expect more will enter this business. We need to keep innovating in our business otherwise we will become obsolete.'

Regulatory and operational issues

'The regulatory system and the certification system is still developing for the hydroponics. This is an area that will help to distinguish our product from the regular organic producers of vegetables who are also entering the market and seeking certification.'

Two sets of regulatory issues are faced by the YEs. First, they must overcome the bureaucracy that issues licenses for them to operate as an official business. Official licenses help the YEs get loans from commercial sources to keep the business running. The second regulatory challenge is the

'Our expertise will be useful for other young entrepreneurs in the area. We are willing to help them to set up their operations with the partners we have for a small consultancy fee.'

maintenance of the quality of the produce, which could be assessed by the food safety inspectors for their claims

that they are grown without pesticides and other agrochemicals. Both these regulatory issues were overcome by Ramesh and his partner due to their association with the IIIT Incubation Center. As their business was part of the NIDHI-Prayas program, getting the license for the business was easier. Further, the confidence of the food safety authorities in their business operation is high as they are technically backed up by a reputed technology university recognized by the Government of India.

Challenges and opportunities faced by YE

The establishment of the first hydroponics agribusiness was relatively easy for Ramesh and his partner. The ideas they had matched with the IIIT's interests to apply to the national entrepreneurial development program. YEs were able to present their idea to the national innovation program such as Nidhi-Prayas. The program provided the start-up capital for establishing their business. However, such an opportunity may not exist for all the YEs interested in starting a new hydroponics operation.

Even with experience in establishing and running their first operation. Starting the second unit will require capital that they will have to borrow at high-level commercial interest rates. Commercial banks must be convinced that this operation is profitable, and the repayment of loans is possible from the income earned through their business. This is still a challenge, as the idea of producing clean, chemical-free vegetables is new to restaurants that have not seen the increased benefit of using these vegetables in their salads. This is partly due to the low demand for organic vegetables among the consumers who eat outside. Further, there is limited awareness of the benefits of eating chemical-free vegetables in salad bars.

The polyhouse that Ramesh and his partner established runs under controlled weather conditions. The hydroponics method of producing vegetables and microgreens requires automation and involves the internet of things to manage the production system. Yet, neither Ramesh nor his partner has experience in managing the information and communication technology needed for operating the poly house. They depend on hired ICT graduates to manage their poly houses. The demand for IT graduates who can operate the poly house and the hydroponics production system is high, and the YEs must compete with the IT industry of Chennai to hire a technology/production manager. Due to the demanding nature of work that requires the presence of the production manager to be on 24-hour calls, there has been a high turnover of staff. More trained human resources in the future may help to address this challenge.

As the awareness of the opportunities to supply chemical-free vegetables to restaurants increases, there will be new entrants in the hydroponics market, which will bring the prices of the vegetables supplied further down. To be in the business, YE should be expanding and creating niche markets for their produce. Further maintaining the markets already established is key for the long-term survival of the hydroponics businesses. YE is exploring entering contractual arrangements with institutional consumers such as school and college hostels and for the regular supply of vegetables from his production unit.

A key opportunity for the young entrepreneur is to develop a franchise system of providing technical and market support to other young entrepreneurs who start their own hydroponics operations. However, expanding such opportunities will require a strong legal framework and compliance by the new entrepreneurs to sell the products under contracts. Enforcement of such contracts has been a chronic problem in the agricultural sector, as the producers often do not respect the marketing contracts. Although there is a dispute resolution mechanism under the FPOs, such mechanisms may not apply to business-to-business contracts that are involved in hydroponics-related agribusiness development.

Entrepreneur 7: Yuga Kannan, Rice nursery operator, Thirukalukundram, Tamil Nadu

Summary

Yuga Kannan is a small-scale farmer with 4.5 acres of wetlands in the Kancheepuram district of Tamil Nadu. His small farm lies on the main road that connects his village Neerapakkam and the nearby town Thirukalukundram. Kannan started his farm services operation to supplement his income from rice cultivation. He was looking for an agriculture business opportunity that would not take him away from his village and his farm operations. He became a franchisee of VGRO, a farm service company started by a Singapore-based entrepreneur. In this business model, VGRO provides technical support to small-scale farmers who would like to provide farm services to other farmers in their area for a fee. Vgrow delivers the know-how and provides the needed supplies to grow the rice nurseries that will be transplanted using a mechanical transplanter, which the franchisee farmers invest in and operate.

In summary, Kannan's business operation is spread across about a 20 square kilometer radius of his village. He develops the rice nursery continuously on approximately one acre of his farm and mechanically transplants them at the rice farmers' requests in his area. The business

'I did not want to work for someone 9-5 every day and earn limited income at the end of the day. I wanted to become a businessman and was exploring opportunities from the high school days'

'The support provided by my family in allowing me to start the business is key for my success. Not every young entrepreneur gets such support from the family. The average middle-income families want their children to become professionals and earn regular income as starting a business could be risky'

produces a net profit of about Rs 40,000 per month, and he is busy with his company for about nine months a year. In monetary terms, this income is equivalent to a teacher's pay in a local public elementary school.

Background and motivation

Kannan established the nursery and farm services business to help paddy growers in his region about three years ago. Driven by the labor shortage during the peak rice transplanting period, farmers in the area were looking for alternatives to manual transplanting methods. While several mechanical transplanters were in operation through the services provided by several farm services companies, they had their own challenges. First, the high cost of engaging them gave no monetary benefit to the rice farmers over the manual transplanting regime. Organized companies that were providing rice transplanting services were expensive. They charged a fee that did not give any real cost reduction to the farmers compared to the traditional methods.

'We have to create demand for our produces and distinguish them from the current market. Without such distinction our business cannot be profitable'

Second, the rice varieties that they recommended did not suit the demand for rice varieties in the market. The technology they used to develop rice nurseries was only suited for a few high-yielding varieties. Yet, farmers wanted diversity in rice production, and several farmers in the region produced high-quality traditional varieties that were not technically feasible to be brought under mechanical transplanting. The transplanters they used were not modified to meet the physiological characteristics of the traditional varieties. Third, the damage caused by the mechanical transplanting method to the growth of the crop worked against the yield increases the farmers were expecting from the uniform transplanting process. Yields did not improve, but in some cases, farmers were experiencing some losses in net profit. As a result, several organized companies failed to meet the emerging demand of the farmers and went out of business. Thus, there was a vacuum regarding the cost advantage and the preferences for the range of rice varieties that farmers intended to grow.

Kannan was also a farmer who suffered from this condition and was planning to move away from rice to other horticultural crops. He began to grow roses to supply nearby flower markets. But this turned out to be a highly labor-intensive operation as well.

Under these conditions, a Singapore- based entrepreneur developed a technology that will not only reduce the loss of yield through damages from mechanical transplanting but also a method of developing and transporting rice seedlings that is flexible to include any varieties that farmers would like to grow. This method involves growing rice nurseries in 2 X 1 ft plastic trays that could be rolled into small mats and transported in small quantities to meet the requirements of the smallholder farmers in the area.

Kannan operates his business with the help of a few farm laborers but spends his own time and energy to produce the nurseries as it involves careful execution of the nursery technology. He has a high school education and has experience in handling paddy grain trading on a small scale.

Rice crop is produced throughout the year in this agroecological zone, as the groundwater is available in the wells throughout the year. During good rains, the water is available in the open wells between 25- 40 feet deep throughout the year. This enables the region's farmers to produce multiple rice crops on the same land. This, in turn, has increased the demand for quality seedlings. An added factor favorable to the nursery business is labor scarcity for transplanting rice. As Thirukalukundram town is within 10 kilometers and the Chengalpattu town is within 25 kilometers with good roads to connect them to this area, the rural workers travel to the nearby towns for work in construction and high-paying jobs that keep them away from the hard agricultural labor. This further has increased the cost of agricultural labor in the region. Collectively these factors have pushed rice farmers to move away from raising their own nurseries to leaving the operation of transplanting rice to specialized operators like Kannan. There are several youth entrepreneurs in this area who are operating in the rice transplanting business.

Technology and innovation for the business

Kannan's success in his business operation revolves around the innovative technology of nursery development that establishes the crop in the farmers' field with a vigor that results in increased productivity. The technology was developed by the company he is associated with for technical and material support. The materials for the preparation of the field nursery are assured by the company. The skills development of production and delivery of seedlings at the farmers' fields are also given by the company. Thus, in his business, Kannan depends on the company to provide a regular supply of raw materials. The specific seeds that he wants to use for the development of the nursery will depend on the demand for the variety among the client farmers and the demand for rice from the final consumers. Yet, this technological backstopping provides an assurance to Kannan that there is an ecosystem that supports him. Even though it costs him to access technology and material inputs for producing a nursery, it is worth the cost for the quality of seedlings he can provide his client farmers.

The seedling delivery through the transplanter that he operates becomes another part of the technology that has replaced labor in his business area. Due to the locally made transplanter that was designed and sold in the nearby town, repairing and maintenance of the machine became easier. Thus, from the technological perspective, Kannan is adequately covered. As more innovations are made in the nursery development and delivery process, the business system that he operates is adequately developed to absorb it and adopt it for the benefit of the local farmers.

Policy environment

Kannan's rice nursery and farm services business is possible throughout the year, mainly due to the minimum support price farmers get for their rice crops. The market price of rice is known in advance, and the government announces the minimum support price ahead of the growing season. This puts rice cultivation among the farmers in the region in an advantageous position compared to the growers of other cash crops. This policy of assured rice price, while debated for a long time in the context of increasing the efficiency of the farming systems, continues to favor rice farmers. In turn, this policy helps to run Kannan's nursery business throughout the year. In support of developing small businesses, the policy of the Government of India encourages small-scale agribusiness through organized financing. This support came in handy as Kannan was looking for finances to buy his mechanical transplanter.

Local business ecosystem

Supported technically by the new tray system of the Singapore-based company VGROW, Kannan's business gains an advantage over other nursery operators. In addition, as the number of nursery operators is increasing in the area, so is the number of industrial services that help to produce new configurations of transplanting machines. This has created a local business ecosystem of a new set of mechanical engineering companies that fabricate and tailor-make mechanical transplanters and harvesters. The competition among the agro-engineers, in turn, has brought the cost of the mechanical transplanters down. This has led to the success of the YE studied in this case study.

Business operations

When Kannan found out about the franchising system that VGROW was promoting, their confidence in Kannan as a user of the technology and as the provider of services to farmers through the technology was already high. The technology was easy to adopt, and it was within his ability to operate. Further, the transplanter was small, and he was able to take the transplanter using his trailer that was pulled by his power tiller. Thus, he can provide both land preparation and transplanting services in one go. The technology of nursery preparation involves a medium that ensures the uniform growth of the rice seedlings. With this technology, Kannan can wade off his competition. He is in high demand in his area, and the business keeps him completely busy throughout the year. In the first season, Kannan did require a bit of handholding which VGROW provided. An added advantage Kannan has against his competitors is the location of his farm. His farm is located on the main road. He transplants his rice using the mechanical transplanter on his own farm, which serves as a demonstration field to exhibit this technology to the farmers of his area.

Challenges and opportunities faced by YE

When Kannan entered the rice transplanting business two years ago, there were already several operators providing such services to farmers. These providers were corporate services and other large businesses which contracted farmers for the seedling to harvest support. However, such businesses began to struggle due to high labor costs and the availability of labor to provide such services. In the meantime, farmers realized working with these service providers was uneconomical over time as the price for rice in the output market was not remunerative. There was some element of distrust between the companies and the farmers as there was no personal communication in the business contracts that they went into with large corporate firms. This provided the right timing for the YE to enter the business. While the scale of his operation is small and the area of coverage is limited, Kannan can still provide the personal connection the farmers were looking for. Given this need for personal connection, the expansion of the business for Kannan will be limited. He cannot operate more than one transplanting machine due to the demand on his time. Thus, the expansion of his business to cover more farmers is a challenge.

Entrepreneur 8: Raja – Neem Oil Exporter, Pudukkottai District, Tamil Nadu

Summary

Raja is a young entrepreneur who has successfully exported organic neem oil to the United States. He has developed his business over the years through trial and error but with the constant support of an export

'Having experience in the local market development for neem seed oil, helped me to explore the overseas markets. I received full support from my family and friends, who encouraged and provided finances to initiate the export-oriented business.'

business consultant. He is 31 years old. Starting with neem oil as his primary commodity, he has now moved on to supply organic coconut oil to US importers. The case of Raja is helpful for young entrepreneurs keen

to expand their agribusiness to international markets. Raja remains a small-scale business exporter partly due to the food safety regulations that put stringent requirements on organic products and the high level of bureaucratic hurdles that he must pass through with each consignment he exports. The lesson from this case study reveals both the possibilities for similar export businesses, even at a small scale, and the need for institutional and regulatory interventions. It also shows the need for institutional and regulatory innovations that will speed up the growth of agribusiness exports from India. Finally, COVID-19 impacted his business due to the lockdown and the shortage of containers for the shipping industry, which slowed down his business. Still, his business has been slowly reviving since the beginning of 2022.

Motivation for business

About ten years ago, Raja started to explore the opportunity to aggregate needed seeds that are practically available for free as they can be gathered from the forest floors by the villagers who live around forest fringes. He lives in the Pudukkottai District, where the supply of neem seeds is plenty, partly due to the nature of the weather and the existence of the public forests with a high concentration of neem trees. The district is a dry district with rainfall of less than 500 milliliters per year. Opportunities related to crop production are limited. The district is backward, and the government provides tax benefits to start and run rural industries in the district.

The motivation for the neem oil export came from extending his experience in domestic neem oil trading to an international level. While the local aggregation and crushing of neem kernels fetched reasonable prices for the operators, there was an emerging market for organic neem oil in the overseas market. However, it required better organization and a high level of product regulation. Once these additional requirements were met and the hurdles of export certification were overcome, the export business became a viable model.

Neem oil became Raja's choice commodity for export trade for several reasons. First, a product choice is

'There is a lot to learn from the procedures to export agricultural commodities from India. Strict rules and regulations on product quality and logistics management were initial challenges. But the support of a local logistics company and their training helped me to send my first consignment out to USA.'

critical for any success in agribusiness, let alone in a business dealing with overseas demand. Second, neem seed aggregation happens mostly after summer and in July, August, and September. The rural labor demand during these months does not compete with the other crop production in dry regions such as the Pudukkottai district. Third, aggregating the seeds and regular supply of the raw material for the local

market is already a business that Raja was familiar with. This was key to gaining the confidence of the importers and becoming a reliable partner. Fourth, the initial investment in product aggregation is relatively low. Finally, the neem trees are grown in the wild, and the raw material for the business was already available naturally.

The new dimension in this business model was the extra effort needed to meet the high-quality demand for foreign markets, which could be highly rewarding. Further, the regular local traders were unwilling to take on the export market activity due to this additional consideration. Due to the extra work involved, the traditional local traders were reluctant to take on the export market activity. This gap was indeed an opportunity for the young entrepreneur to enter the business with little or no competition. However, the corporate sector was also trying to get into the business of organic neem oil export. Yet, their capacity to mobilize laborers at the local level was limited due to their unfamiliarity with the local labor market for neem seed collection and aggregation.

Oil crushing and exporting business operation

Raja's business involves the following steps. Collection and aggregation of neem seeds from the rural and forest fringes is the first step in the business operation. Then the seeds are hand processed to remove the shells, and the kernels are crushed to produce neem oil. The neem oil is then packaged in barrels and exported through containers to the importers overseas.

Neem seed collection and aggregation: The neem seeds available in the wild and on the roadsides are collected by employed trained laborers who can supply quality seeds to the business operation. The collection of seeds begins in May and continues up to September every year. These seeds are brought to a collection point before they can be crushed for oil.

Training for the collectors and gatherers: A significant investment that Raja had to make in the beginning involved hiring quality labor that collects and segregates the neem seeds for processing. Given the high-quality standards required for the export of organic neem oil, investing in the right human resources becomes critical. However, such skill-building activities continue due to high labor mobility in this business. New laborers join the activity, and they must be constantly trained. The training activities have become more routine now and are handled by senior workers, which allows Raja to spend more time on the business development aspects of his entrepreneurship.

Cleaning and Segregation: The seeds are separated for their sizes and quality at the aggregation level, and the quality differentiation also helps to avoid bad quality or rancid seeds getting in the lot that goes to crushing. The segregated high-quality seeds are sent to a crushing and processing facility located in Thiruchengodu, about 200 km from the collection point.

Crushing and packaging for export: Raja has leased an indigenous crushing facility in Thiruchengodu, a

'Understanding the local labor market is key for the success of this business. Quality of labor is important in the collection and processing of the needed seeds before they are crushed for oil. In addition, maintenance of the quality of crushed oil is also a challenge as they must be stored in proper containers to avoid contamination.'

well-established cluster for oil crushing operations in the state. In this small rural town, many oil-crushing operations established and operated traditionally over centuries continue to produce various types of oil from different oilseeds, including sesame, groundnut, castor, neem, and other oilseeds. Raja maintains the crusher to meet the organic certification standards for exporting neem seed oil.

The facility can crush up to 40 tons of oil annually when operated daily.

Business expansion to other oil crops: Recently, there has been a growing demand for organic coconut oil from the US. Raja has developed a contract with Deepthi Foods of the US to supply organic coconut oil. This business also requires a high level of organic certification. Raja used his experience in the neem oil export business to export organic coconut oil. This operation is only two years old, and he is confident that increased opportunities in this area can balance the uncertainty he faces in the neem oil export operations. Raja has started to export 200-liter barrels of organic coconut oils to Deepthi foods in the US. He finds the coconut oil business much more manageable as raw materials are readily available, and there is a wide range of suppliers for coconut kernels. The demand for organic coconut oil is also predictable.

Knowledge gathering and support

Raja attended a seminar on exporting agricultural commodities ten years ago. The seminar taught him various aspects of exporting commodities from India. It also covered issues related to identifying

importers overseas. He focused on exporting neem seed oil as its demand has increased in the pharmaceutical and nutraceutical industries. Neem-based health products have already been popular in the Indian market for several decades. Toilet soaps and shampoos have been popular among the population familiar with neem's benefits. Thus, the internal market for the collection, crushing, and distribution of neem oil has been established for a long time. The challenge for Raja in entering the international market is to process the neem oil to meet the international food safety standards, which also requires modifying the local processing to conform with the export quality standards specified for the neem oil.

Supportive business environment

Any export operation must deal with several bureaucratic and logistical hurdles. Raja took the help of a business consultant and works with him regularly to meet the changing requirements. Getting the license to operate an exporting business requires approval from the local authorities. The export business consultant helped guide the process of establishing the export business. Also, exporting a commodity requires paperwork at the port, and the customs procedures must be learned. For example, Raja gets 32 certificates before a consignment can be sent out of the harbor. The business consultant offers training courses for young entrepreneurs entering export business operations. These courses have helped Raja navigate through various paperwork required for the export business.

The second source of business support for Raja comes from the Agricultural Product Export Development Agency (APEDA), which is an agency that supports and guides entrepreneurs who export agricultural commodities. APEDA has successfully provided information about the export markets, quality requirements, and technical support through peer learning. Raja received support through APEDA for his neem oil export operations. APEDA guidelines benefited entrepreneurs like Raja, who can navigate the business licensing process in establishing the quality of the exported products. Further, APEDA's support in recognizing Raja's export-oriented business helps Raja to build recognition and credibility to reach out to potential buyers. Thus, the small-scale exporters of agricultural commodities have suitable supporting mechanisms in APEDA. Yet, Raja feels several improvements could be made. They are, first, reducing the number of entities involved in the approval process before products can be exported. Currently, Raja obtains certificates from 27 entities for a single consignment. Second, the time these agencies take to issue certificates delays exported commodities reaching buyers. Third, the licensing fees could be reduced through incentives as they add additional costs at every stage of getting the certificates. Finally, agricultural commodities could be exported with special product status so that the certified organic products have some level of tax relief from the authorities.

Quality control and meeting food safety regulations

The production of neem trees in India can be considered organic as they grow naturally, and farmers grow them on their farms for their high religious significance in Hindu festivals. The neem leaves have medicinal properties and have been used in Ayurvedic and Siddha medicines (indigenous Indian health care system). The leaves are increasingly used as organic pesticides and in Zero Budget Farming (ZBF), a system of regenerative farming that the Government of India supports.

'APEDA has useful support system for helping young entrepreneurs who intends to work on the export market. However, the level of certification required could be daunting. It will a great help if the certification process is streamlined and made less cumbersome.'

The importers place heavy restrictions through non-tariff barriers. Yet their own use of the product involves less quality. Neem seeds are collected from the forest as the trees are leased out to interested

parties by the forest department. There are also neem trees in the village commons and on the side of the public roads, which are not under any control if the seeds are collected only after the fruits have fallen on the ground. None of the neem trees are certified organic for their cultivation process. This is because neem trees are not cultivated for seeds but grown mostly for shade. Thus, all the seeds collected from the forest fringes and the sides of the roads are considered organic but could not be certified officially as such. The Neem oil trade is fraught with fraudulent practices as there is the possibility of adulteration by mixing

'Maintaining quality control for the export market remains a challenge. There are unscrupulous traders who supply low-quality neem oil for cheaper prices. Competing with them remains a major challenge, as they tend to get away with the lower quality oil they are supplying.'

other cheaper oils, such as castor oil which is difficult to detect once shipped. As a result, the level of certification and the restrictions from the importers have increased over the years. Importers rely on trustworthy exporters. Raja has remained a trustworthy supplier, maintaining high-quality standards to avoid rejections. Rejections of the

consignment can cost a lot and bankrupt his small-scale operation. In addition, maintaining quality is also key to getting through the certification process at the state and the APEDA level.

Financing the export operations

Given that Raja is young, his export-oriented business faces several uncertainties; Raja found getting commercial loans from formal banking institutions challenging. His business was not seen as viable by the bankers as there were high-level variations in export demand for the neem oil. There was also high quality and standards to be maintained, which was difficult for the bankers to verify as there was no precedence for financing such operations. As there is always a possibility of nonpayment by the overseas buyer due to the consignment rejection from non-tariff barriers, the neem export business was considered a risky operation for the formal banking sector. However, Raja could mobilize the initial capital required for his business through his own social networks and convinced friends and relatives to invest in his business. This required a high level of trust building, as Raja was in his early 20s when he started the business. As the business picked up in the first five years, he could repay most of the money he borrowed from friends and relatives. Currently, he operates the business with his own funds, albeit at a small-scale level. He has no intention of expanding the business as it will require large investment upfront.

Business costs and benefits of organic neem oil exports

The costs and benefits of the neem oil export business can be summarized as follows. The neem seeds are purchased from aggregators who operate independently. A kilo (kg) of neem seed was Rs 32 in 2012 but now costs Rs 180 per Kg, mainly due to wage increases and the non-availability of labor to collect and clean the seeds. The processed neem seed oil from his importers fetched Rs 300 per kg in 2012. The profit margin after the cost of processing per kg of oil was about Rs 200 in 2012. The net profit for a ton of neem oil exported is Rs 20,000. At this level, Raja will have to export two tons of neem seed oil every month to reach an income level of an entry-level engineering job in the Indian market conditions.

Since 2012, the price offered by the importers for his final product has not increased, but the cost of raw materials for his business has increased sixfold. This has brought the profitability of the neem oil business close to the unviable situation. Raja earns about 60 Rs per Kg as net profit now, which is close to the local neem oil market. Thus, Raja finds his advantage in entering the export market has been wiped out over the years due to the high cost of the oil seeds. However, he maintains the business and runs his operation. Stopping the business completely will mean that when the prices pick up again in the import markets, the business operations must be initiated again, which will involve high initial costs.

In addition to the costs of raw seeds, the labor cost in processing and packing has increased. The wage rate for the labor of 8 hours went from Rs 300 in 2012 to Rs 500 in 2022. Further, due to the COVID lockdowns, laborers were unavailable in the last two years. However, the situation has improved after the opening of the economy and after COVID -19 lockdowns were lifted.

The third highest cost in this business is the cost of insurance and freight (the cost of a container that can hold 16 tons of the product in one go). Raja's business involves much smaller quantities of 2-5 tons. Thus, Raja must share the containers with other exporters. The export training agency has helped him develop strategies for handling smaller quantities. However, the cost can go high if there is space left in the container. The shipping cost of a container of freight was Rs 150,000 in 2012.

'While we have a conducive export-oriented policy that supports the agriculture sector, quality control remains a challenge. However, there are several intermediary companies that help with the logistics procedures and the shipping operations. Once we have identified initial buyers abroad and maintained a good relationship with them, the business could continue smoothly. However, COVID-19-type shocks could be devastating for the export business, as we saw the problem of container shortage for supplying the products.'

This was the cost until 2018. In 2021, with the shipping container global shortage, the cost of hiring one container went up to Rs 600,000, sometimes reaching the level of Rs 900,000. This cost escalation severely affected the business operations and further reduced profit to zero in some of his export operations. This challenge has come down as the containers are now available as the global shipping business resumes normality. The freight cost is still high to make neem oil export a profitable business close to what it was when Raja started the company.

Constraints and challenges

The supply of neem seeds depends on the productivity of the trees, which in turn depends on the rainfall. Although a neem tree grows with minimal water requirement, the supply of fruits and the quality of kernels depend on the monsoon rains. Due to erratic rainfall in recent years, the volume of neem seeds available for aggregation has become low. Further, the oil content of the neem seeds supplied becomes less during the drought years. While climate change-related weather patterns can further affect the quality and quantity of neem seed availability for Raja's operation, he is not alone in facing such nature-induced constraints.

Labor supply is a critical issue in neem seed aggregation. Due to well-established social safety net programs, including the Mahatma Gandhi Rural Employment Guarantee Act Program (MNREGA), laborers are attracted to such programs that guarantee 100 days of work within their villages. Neem collection requires women to go beyond their villages. In addition, with the public distribution system providing subsidized food grains, workers can work for a smaller number of days to meet their food needs. For these reasons, the labor availability for neem seed collection has decreased. In addition, the COVID-19 lockdown and the movement of laborers have posed additional challenges in the last two years to maintain the supply of neem seeds for crushing operations. At times, Raja has not been able to meet the export demand in time.

In summary, Raja has been successful in switching from the local neem seed oil trade to the export market. A combination of policy and program support and the institutional arrangements for guiding small-scale exporters have been helpful in enabling Raja's business. Yet, his expansion in this business is constrained by access to finance and the continued uncertainty in demand for organic neem oil in the overseas markets.

Entrepreneur 9: Archana Stalin, Vegetable aggregator and organic food delivery operator, Tamil Nadu

Summary

Archana is a 34-year-old business owner who supplies organic foods to 1600 consumers twice a week at their doorsteps. Operating in 5 districts of Tamil Nadu state to procure food items directly from organic farmers, she and her team deliver high-quality food items to urban consumers who are conscious of their health. Her clients include young urban consumers, pregnant women, young mothers, and their children.

'As young entrepreneurs, we cannot rely on the formal banking system to support our business venture. We mobilized our business finances through the money collected for our friends through personal loans and equity capital. Our commitment to the cause brought our financial supporters.'

Archana joined hands with seven other youths who graduated with her from college to initiate the vegetable aggregation business, which is in the process of expanding. This case study describes her motivation, initial experience and challenges, and the factors that helped her to become a successful young entrepreneur. The demand for the vegetables aggregated by her business is regular

and poised for growth in the next five years. But it will take hard work for the business team, as there is increasing competition from formal and corporate investors to reach organic vegetable consumers through the direct delivery model.

The growth of the business in the last four years has been encouraging. Yet, for Archana and her team, establishing the vegetable aggregation and delivery business model came through trial and error. As Archana comes from a non-agriculture background, the learning curve was steep. The business team is satisfied with the success but may face a challenge in their expansion as more investment will be needed to go from the current microenterprise status to a small business status. While the demand for organic vegetables and fruits could be created through personal advocacy, there is a major challenge to meet that demand through regular supply from the farmers. Although the needed ICT infrastructure has been established, the challenges that come from logistics and transportation of vegetables will be challenging

'Trust is the main capital for our business. We don't need organic certification once consumers trust us. We will never breach that trust.'

for further growth, as the business deals primarily with the fresh produce that is aggregated and delivered on the same day.

While the policy environment, in general, was conducive to starting this vegetable aggregation business, the business team faced challenges getting credit from financial institutions. The need for collateral to get formal bank loans was the major constraint for expanding the business

to the next level. Archana and her business team did receive mentorship through the Agribusiness Incubation Center on the Madurai campus of the Tamil Nadu Agricultural University. Archana's business success mainly comes from the trust she and her team developed with the customers over the years. Future development of the business and branding during the increasing competition will depend on the investment availability and expanding the network of farmers who can produce organic vegetables.

Background & motivation

Archana was a National Social Service (NSS) volunteer when she studied for her undergraduate degree, a requirement for college students in most Indian universities. Students spend their weekends helping the poor and the vulnerable part of the population. For the NSS program, Archana was assigned to work in the Thiruvallur district in a village that mainly grew jasmine flowers for commercial sales. Jasmine farming involves a high level of chemical use. Farmers also grew vegetables for commercial markets and used a high level of chemicals in the vegetable field. The repercussions of chemical use in agriculture and on the consumers who consumed vegetables worried Archana. She started thinking about reducing chemical use

in agriculture and providing safe food to society. She was attracted by the growing organic agriculture movement that took root in India for 30 years.

Moving away from chemical agriculture and exploring how urban consumers can produce their own vegetables in the backyard was a starting point for her business. When she finished her degree, she moved to Virudhunagar and grew vegetables on the terrace of her house. Within two years, she moved to Thiruvallur and leased two acres of land to start her own organic vegetable production farm for selling to health-conscious consumers. After two years as a commercial organic farmer, Archana gained experience in producing and selling organic vegetables. During this period, she also planned for a brand-oriented large-scale delivery system that could be run online. Health and consumer education would be the trust-building pillar of her business. In 2018, she started her online business delivering organic vegetables and fruits.

Archana grew up in a southern town in Tamil Nadu bordering Kerala state. Her parents moved to Chennai for work and settled in a suburb called Porur. Archana joined Anna Engineering University in Chennai to study geoinformatics for her undergraduate degree. During the second year of college, Archana, along with her friends, started a non-governmental organization called BUDS, which aimed at improving the knowledge of farms and farming among urban households. Her work through the NGO to help farmers is a precursor to forming the business model she is currently implementing. The primary motivation behind the business model is the idea that people should eat safe food, that food should be produced organically, and that urban consumers should be connected to the farm from which their food originates. A key motivating factor for the food safety orientation of the business comes from the organic agriculture movement promoted by pioneers such as the late Mr. Nammalvar, a local organic agriculture leader. His life mission was to reduce chemical use in Indian agriculture.

Business operations

In 2012, Archana leased two acres of land in a village near Tiruvallur. She lived on the farm for the first three years to produce organic vegetables and demonstrate to other local farmers that one can produce and successfully market organic vegetables for a reasonable price. About four years ago, she ventured into a full business operation as the number of farmers who followed her organic farming approach began to grow. She formed a cluster of farmers to supply organic vegetables to her business. Through this operation, she started the business with 18 customers as the first set of organic consumers. Still, she also used her farm as a demonstration farm for teaching organic farming techniques to other farmers in the cluster of villages surrounding her village. As her business began expanding, Archana moved her business online to involve more customers and farmers to supply the vegetables.

'Starting my own vegetable growing operation on the terrace and then running a farm for commercial vegetable production helped me to crystalize the business concept that became reality'

'My experience and background as a social service volunteer helped me to think about a business model in which both the consumers and the producer benefit'

From the first batch of 18 customers in 2018, in four years, the customer base has increased to 1600. They are served with organic vegetables and other groceries twice a week. Fruits and vegetables are directly taken from the farmers to a grading center and are packed according to the orders placed. These packages are delivered to their doorstep. The business now employs 42 staff members and deploys seven delivery trucks. Four staff members are engaged full-time in customer relations – taking orders online, guiding the

customers through the web pages, and answering any questions farmers and customers may have on the business modality. They also coordinate the delivery logistics guiding the truck drivers on maximizing the delivery in a short period. All the deliveries are made on the same day for the vegetables harvested in the morning. The business operates with 60-100 farmers daily, depending on the demand for various vegetables. Over the last four years, the business's product line has expanded beyond organic vegetables to fruits, free-range eggs, traditional rice varieties, legumes, cold-pressed oils, A2 clarified butter, and other groceries.

Archana's business is encouraged and supported by like-minded individuals who are worried about the chemical contamination of the food system and the foods they buy in the local markets. They were also looking for a seller who could be trusted and who is committed to a better environment and human health.

The business approach that Archana followed is innovative in many ways. She used her farm on leased

'Our experience with organic vegetable growing and selling to direct customers gave us the confidence to work with more farmers who can follow our way for vegetable production, and we could provide a regular outlet for their production.'

land to learn and show how to grow organic vegetables. This helped her to gain confidence in her technical skills that she could share with farmers and convert them to going organic. Organic farming techniques are routinely introduced to the cluster farmers by the

agronomists employed by the business. These agronomists are first trained at the Nammalvar Institute in the Karur district on organic farming techniques. They, in turn, train the contract farmers from whom the business buys vegetables. While this training activity introduces new techniques to the farmers in the business network, it also helps to increase the trust with the farmers and help them build commitment to organic farming as a lifestyle.

Both Archana and her husband are involved full-time in the business. While Archana looks after the customer base and the public relations of the business, her husband Stalin looks after the hardware part of the business, which involves managing the labor, operations involving the trucks, and the delivery system. He also works with the team in the packing and processing of aggregated products. The business development part of the enterprise involves educating both the farmers and the consumers on the benefit of going "organic." Archana herself handles the trust development aspect of the business. High-tech companies and business groups often invite her to give a talk about food safety, which forms the main channel for introducing her business to new customers. In addition, she can gain customers through word of mouth and the website established for the business. Expanding the business to a higher volume level depends on further investment in the business operations, such as opening more locations for grading and packaging of organic vegetables and further expanding their supply base by involving more farmers in various areas.

Technical and research support

Archana and her husband leased two acres of land in Thiruvallur District in a village where she did her social service during her college days. They started growing organic vegetables for their consumption and commercial sales. They joined the course offered by Nammalvar Institute on organic farming, where they learned the fundamentals of chemical-free agriculture. They were also introduced to alternative methods for pest control and post-harvest methods for grading and packaging. The technical and research support came from the community of farmers who have started growing organic crops in their area. These farmers were brought together as an informal group of adopters of organic farming technologies. In addition,

being an ICT-savvy graduate who studied geoinformatics for her undergraduate degree, she quickly developed an online business portal for connecting with her customers and the farmers.

Institutional Support

Archana gained further insights into the business aspects of organic farming through the incubation center at Madurai agriculture college, which provided information on how to convert organic farming operations into a business entity. The combination of technical support from the Nammalvar Institute and the Madurai agribusiness incubation center jointly prepared

'We are having good institutional relations with the training center and the incubation center in the state. The state government is favorable to new businesses that fill the needs of the farmers and the consumers who want to go organic. The zero-budget farming and the regenerative agriculture movements also help us in this process.'

Archana as a young entrepreneur to venture into the current business operation. Archana did not get any financial support from the formal banking system. The formal banking system required collateral to obtain a business loan. This was a setback in the beginning. However, Archana and her team raised the working capital by borrowing from her friends and family. This network of support is rare for rural youth in India. However, in Archana's case, as she comes from a middle-income background and is seen as a highly motivated individual among her friends, she raised the capacity needed to initiate her business. Formal institutional support would have speeded up her business expansion which is now slow for want of additional capital investment. However, Archana and her team are reinvesting their income.

Regarding developing business skills, Archana points out the support provided by the Agricultural Incubation Center, which provided her with the institutional backing for growing the business part of the enterprise. Working with them helped her to develop soft skills related to identifying the customer base and maintaining them as regular customers. The incubation center also served as a resource center for any advice Archana needed while developing her business.

Regulatory and Operational Issues

Archana's business faces several issues in maintaining food safety standards. First, to become genuinely certified as an organic vegetable delivery operation, the farmers who are members of the supply team need to be certified as organic farmers. Archana began the process of testing farmers' soil for chemical contents once in three months. However, this process soon became a burden. This was abandoned for practical and economic reasons. The cost involved in testing the soil and the products were high, and there was no guarantee that the results of the tests were accurate. Archana chose not to go through the formal organic certification process for her business, as this involves several stages, agencies, and costs, in addition to the price she pays to the farmers. Instead, she educates the farmers and gains their trust to maintain their farms as organic. The second challenge is to gain the consumers' trust without being able to show them any organic certification of the farms where their produce comes from. Again, Archana works with the consumers by developing their trust. She arranges the adoption of farms by the customers who can visit the farms anytime and check how their produces are grown by the farmers who own these

'We are not fully able to certify our products as the certification system is currently expensive and has challenges for quick turnaround. We should be strengthening the regulatory systems to get the brand's popularity and speeding up the process of certification.'

attributes her passion for supplying organic vegetables to pregnant mothers and children as the main factor for her success. Her concerns for food safety and reducing the ills coming from chemical agriculture drove her to become a

'I started to think about ecology and ecology and sustainability of farming when I did social service as part of the college degree requirement. We observed a high level of chemical use in the villages we served, and the food safety became a serious concern for me. Wanted to initiate a business that will connect farmers who produce organically to the consumers who are concerned about the food safety. So, our business now fills this niche'

through her own experience in farming, she gained experience in organic agriculture, and she was able to gain first-hand knowledge of organic farming practices. She also sent her coworkers to a formal course on organic agriculture. This helped her to have a solid working knowledge of growing and supplying organic vegetables to her customer base. Fourth, Archana successfully customized her business to meet the needs of a specific population segment concerned about the chemicals in their foods. Her appeal to pregnant mothers and their children to have safe food brought her committed customers, who helped her to expand her business mainly through word of mouth. Finally, she took full advantage of the ICT application in her industry through which she digitized her operations, making it simple to track customer needs, feedback, and other business operations.

Challenges and opportunities faced by YE

Archana's business was one of the first in the Chennai region that links farmers with urban consumers directly by identifying specific farms for the consumers to be associated with and facilitating consumers to be aware of the farm where their food comes from. Several challenges and opportunities have emerged in the last four years of her online business. One of the challenges is the cost of testing for the chemical content of the products delivered. The company is run on trust between the business entity and the farmers involved in the supply of the vegetables. Also, the consumers have confidence in the business that it will supply chemical-free foods to their doorstep. While the element of trust is essential for any business, even a minor breach of trust between the consumer and the company and between the farmers and the business will result in business collapse. This is mainly because the corporate businesses entering the market have rigorous chemical testing mechanisms. This business element makes it potentially unsustainable in the long run. Thus, expanding the business beyond the current level is a challenge.

Archana's business is now facing the challenge of expansion. Expansion requires more customers, and at the same time, it needs to hire more employees. Although the demand for organic vegetables is growing,

farms. The development of such a transparent process increased customer trust and eliminated the need for formal testing and certification.

Success factors

Five critical success factors helped Archana to succeed in her business. First, she

'We are beginning to face competition from the large corporate companies which are entering direct selling and delivery of organic vegetables. While they have a delivery system that could be much more efficient, we must compete with them on local trust. This also is a problem if we want to expand, as we operate on personal touch with our consumers.'

farmer first and then a business operator. She and her team of co-workers are highly committed to this cause. Second, her involvement in the business is total. She began her farming and business operations by completely freeing herself from other sources of income. This helped her to spend all her time on business development. Third,

developing a loyal customer base takes most of the YE's time. Further opportunities exist if the business could be expanded on a franchising basis. However, this will require more supervision of the franchisees and the branding of the products in a more rigorous way. Further, enforcing the contract with the franchisees will be a challenge, given the weak legal system in the country. Archana is exploring these possibilities while addressing the current challenges of keeping the business running and meeting the orders received every week.

In summary, the national youth policy has been largely favorable to Archana's business. Self-motivation, education, and commitment to a cause helped her to start a business venture. Institutional support from the agribusiness incubation center has been critical for translating her ideas into a concrete business model. Technical support through the farmer training centers, along with the IT background, helped to make the business digital. Support of family and friends has been crucial. Entry of corporations into the organic vegetable market will challenge her small business to move towards formal certification, which can increase the cost of her business operations, reducing competitiveness.

4. Key findings from case studies

Broader institutional and policy implications

As shown by the case studies presented in the above section, the Indian government has been investing in systematically developing youth and their effective role in the agriculture and agribusiness sectors as entrepreneurs. The establishment of agribusiness incubation centers in various parts of the country is an example that shows promise. Yet, given the high level of the youth population, these programs are not reaching the needed number of youths to effectively mainstream them as entrepreneurs in the agriculture sector. Further opportunities for them to move upwards from a micro-enterprise to a small and medium-scale enterprise remain limited.

Systematic translation of youth development strategies into investments and programmatic action is needed. Most interventions focus on training youth for employment rather than developing young entrepreneurs who can hire unemployed youth into their businesses. Established agribusinesses can hire only a limited number of young people. Absorbing them on a large scale into the job market requires greater investment in youth entrepreneurship. Current youth entrepreneurship development programs lack a systematic approach, operate in isolation, remain project-driven, involve few stakeholders, and fail to link up well all the various elements of a larger business ecosystem.

Emerging markets and the speed with which the food system is transforming in India provide a wide range of opportunities for Youth to engage in entrepreneurial activities. The opening up of the investments in the farmer producer organization is an example but still at an early stage of involving youth as service providers. Along with the development of digital agriculture, IoT and the digitalization of marketing systems provide opportunities for youth to work on various aspects of the value chains, from input supply, and product aggregation, to the rental of the tools and equipment that are driven by digital systems. Finally, as large-scale businesses specialize in specific commodities, youth can work with the businesses to provide local support for operating their value addition, processing, and other business opportunities. Insights from the case studies related to policy, institutional, regulatory, technological, and individual challenges and the related lessons learned are discussed below.

Policy and regulatory environment

Youth entrepreneurship is supported well in India through national policies and programs that facilitate youth development. National and state policies reflect the emphasis that the policymakers place on developing youth entrepreneurship in agriculture. National, state, and local governments support youth entrepreneurship development in agriculture through various programs. Agriculture and allied sectors such as livestock development, animal husbandry, fisheries, and other newly emerging value chains provide new opportunities for the youth to get engaged in entrepreneurial activities. Yet, the implementation of these programs at various levels is thwarted by the lack of skill level, access to finance, and the needed mentorship for the rural youth to sustain and grow the businesses.

The policy feedback mechanism is largely missing. What works and why needs to be continuously studied in different contexts, and the emerging ideas and learning from the youth entrepreneurship programs must be conveyed to the policymakers. Currently, no systematic support for such a feedback mechanism exists. However, some lessons could be learned from the business incubation center in agriculture, which is nationally supported. Their operations provide insights for their refinement and lessons learned, which can benefit from “Pause and Reflect” sessions with the local implementing partners.

Youth entrepreneurship programs require better governance at the state and local levels. Given the high demand for such activities, the existing institutional support for training rural youth remains limited and is not systematically developed. At the policy and strategy development level, there is a need for undertaking the mapping of the supply and demand for entrepreneurial skills that are context and locality-specific and developing such skills will be a priority of the public, private, and NGO sectors. The current training activities provided for the rural youth do not go beyond skill development to developing the entrepreneurial skills of the youth. However, selected programs and specific value chains have shown success that could be replicated in other value chains.

The range of entrepreneurial activities in agriculture varies widely from input supply, product aggregation, micro irrigation, training women farmers, providing consultancy services, and small-scale business that produces specialized vegetables for urban markets. These activities require various levels of skills and investments to initiate and run. They also face different types of business and technological challenges depending on the context in which they operate. Organizing the business support system differently for these categories of business will be essential to promote YE in agriculture and allied sectors.

Institutional and intermediary organizations support

Youth entrepreneurship programs have new opportunities due to emerging institutional mechanisms such as the emphasis placed by the government on developing farmer-producer organizations and value chain development through programs such as one-district, one-commodity, and the digitalization of agriculture. However, fully capturing such opportunities will require technological, institutional, financial, and capacity support for youth in rural areas. This is partly due to the missing institutional business ecosystem in rural areas.

Institutional architecture as organized by the government is not adequate for such expansion as this requires advanced planning and strategic thinking by the state, district, and panchayat-level business support entities. The public sector is not well suited for such strategic thinking and execution as there are no incentives or recognition for this work in the public sector.

The needed business ecosystem for the development of youth entrepreneurship does not go beyond the state level. Given the current policy environment, most of the programs related to youth entrepreneurship could be developed at the district level. Yet, the involvement of the stakeholders at the district level remains weak, including their interactions with the business ecosystem, such as business associations and chambers of commerce, and other administrative entities. These entities should be developed organically to provide mentorship and support to the youth aspiring to be entrepreneurs in the agricultural sector.

The business chambers and other business ecosystems at the local levels are required to sustain youth entrepreneurship activities. Youth entrepreneurs will benefit from bringing the local youth who own micro and small-scale businesses in agriculture to provide mutual support for such businesses in the long run. Experimental approaches by the NGOs and other charity organizations will need a rethink on how the micro and small-scale businesses initiated through their help could be quickly connected to such local-level business ecosystems. Investments must be made to create such a local business ecosystem.

At the institutional level, there is a lack of evidence on what works and how – to learn from youth entrepreneurship approaches that have succeeded or that have failed. Even large national-level youth development programs do not have the needed data to reflect on their effectiveness and impact. Such program evaluation is rare and even the limited evaluation studies conducted do not provide adequate feedback needed for the modification of the programs.

Larger and medium-scale businesses can and should help in the development of a local business ecosystem. They can initiate and nurture youth entrepreneurship for the smooth functioning of their supply chains in various locations. YEs who are involved in the input, and output aggregation will benefit from such mentorship. These aggregators, while becoming business leaders, will have a specific role to play in increasing the competitiveness of the value chains they are involved in. Without such incentives-based business development, the sustainability of the local business ecosystem will remain fragile.

Individual Factors and Skill Development

As shown by the cases that were supported by the SFI, vocational training of rural youth on various business enterprise opportunities remains the basic intervention to help develop YE in rural areas. With this training and skill development received from SFI-India, successful entrepreneurship has been developed in three areas: input distribution, output marketing, and nursery seedling production. YEs are managing non-farm business opportunities based on the business training received. A broad lesson that emerges from the case studies reported is that when given adequate exposure and practical training, with some motivation, in the beginning, the business skills developed could be applied in several business areas. As opportunities arise, these young entrepreneurs can adapt to new situations. When one effort fails, they could switch to other opportunities. Further linking them up with other opportunities provided by the program interventions from the state and central governments is an additional way to sustain their business interest.

However, while initial skill development, business support, and organizational support are a prerequisite for bringing new entrepreneurs into the agribusinesses, they are not enough. Trained youth need to be connected to a local business environment and other associations of small businesses and mainstreamed as entrepreneurs.

Even skilled youth require a certain threshold level for entrepreneurial spirit and self-motivation. Regular employment and a regular stream of income are always attractive for the YEs with microbusiness. This is particularly so when their business income is not assured and when a high level of effort is needed to sustain an agribusiness season after season. These micro-businesses will remain successful at a local level but may not move further to become small-scale and medium-scale enterprises.

Entrepreneurs operating at the micro level of business operations, such as input and output aggregation, for example, need additional skills to deal with their local communities. Leadership and people skills are needed to complement the business skills they are taught by the YE development programs. Such social skills are also essential to expanding their businesses into areas other than their own familiar business spaces.

Local businesses such as nursery development and seedling supply to the local farmers are not entrepreneurial activities that could be expanded by the same entrepreneurs. While these types of microbusinesses give adequate livelihoods to the YE, they could be self-sustaining if they become trainers for more youth for further expansion of such YE business models.

YEs who are educated and have college degrees tend to sustain their businesses much more steadily than those with less education. Youth who are identified for skill development programs show a high level of enthusiasm and progress when they are financially supported to initiate micro businesses. The challenge, however, is to keep the interest over a long period of time, as they require two to three years of continued support until they are well established in their businesses. Such mentorship is broadly absent in public sector-funded programs.

Youth who develop technical and business skills through business incubator programs, for example, can pursue their business opportunities more successfully. This is partly due to their constant connection with the research and innovation systems that backstop the business incubators. Small-scale business operations like training women mushroom cultivators through women empowerment programs and programs that support specialized cultivation of vegetables for niche urban markets are good examples of the need for this type of backstopping. Such a business environment and ecosystem are essential for moving a micro business toward sustainability and expansion.

Finally, case studies presented in this report demonstrate that continued investment in the development of youth entrepreneurship is necessary but not sufficient to capture the emerging opportunities for rural youth to gain from the transformation of the food system that is currently underway in India. Continued investments in increasing market infrastructure, digital agriculture, skill development, and financial inclusion of rural youth will be needed. Development of the business ecosystems at the local levels where aspiring YEs could receive mentorship and guidance is an immediate need in the Indian context. The role of regular policy and strategy refinement based on the lessons and evidence from the YE development approaches cannot be overemphasized.

5. Concluding remarks

Indian agriculture is facing several challenges. The food system approach to agricultural development brings in a larger set of actors and players in the policy, institutional, technology, governance, and capacity spheres. The climate change affecting Indian agriculture also brings in challenges of adaptation and

mitigation to help farmers become more resilient and reduce the impact of agriculture on GHG emissions. The food system is not fully inclusive, and it needs to address the needs of vulnerable groups. Yet, food system transformation goals also give opportunities for Indian youth to play a productive role in agriculture and agribusiness. Business opportunities that will improve access to technology through innovation in seed systems, contract farming, and digital agriculture are emerging areas where youth entrepreneurs could benefit. Accordingly, there is a need to increase the role of institutions in education, and financial and intermediary institutions to train youth for the needed skills in various opportunities. Some of the case studies highlight these needs. The results of the case studies presented in this report should help policymakers and program managers identify and refine interventions related to youth entrepreneurship. Additional challenges identified by the studies require further investigations to generate evidence on the best practices.

Based on a conceptual framework to study the challenges of youth entrepreneurship in agriculture and agribusiness, this paper uses a set of case studies to identify the factors that drive successful youth entrepreneurship in Indian agriculture and allied activities. After a brief review of national youth policies and programs and institutional support that youth get for pursuing business opportunities, we presented a set of case studies of rural youth engaged in various agribusiness opportunities. These case studies identify issues, constraints, challenges, opportunities, and solutions for youth participation in agribusiness entrepreneurship. A set of recommendations were identified based on the drivers of youth entrepreneurship in India at policy, institutional, technical, and individual levels.

Even with this high emphasis on youth development, there have not been systemic studies that identify the issues and challenges faced by youth and their engagement in the social, economic, and political spheres of the Indian development process. For example, the participation of youth in leadership development programs, local governance of the development implementation, and sectoral programs such as agriculture, dairy development, agro-processing, and other rural development interventions. Further, the range of stakeholders who can influence youth development at a decentralized level is not fully identified and nurtured. Such stakeholders and their role are critical in developing youth participation in economic and business activities at various levels.

In the existing democratic setting, Indian youth are active in politics mostly during the elections, and they are often sidelined in the local decision-making process, be it at the village, panchayat, block, or at district levels. Yet, more educated youth are trying to claim their space in the local decision-making when there is an absence of local leadership to solve their problems. They are also emerging as role models for other rural youth. Such role models are also needed in the entrepreneurial sector and in the agribusiness sector.

It is increasingly recognized that youth development is not just the responsibility of the ministry of youth, although there exists a separate ministry for youth and development. Youth development needs to be mainstreamed in all sectoral ministries, and a multisectoral approach is needed to develop and effectively use youth and their services for the development of the communities. This is particularly so in agriculture and rural development interventions.

In the context of youth entrepreneurship in agriculture and agribusiness, the case studies presented provide a set of continuous challenges at the policy, institutional, technology, infrastructure, and individual levels.

The following broad conclusions emerge based on the youth entrepreneurs interviewed and studied in this report.

Youth entrepreneurs in Indian agriculture have many business opportunities they can initiate and operate. Yet, these opportunities are context and locality specific. YEs must be aware of these opportunities and fill the market's emerging needs. While there is a need for guiding these entrepreneurs in specific directions, the motivation and intensity of involvement vary depending on external factors such as credit availability, knowledge source for initiating business, an assured market for the products and services, and opportunities for further skill development.

As the agriculture sector in India continues to move towards commercialization and involves high-value commodities and their value chains, entrepreneurial opportunities are already captured by the existing market intermediaries. They have operated in traditional markets. Yet newly emerging operations such as input aggregation, output processing, seed production system, nursery development, advisory services, niche export markets, small-scale mushroom production, high-intensity vegetable production in glass houses, and online marketing of organic vegetables open opportunities for youth in agribusiness. These opportunities become instant successes, as they require years of experimentation and gaining of experience by the youth in specific areas of operation.

There are failures along the way, and people drop the agribusiness they started for want of regular income. Yet there is emerging youth entrepreneurship that is generating intense competition among them. This entry and exit of young entrepreneurs in the same business operation reflect the improvement in service provision due to increased efficiency of their operations by reducing the cost and providing the products and services to the clients and customers. For example, when Archana Stalin started her online organic selling operation, she was unaware of similar operations in her district. Within two years, more organic vegetable sellers who are not necessarily youth entered the market who are not necessarily youth. She now faces an organized corporate sector that has entered this niche market on a large scale. While it poses tough competition to the youth Entrepreneurs like Archana Stalin, it provides options to the consumers. This process induces continuous market innovation to offer better services to consumers.

As the youth enterprises analyzed in this study all relate to engaging with the smallholder agriculture sector in India, the case studies point to the current opportunities for improving the productivity, incomes, and sustainability of the smallholder sector through youth entrepreneurship promotion. For example, the rice nursery and planting operation studied (Yuga Kannan), and the rural advisory services provided by youth entrepreneurs (Rajesh) address the current challenges of small-scale farmers directly. As the public extension services slowly give their way to private extension systems in India, rural entrepreneurship among youth has a high potential for expansion. Thus, training and skill-building investment are needed to tap into this substantial rural youth population for mobilizing them for productive purposes not only to improve their livelihoods but also to improve the farming system through the provision of services and knowledge at the right time that is locally relevant.

Youth Entrepreneurs studied in this report have a typical pattern of business development that they have followed. Except for the YEs who were studied as part of the SFI project – who were chosen based on their initial interest to be trained in and supported in specific areas of agribusiness – all other YEs have developed their business based on the particular key factors that drive their entrepreneurship. First, the life goal of becoming independent business owners to support themselves is a crucial motivator. Second, the need to serve their community where there is not only a demand for their skills and services but also

a common purpose of serving the society that brings satisfaction to the YEs. Third, the YEs who start a business on their own have been gaining skills and experience in these areas of their business for several years, through which they have identified the factors that contribute to the success of the business operation they are getting into. Fourth, they could mobilize the resources through social networks and did not depend on formal credit. Fifth, due to their previous experience working for other business operations, they can modify and adjust to emerging market conditions and new business opportunities. Finally, in all cases, they have been supported by the family or at least not discouraged by the families. In most cases, other family members helped them when they faced challenges.

Youth agribusinesses are successful when they have a support service provided by an organized industry or a system. For example, agribusiness incubation centers throughout India provide the knowledge needed for starting a business. Youth who have gone through this formal system tend to progress well, even under challenging conditions. These formal support systems have mentors who can guide the YEs through various emerging business challenges. Without an organized business community for youth, these incubation centers play a crucial role for YEs entering specific business opportunities. Similarly, established agribusiness could provide entrepreneurial support to the youth as part of their corporate social responsibility.

YEs tend to learn from the mistakes of their peers, not just in their line of business but also through general observation of the struggles of other YEs in their operations. This peer learning is essential for encouraging more youth to participate in the YE activities. Yet, no formal institutional mechanism that brings the youth together for youth-to-youth learning. Youth Mela, organized by youth, is an opportunity for such a learning process. Yet, more youth entrepreneurs should be encouraged to provide specific services to other YEs based on their own experience. This could be organized for a service fee and an avenue for public-private partnership. The example of Ramesh (YE – 8), who worked with an educational institution that received funding from the government for promoting youth in the glasshouse production of vegetables, is a clear example of such a private-public partnership.

YEs enter the agribusiness when they are fully supported for a few years (as in the Syngenta cases) as there is limited risk in engaging in such business operations. Skill training reduces the uncertainty about what type of knowledge and skills they need and should have to run a small business. Initial financial support helps them establish their business. Initial hand holding allows them to navigate and negotiate with other businesses and clients. This guided approach to YE development takes away a large portion of the risk in agribusiness.

On the other hand, YEs who start their own must rely on their previous experiences and failures in similar businesses to guide their current operations. They also take calculated risks as they know better about the business they are entering. Both the guided approach and approach based on previous experience are needed to speed up youth engagement in the agribusiness sector.

As most youth start and run small-scale operations, business opportunities for rural youth in the agriculture sector are inherently context-specific and driven by local demand for the products and services. The case studies analyzed in this report indicate that the background, business opportunities, knowledge needed, partnership opportunities, experience required, and specific challenges differ depending on the nature of the business. Thus, there is no single pattern of business development that could be prescribed for YE development. Yet, the design of business development, the support needed

from the institutional mechanisms, business ecosystems, and the policy process could play a broad enabling role in promoting agribusiness opportunities among YEs.

The educational level of the entrepreneur matters. Educated youth cope with business uncertainties better as they quickly gather the knowledge needed for redefining their business operations. Education also helps in social skills and negotiation skills. Education puts them in a higher level of social status, which increases the trust of the clients and customers. Education becomes key in service-provision entrepreneurship, as the farmers tend to trust advisors with formal qualifications (Rajesh – YE-5). Education also helps in developing financial management skills faster among entrepreneurs. In addition, youth exposed to an urban setting and who have been part of more extensive business operations tend to do better when they start their own business. Thus, a formal association of potential YEs as interns and apprentices in established business operations will help build the confidence and social skills needed for agribusiness entrepreneurship.

YEs who are digitally connected and can latch onto emerging technologies, such as mobile apps, tend to reap the benefits quickly. Connecting to the input suppliers and the final consumers becomes manageable and predictable with digital technology applications. In the case of organic vegetable supply (Archana Stalin – YE-9) case study, the business operations are driven by the online demand collated through the business website, which precisely allows the business operator to procure specific quantities of vegetables from the farmers, and this, in turn, helps the farmers only to harvest the needed amounts of vegetable from the farm and thereby staggering their harvest over a period. Thus, digitally driven YEs tend to be more successful and highly efficient in their business operations, mainly when it involves input supply and aggregation of products supplied to markets.

Service-oriented entrepreneurship holds enormous promise in Indian agriculture. As the labor shortages in agriculture increase, the need for service provision as a package also emerges as a business opportunity for the youth. As smallholder farmers tend to also work on nonfarm livelihoods, their farms need to be cared for, and the demand for services such as planting and harvesting rice is increasing throughout the rice-growing regions of India. YEs operating small-scale machinery (as in Yuga Kannan – YE – 7) will be the way of the future in the rice farming systems. Similar emerging patterns must be studied as part of the Indian food system transformation process. The YE agribusiness strategies must be developed proactively to guide the YE development process in Indian agriculture.

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